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# STOCK MARKET PERFORMANCE AND INVESTOR SENTIMENT: A PERSPECTIVE OF ECONOMIC CONDITION IN SUB-SAHARAN AFRICA

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***Abstract***

*Traditionally, literature on stock markets has been predominantly rooted in the efficient market hypothesis (EMH) and the assumption of investor rationality. However, the stock markets across the globe including those in the sub-Sahara African region have witnessed numerous instances of irrational investor behaviour driven by emotional state and beliefs held by investors (behavioural factors beyond market fundamentals) that cannot be adequately explained by the EMH. Therefore, this study examined the effect of investor sentiment and macroeconomic factors on stock market performance in sub-Saharan Africa. This study employed ex post facto research design. Population of the study consists of 26 stock markets operating within the sub-Sahara African region, while 7 most capitalized stock markets in sub-Sahara African countries were purposively sampled. Secondary data were sourced from World Development Indicators (WDI) and African Financials covering the period of 1996 to 2023. The study employed System Dynamic Panel Data Estimation method. The results showed that investor sentiment with (β = 10.389; p-value = 0.000) has significant positive effect on stock market performance; macroeconomic index with (β = -1.666; p-value = 0.411) has negative insignificant effect on stock market performance; and moderating variable with (β = -3.161; p-value = 0.007) has negative significant effect on stock market performance. The study concluded that investor sentiment and macroeconomic factors affect stock market performance in sub-Saharan Africa. The study therefore recommended that investors should remain objective and base their investment decisions not only on emotions, but also on thorough evaluation of market fundamentals.*

***Keywords:*** *Investor Sentiment, Macroeconomic Factors, Stock Market Performance, Sub-Saharan Africa*
***JEL Classification****: G41, G32, G11, G12*

## INTRODUCTION

The stock market is a critical component of a nation's financial system, facilitating intermediation of long-term funds between surplus and deficit units, capital formation and economic growth. The performance of stock markets, typically measured by market capitalization, reflects the capacity of the financial system to support investments, economic growth and development. In sub-Saharan Africa (SSA), the stock market has experienced considerable growth over the past few decades, driven by structural reforms, economic liberalization, and improved regulatory frameworks (Thirumala, et al., 2023). Traditionally, the study of stock markets has been predominantly rooted in the efficient market hypothesis (EMH) with the assumption of rational investor behaviour, and prices of assets fully reflecting all available information (Hu, Sui & Ma, 2021).

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However, the financial markets across the globe including those in the sub-Sahara African region have witnessed numerous instances of irrational investor behaviour driven by sentiment of investors that cannot be adequately explained by the EMH. Behavioural factors have been identified as influential forces shaping stock markets performance as a result of the unpredictable actions of irrational traders which contribute to an increased market inefficiency, leading to prolonged deviations of prices from their intrinsic values (Li & Liu, 2020).

From the view of behavioural finance, stock market performances are affected by factors beyond market fundamentals to include the actions of irrational investors who are subjective in their investment decision-making, representing the emotional state and beliefs held by investors, including but not limited to optimism, pessimism, and fear (Wang, 2023; Guo, 2023). In sub-Saharan Africa, where stock markets are typically shallow, volatile, and dominated by a few large firms, the role of investor sentiment in shaping market performance is particularly pronounced.

One of the major challenges in sub-Saharan Africa is the limited participation of retail investors, who are often swayed by emotions and herd behavior rather than rational analysis. Inadequate market information exacerbates this issue, making stock markets vulnerable to speculative bubbles and crashes driven by both positive and negative sentiments rather than market fundamentals. Positive sentiment can stimulate market participation, enhance liquidity, and expand market performance, while negative sentiment may trigger sell-offs, discourage investment, and shrink the market (John, et al., 2022; Li & Liu, 2020; Chen, Zhao, Li & Lu, 2020). Another concern is how variations in macroeconomic variables induce investor sentiment and irrational behaviour. Factors such as high inflation, high interest rates, exchange rates fluctuations, and others significantly undermines the ability of markets to attract and retain investors, limiting their growth potential in sub-Saharan Africa (Abdullahi, et al., 2025; Latif, et al., 2021; Emenyi & Effiong, 2020).

Thus, there is a growing recognition of the need to uncover the behavioural factors driving stock market performance, particularly in the sub-Saharan region. This recognition has prompted an exploration of investor sentiment as a potential explanatory variable for stock market performance fluctuations, particularly in emerging markets including sub-Saharan Africa (John, *et al.,* 2022; Emenyi & Effiong, 2020).

Past studies relied on country level survey-based data which raises concerns about its reliability, as respondents may provide insufficient, dishonest, or misleading information, thus limiting the predictive power of the indicator (Chen, Zhao, Li & Lu, 2020; Sakariyahu, *et al.,* 2020). As such, the outcomes of these studies must be interpreted with caution because the indices published by different countries are not the same and market rules differ. Hence, these studies may not provide true reflection of investor sentiment's effect on stock markets.

