EdinBurg Peer-Reviewed Journals and Books Publishers
Journal of Finance and Accounting
Vol. 6||Issue 9||pp 50-67||October||2026
Email: info@edinburgjournals.org||ISSN: 2789-0201

Volatility of Selected Macroeconomic Factors on Stock Market Returns in Kenya

Conslata Wambisa[1*], Yuvinalis Abongo[1], Lucy Wamugo[1]
Department of Accounting and Finance, Kenyatta University, Kenya
*Corresponding Author Email: ca.connie18@gmail.com

Accepted: 28 September 2026 || Published: 21 October 2026

Abstract

Economic indicators such as money supply, gross domestic product growth, inflation, and interest rates for firms in the Nairobi Stock Exchange 25 index series have fluctuated over the last decade, posing a risk of severe capital flight by foreign investors. This study examined stock return variation and selected macroeconomic variables. A longitudinal panel data design was deployed to assess the mean effects of the selected economic indicators on stock returns. The study further estimated conditional variance and volatility persistence of stock market returns using a Generalized Autoregressive Conditional Heteroskedasticity model. The study selected firms from the Nairobi Stock Exchange 25 index series, which tracks the performance of 25 listed companies based on criteria such as market capitalization, liquidity, and trading activity. Positivist research philosophy guided the analysis. The study drew on capital asset pricing theory and Fisher's effect theory. The study used census techniques because it included all firms in the index series. The study covered the period 2015 to 2025. The researcher collected secondary data using a data extraction table. The researcher conducted relevant diagnostic tests to assess data reliability. The researcher analyzed observations using descriptive statistics, particularly the mean and standard deviation. To adhere to ethical considerations, the researcher used the gathered data only for the intended objectives. The study showed an overall statistically significant model, with an R-squared of 0.9456 and an Adjusted R-squared of 0.9439, indicating that these variables explain nearly 95% of the variation in stock returns. Consequently, the results revealed a positive, significant correlation between money supply, GDP growth, and stock returns. Similarly, the inflation interest rate was negatively and significantly correlated with stock returns. The GARCH results showed an ARCH effect of 0.505 and a GARCH effect of 0.213, yielding overall persistence of approximately 0.7, with 0.72 as the constant. The results underscore the critical role of macroeconomic stability in shaping stock market outcomes. Economic expansion and liquidity growth boost investor returns, while inflation and high interest rates reduce profitability. This suggests that policymakers should prioritize maintaining low inflation and stable interest rates while fostering economic growth to support a favorable investment climate.

Keywords: *Inflation, interest rates, money supply, GDP, volatility, stock market returns*

How to Cite: Wambisa, C., Abongo, Y., & Wamugo, L. (2026). Volatility of Selected Macroeconomic Factors on Stock Market Returns in Kenya. *Journal of Finance and Accounting, 6*(9), 50-67.

EdinBurg Peer-Reviewed Journals and Books Publishers
Journal of Finance and Accounting
Vol. 6||Issue 9||pp 50-67||October||2026
Email: info@edinburgjournals.org||ISSN: 2789-0201

1. Introduction

The stock market contributes significantly to a country's development by promoting capital formation through savings for investment, promoting corporate governance, providing access to investment funds, hedging, and offering speculative opportunities for investors (Okafor, 2022). As an essential part of the monetary system, the stock market provides a platform for corporations and investors to communicate, thereby promoting economic development and growth (Sylva & Amah, 2021). They also measure economic performance through estimates such as market capitalization, trading volume, capital funding, and the aggregate number of shares traded (Musyoka, 2022). Nevertheless, stock market economic performance does not operate independently (Ebun Oluwa, 2023). Macroeconomic factors such as exchange rates, inflation, and interest rates substantially influence market operations and overall financial expansion (Petersen, 2020). These elements affect both corporate margins and investor prospects, thereby influencing stock returns (Isayas, 2021). Volatility in these parameters affects investor confidence and shapes both corporate operational and financial commitments (Owiti, 2023). Accordingly, a two-way relationship exists between share price performance and the macroeconomic environment, with each affecting and being affected by the other (Spellcaster, 2024).