As such, unfilled gap exists in knowledge when it comes to studying developing economies' stock markets with potential for rapid growth, particularly within sub-Saharan Africa. While previous studies have primarily focused on the direct investor sentiment effect on stock returns using survey-based data, the effect of the market-based indicators on stock market performance has received less attention or entirely been overlooked. This study seeks to fill this void based on the following objectives by investigating the effect of investor sentiment on stock market performance; examine the effect of macroeconomic indicators (money supply and exchange rate) on stock market performance; and evaluate the interactive effect between macroeconomic index and investor sentiment on stock market performance in sub-Saharan Africa.

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This study is restricted to sub-Saharan Africa countries with viable stock markets. The data used were sourced from the World Development Indicators (WDI). The sub-Sahara African region was chosen for this study because the SSA stock markets are relatively smaller in terms of market capitalization, market performance, and trading volume when compared to those of the developed economies. It is believed that this study will have a significant contribution to the literature as well as benefits investors, portfolio managers and policymakers in terms of informed investment decision and relevant policy direction within the sub-Sahara African region.

Past studies on investor sentiment and stock markets conducted across the sub-Saharan Africa region were conducted on a country-specific basis with most studies coming from Nigeria alone. For instance, studies by John et al. (2022) was conducted in Nigeria. Similarly, the study by Naidoo, Moores-Pitt and Muzindutsi (2025) focused exclusively on South Africa. As such, studies focusing on the sub-Sahara African region as a whole is hard to come by. The absence of such studies limits the understanding of the potential cross-country effects that might exist within sub-Saharan Africa stock markets. Additionally, the uniqueness of different sub-Saharan Africa countries may lead to varied effects of investor sentiment on stock market performance, which are not adequately captured in existing literature.

Therefore, this study addressed this critical research gap by focusing on sub-Saharan Africa as a whole so as to provide a deeper understanding of how investor sentiment and macroeconomic factors affect stock market performance; and how macroeconomic factors moderate the effect of investor sentiment on stock market performance at a regional level across multiple countries. This approach helps identify similarities and differences in sub-Saharan Africa stock markets, offering useful information for policymakers, investors and researchers. Secondly, most past studies employed survey-based data in examining the effect of investor sentiment of stock market performance. Nonetheless, this study employed market-based measurement since data from secondary sources are more reliable as compare to data from primary sources. Hence, the outcome of this study would be more reliable and robust as compared to previous studies.

## LITERATURE REVIEW

### 2.1 Investor Sentiment

Investor sentiment involves the overall feeling, mood, belief, or anticipation regarding market performance metrics like stock returns. It represents an investor's inclination toward speculation or a prevailing sense of optimism or pessimism concerning stock returns, often influenced by the actions of irrational traders in the financial market (John et al., 2022; Zhang, et al., 2020). Investor sentiment is driven by human emotions such as greed, fairness, or panic on investment decisions. These behavioural biases, coupled with a limited responsiveness to market information can heighten market instability and reduce market efficiency, leading to prolonged deviations of prices from intrinsic value (Latif, et al., 2021). Investor sentiment encompasses the attitudes and outlooks of investors in the stock market (Phan, Bertrand, Phan, & Vo, 2021). Investor sentiment can deviate from underlying fundamentals, leading to irrational market outcomes, as investors may display excessive optimism (bullishness) or pessimism (bearishness).

To quantify this irrational aspect, investor sentiment index is utilized, capturing investors' optimistic or pessimistic beliefs about future stock market activity. Previous studies have linked survey-based measure like the consumer confidence index and other market-based indicators

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such as volume of trade, turnover ratio, closed-end funds and new equity issues, as measures of investor sentiment (Zhang, et al., 2020). Following Sardar and Khan (2024), investor sentiment index was used to proxy investor sentiment in this study to adequately capture the behavioural aspects of trading activities affecting stock market performance in Sub-Saharan Africa. Due to data availability, principal component analysis was used to create investor sentiment index from turnover ratio, value of stocks traded as percentage of GDP, and annual percentage change in S&P Global Equity Indices.

### 2.2 Macroeconomic Factors

Macroeconomic variables are indicators or primary signposts that project current economic trends. Macroeconomic factors represent the government's monetary and fiscal policies used to determine government budgets, money supply, interest rates, labour market policies, national ownership, taxation levels, and other areas of government intervention to achieve specific economic targets. Macroeconomic variables include exchange rates, gross domestic product (GDP), money supply, among others. In this study, macroeconomic index was constructed from money supply and exchange rate to capture the one-time effect of economic environment on stock market performance within sub-Saharan Africa.