The stock market undergoes cyclical volatility, amplified by trading activity (Noonan, 2023). The exchange rate of the Kenyan shilling against global currencies such as the US dollar, Euro, and British pound has been highly volatile, driven primarily by monetary policy actions by the Central Bank of Kenya (Fakile et al., 2023). Similarly, inflation remains a key macroeconomic factor, influenced by changes in commodity prices, fiscal policy, and global economic crises (Abdu, 2022; Li et al., 2021). Such volatility creates unpredictable risk in the business environment and, in turn, affects stock returns by reducing shareholder trust and weakening corporate governance (Gilbert, 2025). Investor sentiment largely drives stock price fluctuations, which in turn depends on expectations about future price changes (Ouagadougou & Faso, 2024). Similarly, inflation remains a vital macroeconomic parameter, influenced by changes in commodity prices, fiscal policies, and the global economic crisis (Abdu, 2022; Li et al., 2021). Such volatility creates unpredictable risk in the business environment and, in turn, affects stock returns by reducing shareholder trust and weakening corporate governance (Gilbert, 2025). Investor sentiment largely drives stock price fluctuations, which in turn depends on expectations about future price changes (Ouagadougou & Faso, 2024). Changes in the macroeconomic environment can shift the risk-return trade-off investors face, prompting portfolio adjustments and subsequent changes in stock market returns (George & Kennedy, 2025). These beliefs shape investors' financial goals and the time horizon they expect to hold their investments (Trading Critique, 2025). Economic conditions and key macroeconomic factors, such as exchange rates, interest rates, and inflation, drive market perceptions (Abdu, 2022; Li et al., 2021).

The relationship between share returns and macroeconomic factors is often categorical, reflecting rebalancing and security transformation (Leung, 2024). Instability in key economic signals may affect investor decisions, asset prices, and stock returns (Parker, 2025). An increase in interest rates tends to push investors to increase their allocation to interest-bearing assets to capture higher yields (Butler, 2024). This may lead investors to withdraw from capital markets and redirect funds to alternative investments like bonds (Fabozzi & Markowitz, 2019). Similarly, changes in security prices can expose investors to foreign exchange losses,

prompting readjustments to stock portfolios (Kenton, 2024). When the domestic currency devalues, foreign ventures tend to outperform domestic investments (Morah, 2026). Inevitably, investors may be forced to liquidate high-stakes foreign assets and reinvest in their home portfolios (Constantinides, Harris, & Stulz, 2023). These investment realignments boost demand for the local currency, raising its value. Risk-return trade-off theory can model the relationship between market returns and macroeconomic variables (Hicks, 2024).

According to this theory, investors expect higher returns to compensate them for taking on additional risk. The capital asset pricing model better explains this idea, using beta to estimate systematic risk and determine the excess returns investors require above the required rate of return (Scott, 2026). Prior studies by Benigno (2025) and Muktadir-Al-Mukit (2023) indicate that macroeconomic fluctuations' influence on stock market performance is inconsistent, depending on the extent and type of economic variables (Mansa, 2025). This view contrasts with the capital market hypothesis, which argues that stock market performance varies in response to the macroeconomic environment as investors constantly adjust their expectations and capital allocation choices (Chen, 2025). Therefore, factors such as inflation, interest rates, and exchange rates affect stock returns to different degrees, depending on the magnitude of the changes and market participants' perceptions of risk and future economic prospects (Bloomenthal, 2024). Thuo (2021) examined interest rates and three-month Treasury bill rates, which represent yields on short-term government securities maturing in 3 months. The study used a GARCH (1,1) model, a common framework for forecasting and estimating volatility in financial time series. The principal market platform for trading securities in Kenya is the Nairobi Securities Exchange (NSE), and its performance is often assessed using market indices such as the NSE 20 Share Index, NSE All Share Index (NASI), and NSE 25 Share Index. The Kenyan shilling is traded against a number of major regional and international currencies, among them the US dollar (USD/KES), British pound (GBP/KES), euro (EUR/KES), South African rand (ZAR/KES), Tanzanian shilling (TZS/KES), and Ugandan shilling (UGX/KES) (Central Bank of Kenya, 2019). Functional interest rates in Kenya include commercial bank lending rates, the CBK rate, repo, reverse repo, the interbank rate, Treasury bond yields, Treasury bill rates, and commercial banks' savings rates. NSE stock returns have shown gradual, irregular movements over time (Tamplin, 2024). This volatility has raised concerns among shareholders, policymakers, and regulators about what drives stock market performance (The Investopedia Team, 2025). This can be attributed to moderate to robust changes in macroeconomic factors that largely drive the economy.