Money supply is the total amount of money in circulation, including cash, coins, and banknotes balances outside the central bank over time. Adediyan (2020) defined money supply as the total amount of money in the economy at a given point in time, including currency, printed notes, money in deposit accounts, and other liquid assets. Money supply is an important monetary policy tool for enhancing a country's stock market growth and economic performance. Variations in stock market performance via stock prices are influenced by changes in the money supply (John & Ezeabasili, 2020; Adediyan, 2020). In this study, $M_2$ is used to proxy money supply due to its effects on the liquidity available in the economy. An increased money supply typically leads to higher liquidity, making it easier for investors to buy and sell stocks, thereby enhancing stock market performance.

The exchange rate refers to the price of one country's currency in terms of another currency. Exchange rate determines the relative prices of domestic and imported commodities and the extent of the external sector's participation in international trade (Koroma, Jalloh, & Squire, 2023). Similarly, it is defined as the price of a currency in terms of another country's currency. The exchange rate measures how much foreign currency per unit can be exchanged for local or domestic currency (Hofmann, Mehrotra, & Sandri, 2022). Koroma et al. (2023) assert that foreign exchange is essential for international transactions, comprising convertible currencies, interest-bearing bonds, gold, and Special Drawing Rights (SDR) of the International Monetary Fund (IMF), which are generally accepted for settling international trade and external obligations. In this study, exchange rate was measured by values of local currencies of sampled countries in relation to the U.S. Dollar, as the U.S. Dollar is widely acceptable for global transactions.

### 2.3 Stock Market Performance

Stock market performance measured by market capitalization is the total monetary value of all companies' outstanding shares in the stock market. It is calculated by multiplying the current share price by the number of shares outstanding. The ratio of market capitalization to gross domestic product (GDP) is commonly used to measure stock market performance because many stock market indexes are weighted by market capitalization. This figure helps market analysts

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reflect the overall performance of the stock market (John, et al., 2024; Omar, et al., 2022; Alshubiri, 2021).

The term "outstanding shares" refers to a company's existing stock that is held by shareholders, including share blocks held by institutional investors and restricted shares owned by the company's officials and insiders (Siddhpuria & Manani, 2023; Sharma & Mittal, 2021). The total stock market performance of a financial market is equal to the sum of the capitalizations of all companies listed on that market. Stock market performance is an essential indicator of the value of shares and, more broadly, the worth of companies (Siddhpuria & Manani, 2023). Therefore, this study employed the ratio of market capitalization to GDP as a proxy for stock market performance.

### 2.4 Theoretical Framework

Prospect theory was first introduced in 1979 by Amos Tversky and Daniel Kahneman, who later developed the idea in 1992. The theory states that investors' perceptions of gain and loss are skewed. Prospect theory describes how people make investment decisions under uncertainty, characterized by an asymmetric attitude towards risk. In simple terms, prospect theory explains that investors worry more about losing money than they get excited about gaining it. Instead of just looking at profit or loss in a general sense, investors compare changes in their wealth to a personal "reference point," which is shaped by their past experiences, beliefs, and available information. This reference point is different for each person and can change over time, which in turn affects how they feel about risk and the decisions they make.

For instance, Imagine an investor, Mr. A, who bought shares at ₦1,000 each. A few weeks later, the market price drops to ₦800. Instead of selling to cut losses, he holds on, hoping the price will go back up, he sees ₦1,000 as his reference point, not the current market reality. Now, if the price rises to ₦1,050, he might still hesitate to sell, thinking, "It could go higher." But if it drops again to ₦950, even though it's a gain from ₦800, he feels bad because it's a loss relative to ₦1,050, his new mental anchor. So, his decisions are guided not by logic but by his emotional reactions to gains and losses relative to these shifting reference points.

Unlike traditional finance theories that assume investors always make logical decisions, prospect theory accepts that people often act irrationally. It also shows that investors do not see gains and losses the same way, such that losing feels worse than gaining feels good. This theory helps explain how real people behave in financial decisions, especially under pressure. Even though investors may know what risks to take for certain returns, dealing with emotions like fear makes it hard for them to act on that knowledge. So, the real challenge is managing those emotions to make better investment choices.

### 2.5 Empirical Review

Phuong (2021) studied how investor sentiment affects stock returns in Vietnam. The study used a measure called the Relative Strength Index (RSI) to track the mood of investors based on 57 companies listed on the Ho Chi Minh Stock Exchange from January 2015 to July 2020. It also looked at other factors like how investors trade, how well companies perform, and their cash flow per share. Using two statistical methods (Fama-MacBeth and General Least Squares), the study found that when investor mood is high, stock returns go up. But when investor mood is low, stock returns go down. Overall, the study showed that investor sentiment is the strongest factor affecting stock returns, even more than other financial indicators.