Data from both developed and emerging economies show that stock market performance responds strongly to changes in macroeconomic variables (Oladele, 2024). Analyses have shown that fluctuations in interest and exchange rates, persistent inflation, and differences in economic development notably affect stock market returns (Mbilima & Phiri, 2025). While some studies find positive, significant relationships between macroeconomic variables and stock returns, others report weak or mixed effects (Wikipedia, 2025). However, the extent and significance of these effects vary across countries, depending on each country's economic architecture, the level of financial market development, and political stability (Hart, 2024). Although studies have identified the causal effects of macroeconomic instability on market returns, they disagree on the magnitude of these effects (Aliata, 2025). Moreover, most previous studies have focused on the immediate effects of macroeconomic variables rather than the effects of their fluctuations (Mohammed, 2025). This variability in findings, combined with

the NSE's growing significance in Kenya's industrial development, supports country-specific investigations to better understand how stock market performance correlates with macroeconomic variables (Essendi, 2025). Accordingly, this analysis investigates the effects of volatility in selected macroeconomic components on stock returns in Kenya.

1.1 Problem Statement

The stock market is a key instrument for mobilizing savings, smoothing capital formation, and boosting a country's economy (Ondiek & Njuguna, 2024). In Kenya, the NSE provides a platform for shareholders to allocate resources, offers resilient clearing and settlement procedures, enables corporates to seek funding, and facilitates asset price discovery, among other financial roles (Lasisi, 2022). However, over time, the Kenyan stock market's performance has been rocked by major volatility, creating uncertainty among shareholders, regulators, policymakers, and other economic operators (Asmar, Alia & Ali, 2024). Volatility is commonly associated with macroeconomic shifts that affect investor decisions and the valuation of financial assets (Iravo & Namusonge, 2020). Despite the importance of understanding how macroeconomic variables and stock returns correlate, volatility remains, to varying degrees, and cannot be fully explained without examining the unreliability of key macroeconomic determinants (Drury, 2025). Economic signals such as gross domestic product, inflation, money supply, interest rates, and exchange rates are well-known fundamental determinants of stock market returns (Sari et. al., 2025). Fluctuations in these elements affect corporate profit margins, erode investor confidence, shape consumer behavior, and influence the overall investment landscape (Singh, 2025). While previous studies have examined the immediate effects of macroeconomic factors on stock market performance, they have paid little attention to volatility's impact on these components (Wang et al., 2025). Volatility, instability in asset price movements over time, may affect market participants' behavior more than its absolute level (Sylva & Amah, 2021). For example, irregular exchange rate movements can increase uncertainty about future corporate profits, while fluctuating inflation and interest rates can limit investors' ability to estimate future returns precisely.

In the Kenyan framework, the economy has undergone several economic disturbances over time, which include periods of extreme inflation, depreciation of the exchange rate, regulation of monetary policy, political instability, world economic crises, and external upsets such as increasing market prices of goods (Cao, Yang & Liang, 2021). These factors have significantly increased instability in key macroeconomic variables and have often coincided with stock market fluctuations (Kimani, 2025). As a result, market participants struggle to forecast stock price movements and hedge investment risks (Ouagadougou & Faso, 2024). Higher volatility in stock returns raises concerns about asset management, market efficiency, and the stock market's ability to stimulate economic growth.

Although previous studies in Kenya and other developing economies have shown differing correlations between macroeconomic indicators and stock returns, their inferences remain inconclusive and sometimes contradictory (Kiema, 2026). Some analyses find clear correlations between economic factors and market returns, while others find negligible or negative correlations. In addition, prior analyses have focused on aggregate economic factors rather than their volatility, overlooking the unreliability dimension that may substantially affect market participants' decision-making. This creates a knowledge gap regarding how volatility

in selected macroeconomic variables influences stock returns in a developing market like Kenya.

The continued integration of Kenyan financial markets with major global markets further underscores the importance of understanding macroeconomic turbulence (Ebun Oluwa, 2023). Global economic transformation can drive swings in domestic economic indicators, which can then affect stock market performance (Samunderu, 2023). Both domestic and foreign investors need accurate information on how economic turbulence affects stock returns to make informed investment decisions (Fakile et al., 2023). Likewise, policymakers need verifiable information to design appropriate monetary and fiscal policies that boost market stability and investor trust (Pinto, 2020). This highlights the need for an extensive analysis of how volatility in selected macroeconomic variables affects stock market returns in Kenya. The study focused on whether volatility in key macroeconomic variables influences stock market returns, and the magnitude and direction of those returns.

1.2 Objectives of Study

i. To determine the influence of inflation volatility on stock market returns
ii. To determine the influence of interest rate volatility on stock market returns
iii. To determine the influence of money supply volatility on stock market returns
iv. To determine the influence of GDP volatility on stock market returns

1.3 Hypothesis of Study

The following research hypotheses were examined

$H0_1$: Inflation volatility has no significant effect on stock market returns

$H0_2$: Interest rate volatility has no significant influence on stock market returns

$H0_3$: Money supply volatility has no significant influence on stock market returns

$H0_4$: Gross Domestic Product volatility has no significant influence on stock market returns

2. Literature Review

This section presents a theoretical literature review, an empirical literature review, and a conceptual framework to address the influence of volatility in selected macroeconomic factors on stock market returns in Kenya.

2.1 Theoretical Review

This section analyzes theories that connect the volatility of selected macroeconomic factors to stock market returns in Kenya. This section considers the Capital Asset Pricing Model and Fisher's effect theory.

2.1.1 Capital Asset Pricing Model

The Capital Asset Pricing Model, developed by Treynor (1962), Sharpe (1964), Lintner (1965), and Mossin (1966), builds on Markowitz's (1952) portfolio theory and Tobin's (1958) mean-variance model. This theory posits that expected yield on a risky asset is determined primarily by its sensitivity (beta) to market-wide risk factors, an estimate of systematic risk that is compatible with risk-return trade-off propositions. This leads investors to require higher returns for portfolios with higher beta values, reflecting greater vulnerability to market fluctuations (Womack & Zhang, 2003). This model has evolved gradually, with Shanken (1985)

introducing the multi-beta CAPM to represent multiple risk sources, and Abbas et al. (2012) proposing the downside-beta CAPM to distinguish between downside and upside risk. The theory explains how systematic risk affects expected returns in the stock market. The theory holds that market participants should be compensated for systematic risk that cannot be diversified away. Because aggregate economic indicators affect the whole economy and financial markets, they are significant sources of systematic risk that ultimately affect stock returns. The model has one major drawback: unrealistic assumptions, including the existence of a risk-free rate of return, no transaction costs, no taxes, and the absence of market frictions, which may not hold, thereby limiting its applicability in real-world markets.