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Phan, Bertrand, Phan and Vo (2021) studied how investor behaviour affects stock returns using data from the Vietnamese stock exchange. They built an investor sentiment index using principal components analysis (PCA). Their findings agree with previous research, showing that when investor sentiment is high, stock market returns tend to be low at the same time, indicating a negative immediate relationship between how investors feel and how the market performs.

John, Abdullahi and Abdulkadri (2022) delved into the impact of investor sentiment on stock returns in Nigeria from January 2014 to December 2020, using pooled ordinary least square (POLS) regression. The findings revealed that both direct and indirect investor sentiment have significant positive effects on stock returns, suggesting that stock returns are not solely determined by fundamentals but are also influenced by behavioural factors.

Babarinde, Adewusi, Abdulmajeed and Haziel (2022) looked at how COVID-19 influenced investor mood in Nigeria's stock market from March to October 2020 using a method called VECM. They found that overall, COVID-19 had a small positive effect on investor sentiment. Over time, the number of people recovering or dying from the virus made investors feel more confident, while rising new cases made them more worried. In the short term, however, new cases slightly increased investor confidence, while recoveries and deaths had a small negative effect, though these short-term effects were not very strong.

Udo, Odey and Jacob (2022) studied how certain macroeconomic factors affect stock market performance in Nigeria, using the ARDL method. They found that there is a long-term relationship between these factors and the stock market. Specifically, GDP, money supply, exchange rate, and savings interest rate all have a positive impact on the stock market. However, inflation was found to have a negative impact on stock market performance.

Between March 2020 and May 2021, Cevik, Altinkeski, Cevik and Dibooglu (2022) studied how investor sentiment, both positive and negative, affects stock market returns and volatility in 20 countries. They used several methods, including panel regression and panel vector autoregression (PVAR). The results showed a clear link: when investors felt positive, stock returns increased, but when they felt negative, returns dropped, especially for stocks performing poorly. In all cases, negative sentiment made the market more unstable (more volatile), while positive sentiment helped reduce volatility.

Parkash, Ahmad, Qasim and Nizam (2022) used the VAR method to study how individual investor attitudes affect stock returns and volatility in Asian stock markets from January 2008 to December 2017. They found that when investors have a positive and rational outlook, stock returns tend to increase. The findings support key ideas from behavioral finance, showing that investors in Asia make both rational and irrational decisions. However, because investor behavior varies from one country to another, the results are not suitable for country-specific analysis.

Guo (2023) studied how investor sentiment affects price swings in China's stock market. First, the study used Granger causality to check the link between investor sentiment, stock returns, and volatility, and applied the GARCH model to measure daily changes in the CSI 300 Index. Then, a VAR model was used to explore this relationship further. The findings showed that investor sentiment does influence stock price volatility, and the two affect each other, though the effect becomes weaker over time.

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Xu, Xue and Zhang (2024) explored the nexus between investor sentiment and stock illiquidity of publicly listed companies in China from 2010 to 2019, using Amihud measure and fixed-effects models to assess stock liquidity. The study found that firms with high debt, fast-growing revenue, large size, more institutional investors, high price swings, and low book-to-market value tend to have better stock liquidity. However, when investor sentiment gets too high, its positive effect on liquidity starts to drop. This creates a curved pattern, sentiment helps at first but becomes less useful when it gets too strong, forming an inverse U-shaped relationship.

Between April 2013 and March 2023, Sardar and Khan (2024) studied how investor sentiment affects stock returns in India, focusing on the Nifty50 index. They built a Sentiment Index using five market-related variables through Principal Component Analysis (PCA). Using tools like the VAR model, Granger causality, impulse response, and variance breakdown, they found that changes in investor mood can help predict changes in stock returns. While past returns still play a major role in shaping future returns, sudden changes in sentiment have a strong short-term effect, and the influence of sentiment grows over time. This suggests a mildly positive link between how investors feel and how the market performs.

Sobhy (2024) used three types of GARCH models to study how investor mood affects stock returns and market volatility. The study found that in most industries, investor sentiment usually leads to lower returns and less volatility. But during the COVID-19 pandemic, this relationship got stronger, sentiment had a bigger effect on both. The study also showed that sentiment and volatility influence each other in all U.S. sectors. In emerging markets, sentiment mostly had a negative effect on returns and volatility. However, during market downturns (bear markets), investor sentiment had a positive effect on both.

Ravandi, Moeinaddin, Taftiyan and Bashmani (2024) investigates the impact of optimistic investor sentiment and stock liquidity on the stock returns of the Iranian stock exchange from April 2013 to June 2022, using Dynamic Ordinary Least Squares (DOLS) and Robust Least Squares (RLS). The results indicate that optimistic investor sentiment has a positive and significant effect on stock returns, while illiquidity has a negative and significant impact on stock returns. These findings underscore the importance of managing market-related information and news to channel investor sentiment positively.