2.1.2 Fisher's Effect Theory

Fisher's effect theory, founded by Irving Fisher (1930), explains the relationship between interest rates, inflation, and real returns. It holds that nominal interest rates equal real interest rates plus inflation (CFI Team, 2020). It further posits that expected changes in inflation are reflected in nominal interest rates, thereby affecting investment decisions and asset prices (Cottrell, 2022). According to Fisher, as investors seek to sustain returns, rising inflation leads to a corresponding increase in nominal interest rates. Investors often demand higher rates on bank loans and securities to maintain real interest rates (Hayes, 2026). This theory provides ground for establishing how volatility in stock returns (Cottrell, 2022). This theory provides a basis for examining how volatility in stock returns affects economic indicators, given that inflation and interest rates are variables under study. The theory has one constraint: it assumes that investors accurately predict future inflation. Its underlying assumption is that inflation expectations are rational.

2.2 Empirical Review

2.2.1 Inflation and Stock Market Returns

Mwiwa and Jagongo (2025) analyzed inflation and stock market returns evidenced from banking assets on the Nairobi Securities Exchange, Kenya. Results from a descriptive research design, using data from eleven banks and a survey census method, indicated that hyperinflation, imported cost-push inflation, and demand-pull inflation have a substantial positive influence on stock market returns. The descriptive design used in this study has a major constraint: it cannot establish a cause-and-effect relationship between variables. The current study will utilize a longitudinal panel data design, allowing the researcher to account for time-unobservable components that span across firms but remain constant over time.

Otieno, Ngugi and Muriu (2019) studied the effect of the inflation rate on stock market returns in Kenya. They used an Autoregressive Fractionally Integrated Moving Average (ARFIMA)-based exact maximum likelihood approximation to establish the integration orders of individual elements and cointegrating fragments. Results from the five-year study revealed that inflation, whether month-on-month or year-on-year, and market returns have non-integer orders of integration. The time scope deployed in this study is relatively short, as this type of study relies heavily on assessing patterns and relationships over time.

Crowder (2021) investigated the relationship between inflation and stock returns. Structural vector autocorrelation revealed a negative correlation between inflation and market returns, contradicting the Fisher hypothesis. Results from the five-year study showed that inflation, both month-on-month and year-on-year, and market returns have non-integer orders of

integration. The time scope deployed in this study is relatively short, as this type of study relies heavily on assessing patterns and relationships over time.

Eldomiaty *et al. (2020) analyzed correlations among* stock returns, inflation rates, and interest rates using quarterly data on non-financial firms listed in DJIA30 and NASDAQ100. Panel Johansen cointegration analysis revealed cointegration among stock prices, inflation-adjusted stock prices, and changes in stock prices due to real interest rates. Panel Johansen analysis, however, ignores firm-level heterogeneity, even with observations spanning multiple time periods. The current study uses a longitudinal panel data design that captures time-specific heterogeneity across firms.

2.2.2. Interest Rate and Stock Market Returns

Chawla *et., al.* (2024) studied the association between interest rate changes and stock returns in Indian commercial banks. The study employed stratified random sampling. They concluded that interest rates are significantly and positively correlated with market returns, specifically, the cost of capital and borrowing costs. The study has a methodological gap because it does not specify the research design. The current study will use a longitudinal panel data design, allowing the researcher to account for time-invariant, firm-specific unobserved components.

Byrne (2024) empirically analyzed changes in interest rates and their impact on stock market performance. Specifically, the study analyzed corporate earnings, investor sentiment, and stock valuation. The descriptive design used in this study has a major constraint: it cannot establish a cause-and-effect relationship between variables. The current study will use a longitudinal panel data design, allowing the researcher to account for time-invariant, firm-specific unobserved components.

Famubode and Hafidh (2024) examined correlations among interest rates, exchange rates, inflation, and stock prices. Multiple regression analysis was used on data spanning 10 to 20 years. The results indicated that exchange rate volatility significantly affects multinational firms' stock prices, necessitating advanced risk management strategies. However, using multiple regression with data spanning up to 20 years cannot capture dynamic effects, which can bias results. The current study's use of panel data will address the issue of dynamic, time-invariant variables.