Naidoo, Moores-Pitt, and Muzindutsi (2025) used the QARDL model to study how investor sentiment affects stock market liquidity in South Africa from January 2000 to December 2023. They found that investor sentiment influences liquidity in the short term when the market is shifting from negative to positive. In the long run, sentiment also plays a big role in stable, rising (bullish), and falling (bearish) markets. The results showed that the effect of sentiment on liquidity is not the same across all conditions, it changes depending on market situations. In bear markets, investors tend to be more negative, which leads to lower liquidity.

## METHODOLOGY

### 3.1 Research Design

The research design employed in this study was based on ex post facto research design which is suitable for analyzing historical data of events that have already occurred.

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### 3.2 Model Specification

Based on prospect theory, the system dynamic panel data model was used to analyze the effect of investor sentiment on stock market performance across sub-Saharan Africa countries, assuming homogeneous behaviour across the region. System dynamic panel data model captures how average changes in investor sentiment could lead to changes in market performance across sub-Sahara African countries; and accounts for cross-sectional and temporal variations in stock market performance and sentiment.

The system dynamic panel data model is specified in functional form as:

Stock market performance = *f*(Investor sentiment, macroeconomic factors) (1)

The model is further expressed in econometric form as:

$$SMP_{it} = \beta_0 + \beta_1 INS_{it} + \beta_2 MOS_{it} + \beta_3 EXR_{it} + \beta_4 INS * MI_{it} + \mu_{it} \quad (2)$$

Where; SMP = stock market performance measured by market capitalization as a percentage of GDP; INS = investor sentiment measured by composite index of trading volume, turnover ratio, global equity indices; MOS = money supply measured by natural logarithm of $M_2$; EXR = exchange rate measured by values of local currencies of sampled countries in relation to the U.S. Dollar; INS*MI = interaction variable (investor sentiment multiplied by macroeconomic index).

Purposive sampling technique was used to select seven (7) most liquid stock markets in Sub-Sahara African countries in terms of trading volume, market capitalization and turnover ratio which include Ghana Stock Exchange (GSE), Johannesburg Stock Exchange (JSE), Nairobi Stock Exchange, Stock Exchange of Mauritius (SEM), Namibian Stock Exchange (NSX), Nigerian Exchange Group (NGX), and Zambia Stock Exchange (ZSE).

Annual data covering the period 2014 and 2023 were used for this study. The data were sourced from World Development Indicators (WDI). The mathematical representation of the a priori expectations is $\beta_1, \beta_2, \beta_3, \beta_4 > 0$.

## DISCUSSION OF RESULTS

### 4.1 Preliminary Statistics

The descriptive statistics in this study explain the least, the average and the highest values of the series in the distribution; as well as the level of variations in the series which is determined using the standard deviation.

Variables such turnover ratio, exchange rates exhibit high standard deviations compared to their means, indicating wide-ranging values across stock markets within sub-Saharan Africa. The ranges for variables like market capitalization, global equity indices, exchange rates highlight diverse conditions within the sub-Sahara African region, which could impact statistical analysis and interpretations. The wide range and high standard deviation suggest a significant disparity in market performances, which could indicate uneven development across the sub-Sahara African region.

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**Table 1: Descriptive Statistics**

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| Stock Market Performance | 196 | 47.8769 | 72.5613 | 0.00920 | 322.711 |
| Investor Sentiment Variables | | | | | |
| Trading Volume | 196 | 8.9618 | 21.654 | 0.01291 | 124.368 |
| Turnover Ratio | 196 | 23.1717 | 145.4113 | 0.0885 | 721.544 |
| Global Equity Indices | 196 | 5.39425 | 34.3281 | -50.8991 | 186.2121 |
| Macroeconomic Factors | | | | | |
| Money Supply | 196 | 17.71089 | 13.13919 | -5.70227 | 87.7613 |
| Exchange Rates | 196 | 92.7981 | 171.2937 | 0.16354 | 1355.116 |
| Composite Index | | | | | |
| Investor Sentiment | 196 | -2.68e-10 | 0.994285 | -1.63986 | 5.26728 |
| Macroeconomic Index | 196 | 2.10e-09 | 0.584207 | -1.78193 | 5.33141 |

Source: Authors

However, the composite indices including investor sentiment and macroeconomic index appeared normalized, as their means are near zero and standard deviations close to 1. Although, sentiment index is normalized, the wide range indicates periods of extreme optimism or pessimism, accompanied by periods of macroeconomic challenges, even though the general macroeconomic environment appeared to be in stable conditions.

### 4.2 Panel Unit Root Tests

**Table 2: Panel Unit-Root Test for Study**

| Variables | Im-Pesaran-Shin (IPS) Test | | Levin-Lin-Chu (LLC) Test | |
|---|---|---|---|---|
| | Level | 1st Difference | Level | 1st Difference |
| Stock Market Performance | -0.68867 | -8.30646 | -0.88012 | -5.18338 |
| *(p-value)* | (0.2455) | *(0.0000)* | (0.1894) | *(0.0000)* |
| Trading Volume | -3.49105 | -11.4862 | -2.51128 | -10.0030 |
| *(p-value)* | (0.0002) | *(0.0000)* | (0.0060) | *(0.0000)* |
| Turnover Ratio | -3.97440 | -12.3146 | -4.09391 | -10.9749 |
| *(p-value)* | *(0.0000)* | *(0.0000)* | *(0.0000)* | *(0.0000)* |
| Global Equity Indices | -6.32324 | -13.8734 | -6.44245 | -13.6112 |
| *(p-value)* | *(0.0000)* | *(0.0000)* | *(0.0000)* | *(0.0000)* |
| Money Supply | -4.41681 | -10.1358 | -5.30356 | -10.1179 |
| *(p-value)* | *(0.0000)* | *(0.0000)* | *(0.0000)* | *(0.0000)* |
| Exchange Rates | 5.44513 | -2.93013 | 4.54320 | -2.14799 |
| *(p-value)* | (0.4351) | (0.0017) | (4797) | (0.0159) |
| Composite Index | | | | |
| Investor Sentiment | -6.32323 | -13.8734 | -6.44243 | -13.6112 |
| *(p-value)* | *(0.0000)* | *(0.0000)* | *(0.0000)* | *(0.0000)* |
| Macroeconomic Index | -5.09464 | -12.2344 | -5.56707 | -8.30459 |
| *(p-value)* | *(0.0000)* | *(0.0000)* | *(0.0000)* | *(0.0000)* |

Source: Authors

A common unit root process is one in which the persistence parameters are the same throughout the cross-section. It includes the Levin, Lin, and Chu (LLC) t-statistic (Levin et al., 2002). This type of process is referred to as an individual unit root process when the persistence settings differ across the cross-section. This idea serves as the foundation for the Im-Pesaran-Shin (IPS)

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and Fisher-PP tests (Choi, 2001; Maddala and Wu, 1999). To get reliable results, the LLC t-statistic was used in addition to the Im-Pesaran-Shin (IPS) and Fisher-PP tests. The tests compare the alternative hypothesis, that there is no unit root, with the null hypothesis, that there is a unit root.

Stock market performance and exchange rates failed to reject the null hypothesis of a unit root, implying the variables are non-stationary in level forms. However, at first difference, both variables rejected the null hypothesis, indicating the variable becomes stationary after differencing. Moreover, other variables such as trading volume, turnover ratio, global equity indices and money supply are stationary at both levels and first difference. This suggests that their statistical properties do not change over time in their original forms.

### 4.3 Panel Cointegration Test

Cointegration test check for the existence of a long-run relationship among non-stationary variables in panel data. Panel cointegration test assesses whether a combination of non-stationary variables is stationary. If they are, it indicates the variables move together in the long run, despite short-term deviations.

**Table 3: Panel Cointegration Test Result**

| | | | | |
|---|---|---|---|---|
| Series: SMP, TVO, TURN, GEQ, MSU, EXC | | | | |
| Trend assumption: Linear deterministic trend | | | | |
| Lags interval (in first differences): 1 1 | | | | |
| **Unrestricted Cointegration Rank Test (Trace and Maximum Eigenvalue)** | | | | |
| Hypothesized No. of CE(s) | Fisher Stat.* (from trace test) | Prob. | Fisher Stat.* (from max-eigen test) | Prob. |
| None * | 134.3 | 0.0000 | 92.24 | 0.0000 |
| At most 1 * | 58.02 | 0.0000 | 44.14 | 0.0000 |
| At most 2 * | 24.69 | 0.0060 | 15.71 | 0.1082 |
| **Composite Index** | | | | |
| Series: SMP, INVS, MEI, | | | | |
| None * | 92.85 | 0.0000 | 51.51 | 0.0000 |
| At most 1 * | 59.15 | 0.0000 | 51.07 | 0.0000 |
| At most 2 * | 32.69 | 0.0032 | 32.69 | 0.0032 |
| **Individual cross section results** | | | | |
| Cross Section | Trace Test Statistics | Prob.** | Max-Eign Test Statistics | Prob.** |
| Hypothesis of no cointegration | | | | |
| 1 | 140.8541 | 0.0000 | 66.3857 | 0.0000 |
| 2 | 131.8305 | 0.0000 | 47.8328 | 0.0055 |
| 3 | 171.6856 | 0.0000 | 74.3540 | 0.0000 |
| 4 | 141.4347 | 0.0000 | 54.4042 | 0.0007 |
| 5 | 128.0161 | 0.0001 | 58.6714 | 0.0002 |
| **Composite Index** | | | | |
| 1 | 57.2256 | 0.0000 | 33.4155 | 0.0006 |
| 2 | 45.7173 | 0.0004 | 26.0491 | 0.0094 |
| 3 | 58.2854 | 0.0000 | 29.7380 | 0.0024 |