2.2.3 Money Supply and Stock Market Returns

Opara, Ogu, and Ojinnaka (2025) analyzed the correlation between money supply and stock prices in Nigeria. The findings showed that money supply has a negative, insignificant effect on stock market prices in Nigeria. The descriptive design used in this study has a major constraint: it cannot establish a cause-and-effect relationship between variables. The current study will use a longitudinal panel data design, allowing the researcher to account for time-invariant, firm-specific unobserved components.

Liu *et al.* (2022) investigated whether money supply drives bank stock returns in South Asian economies. They used panel data and the generalized method of moments (GMM) over 28 years. Observations showed a significant positive effect of net interest rate margins on bank loans in South Asian countries, whereas a positive relationship exists between foreign to local interest rates and the money supply. The study covered 28 years and may be outdated, leading to more missing data and potentially misleading results. The current study will cover 10 years, long enough to capture heterogeneity and secure data, reducing the risk of subject dropout.

Tsai *et al.* (2022) examined the correlation between money supply and stock returns before and after quantitative easing. The study used a vector autoregressive model. The results showed that the association between money supply and stock returns in Taiwan was insignificant before quantitative easing but became significant afterward. The five-year results revealed that inflation, both month-on-month and year-on-year, and market returns have non-integer orders of integration. The time scope deployed in this study is relatively short, as this type of study relies heavily on assessing patterns and relationships over time.

Nugraha and Sari (2023) studied the influence of money supply and interest rates on stock prices. The study used associative descriptive approaches over a 20-year period. The study found that both money supply and interest rates influenced stock prices. The study's use of an associative descriptive approach has a weakness: it cannot establish causality. The current research design could establish causality.

2.2.4 Gross Domestic Product and Stock Market Returns

Kesuma and Trisnawati R. (2024) examined the correlation between GDP, company cash flow, and stock returns of LQ 45 companies listed on the Indonesia Stock Exchange from 2018-2021. Multiple regression analysis revealed that GDP affects firm value, whereas cash flow and company size have no notable impact on firm value. Multiple regression analysis showed that GDP affects firm value, whereas cash flow and company size have no notable impact on firm value. EPS affects company value. PER affects company value. The study period was four years, which is insufficient to support panel data analysis. The current study seeks to cover ten years to provide sufficient coverage for the elements studied.

Ferdinand and Joebges (2023) investigated stock market returns and GDP growth in Organization for Economic Co-operation and Development (OECD) countries. Analysis based on a descriptive design suggested that the relationship between stock prices and GDP remains unstable, with stronger evidence of a link in more recent periods of our sample. The descriptive design used in this study has a major constraint: it cannot establish a cause-and-effect relationship between variables. The current study will use a longitudinal panel data design, allowing the researcher to account for time-invariant, firm-specific unobserved components.

2.3 Conceptual Framework

According to Singh (2023), a conceptual framework is a fact-finding tool that summarizes the main ideas, constructs, or variables to be investigated. It identifies the interconnections between the variables under consideration. The conceptual framework below shows the relationship between components of macroeconomic variables and stock market returns.

EdinBurg Peer-Reviewed Journals and Books Publishers
Journal of Finance and Accounting
Vol. 6||Issue 9||pp 50-67||October||2026
Email: info@edinburgjournals.org||ISSN: 2789-0201