Source: Authors

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Table 3 presented the Fisher Combined Johansen Test outcomes. Variables in Test 1: SMP (Market Performance), TVO (Trading Volume), TURN (Turnover), GEQ (Global Equity Indices), MSU (Money Supply), EXC (Exchange Rate) showed that there are at least 2 cointegration relationships among the Variables in Test 1, indicating they move together in the long run, despite short-term fluctuations. After the creation of composite index, Variables in Test 2: SMP, ISI (Investor Sentiment Index), MI (Macroeconomic Index), showed that all variables in this group are cointegrated, with 3 cointegration relationships identified.

For each cross-section, the Trace Test and Max-Eigenvalue Test showed significant results (with $p < 0.05$) for all hypotheses of no cointegration across all cross-sections, indicating that each individual cross-section also exhibits cointegration relationships. Therefore, variables in both tests show evidence of long-term relationships. This implies that these variables are interdependent in the long run, even though short-term fluctuations might occur, but they tend to revert to an equilibrium over time.

### 4.4 Test of Hypotheses

**Table 4: System Dynamic Panel-Data Estimation**

| Variables | Coefficient | t-Stat | Prob. |
|---|---|---|---|
| SMP (L1) | 0.3308 | 9.4849 | 0.0000 |
| TVO | 1.8452 | 19.144 | 0.0000 |
| TURN | -0.00754 | -1.2121 | 0.2282 |
| GEQ | 0.1861 | 7.2732 | 0.0000 |
| MSU | -0.12114 | -1.5184 | 0.1324 |
| EXC | 0.05812 | 8.7105 | 0.0000 |
| Constant | 11.4170 | 5.8671 | 0.0000 |
| Composite Index | | | |
| SMP (L1) | 0.905216 | 29.91 | 0.0000 |
| ISI | 10.3896 | 6.97 | 0.0000 |
| MI | -1.666206 | -0.8228 | 0.4114 |
| MI*ISI | -3.16129 | -2.69 | 0.0073 |
| Constant | 2.7339 | 4.25 | 0.0000 |
| | | | |
| Number of instruments | 196 | | |
| Arellano-Bond test for AR(1) | 0.0000 | | |
| Arellano-Bond test for AR(2) | 0.4114 | | |
| **Breusch-Pagan / Cook-Weisberg test for heteroskedasticity** | | | |
| Wald chi2(4) | 18.5084 | | |
| Prob > chi2 | 0.3603 | | |

Source: Author's Computation (2025)

### Discussion of Results

Table 4 presented the results of the System Dynamic Panel-Data Estimation. The first part of the results addressed the outcomes of the individual components of investor sentiment index and macroeconomic index.

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**Investor Sentiment and Stock Market Performance**

The result showed that trade volume has positive significant effect on stock market performance, implying that higher trade volumes are associated with larger stock market performance. Increased trading activity reflects investor confidence, and can attract more participation and investment in the market. Secondly, stock turnover has negative insignificant effect on stock market performance, suggesting that stock turnover has negligible effect on stock market performance. The slight negative direction could imply inefficiencies or volatility in trading, but the insignificance suggests this effect is weak or inconsistent. As such, Stock turnover alone may not be a reliable predictor of stock market performance. Thirdly, global equity indices have positive significant effect on stock market performance, suggesting that positive global equity performance may inspire confidence in domestic investors and attract foreign investors, expanding the stock market performance. Thus, stock markets in sub-Saharan Africa are interconnected with global markets, and may benefit from favourable international conditions

The second part of the results showed that investor sentiment positively and significantly affects stock market performance in sub-Saharan Africa. this suggests that the overall mood, confidence, or perception of investors about the stock market has a direct and measurable impact on the performance of the stock market. Such that as investor sentiment improves (e.g., investors become more optimistic about future market performance), the stock market performance tends to grow. This growth can manifest as increased market capitalization, higher trading activity, and/or more participation from domestic and foreign investors.

Optimistic investors are more likely to invest in the market, driving up demand for stocks and increasing their prices, which directly impacts market capitalization. Thus, positive sentiment can encourage higher trading volumes and liquidity, leading to market expansion. This finding is consistent with the findings of Naidoo et al. (2025), Xu et al. (2024), Sardar and Khan (2024), Ravandi et al. (2024), Cevik et al. (2022), John et al. (2022), Parkash et al. (2022) which found positive effect of investor sentiment on stock market. In alignment with the prospect theory, in periods of positive investor sentiment or optimism, investors are likely to exhibit risk aversion, driving increased investments and expanding the stock market performance. However, the finding contradicts the findings of Sobhy (2024), Phan et al. (2021) which found negative effect of investor sentiment on stock market

**Macroeconomic Index and Stock Market Performance**

The individual components of macroeconomic index such as exchange rate and money supply. Money supply has negative insignificant effect on stock market performance. This indicates that changes in the total money circulating in the economy do not have a substantial or consistent impact on stock market performance. Thus, monetary expansion or contraction alone does not appear to directly influence stock market growth. Secondly, exchange rate has positive significant effect on stock market performance. This suggests that appreciation of the domestic currency or favourable exchange rate dynamics correlates with an increase in stock market performance. As such, stable exchange rates may enhance investor confidence, attract foreign investment, and boost market activity, contributing to the growth of the stock markets within sub-Saharan Africa.

However, the second part of the results showed that macroeconomic index has negative insignificant effect on stock market performance. This might imply adverse macroeconomic

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conditions (e.g., currency volatility, or inadequate money supply) might discourage investment and reduce stock market activity, even though the effect is not statistically significant. As such, macroeconomic conditions do not strongly explain changes in stock market performance.

This finding might be due to the fact that a stable exchange rate might promote market growth (positive effect), while excessive money supply might create inflationary pressures, discouraging investment (negative effect). Therefore, the net result could dilute the overall impact.

This finding is consistent with the findings of Siddhpuria and Manani (2023), Udo et al. (2022), Hendro et al. (2020), Muritala et al. (2020), Aluko and Kolapo (2020) which found exchange rates to have strong positive effect on stock market. Emenyi and Effiong (2020) found that money supply had no significant effect on the stock market performance. Anjaly and Malabika (2021) found that interest rate and exchange rate have negative effect on stock market.

In alignment with the prospect theory, investors may perceive macroeconomic uncertainty as losses relative to their reference point, which triggers risk-seeking behavior. However, the finding contradicts the findings of Ejem et al. (2020) which found that exchange rate has an insignificant effect on stock market. Additionally, Aluko and Kolapo (2020) found significant effects of money supply on stock market capitalization among sub-Saharan African countries.

**Moderating Variable and Stock Market Performance**

The interaction term has a significant negative effect on stock market performance. This suggests that When investor sentiment interacts with macroeconomic conditions, the combined effect tends to adversely affect stock market growth, thereby leading to stock market contraction. This could occur as a result of poor macroeconomic conditions (e.g., inadequate money supply, unstable exchange rates) which may override positive investor sentiment, thereby eroding confidence in the market. Additionally, investors may respond more negatively to macroeconomic uncertainty when their optimism or pessimism is already high, leading to a contraction in market activity.

Therefore, high investor sentiment (optimism or pessimism) during unfavourable macroeconomic periods might create bubbles in the market, followed by a contraction in market performance. In alignment with the prospect theory, when the economy is uncertain, but investors feel optimistic, they may feel conflicted between their positive outlook and negative macroeconomic signs. This makes them worry more about possible losses, causing them to trade less in the stock market. Studies such as John et al. (2022), Tiwari et al. (2022), Sakariyahu et al. (2020), established that investor sentiment and macroeconomic conditions determine the growth or contraction stock market performance.

**Diagnostic Tests**

In Table 4, the Arellano-Bond test for AR(1) with p-value of 0.0000 indicates the absence of second-order autocorrelation, validating the use of lagged instruments. While Breusch-Pagan/Cook-Weisberg test for heteroskedasticity suggests that there is no significant evidence of heteroskedasticity in the residuals of your model. The assumption of constant variance of errors is therefore valid. Based on this test, the model did not suffer from heteroskedasticity.

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## CONCLUDING REMARKS

### 5.1 Conclusion

The study concluded that both investor sentiment and macroeconomic factors affect stock market performance in sub-Saharan Africa.

### 5.2 Recommendations

The study therefore recommended that investors should not rely solely on positive sentiment without carefully analyzing macroeconomic conditions, such as exchange rates and money supply, knowing that economic volatilities could lead to poor investment decisions; investors should maintain diversified portfolios, including assets from stable global markets. Also, stock market regulators in sub-Saharan Africa should prioritize policies that ensure currency stability and controlled money supply based on economic conditions across the region to attract investments from both local and foreign investors; and investors should remain objective and not base their investment decisions on emotions only to avoid overconfidence. In addition, regulators should implement measures to mitigate the psychological impact of economic uncertainty, such as stabilizing key macroeconomic indicators and promoting positive investor outlooks during challenging times.

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