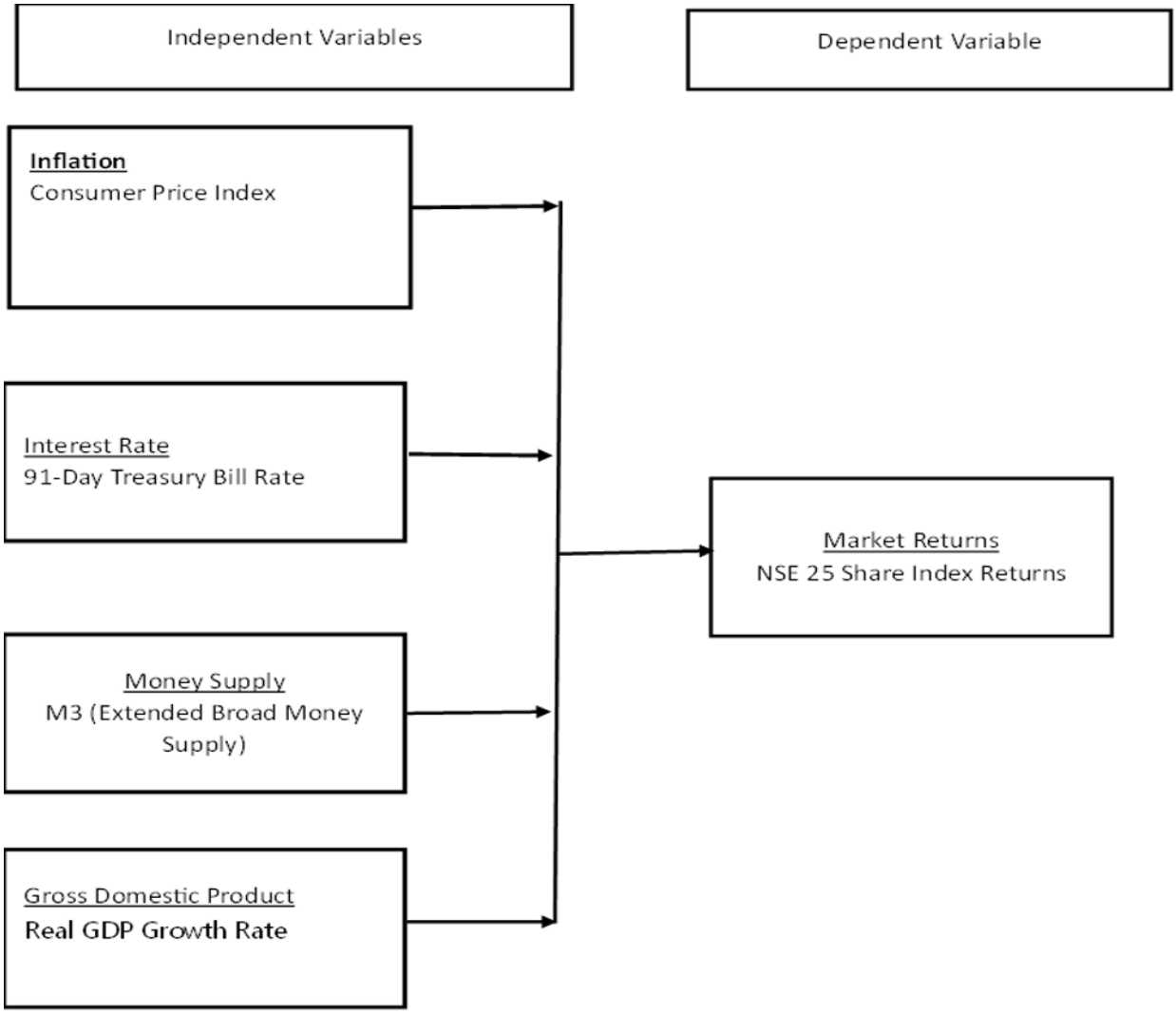


Figure 1: Conceptual Framework

3. Methodology

This section covers the design, procedures, and processes used to validate the hypothesis outlined in the previous section; approaches to interpreting data; pre-estimation tests; and ethical considerations for both the researcher and data privacy.

3.1 Research Design

The study used a longitudinal panel data design. This widely used technique for analyzing panel data accounts for unobserved differences across organizations by assigning each entity its own intercept (Simkus, 2023). This method best allows the researcher to examine changes in macroeconomic variables and stock market returns over time and capture the dynamic nature of their relationship (Sheth, 2026). The investigation further used a GARCH model to assess the volatility dynamics of stock returns by capturing shock persistence, volatility clustering, and time-varying variance (Kenton, 2026).

EdinBurg Peer-Reviewed Journals and Books Publishers
Journal of Finance and Accounting
Vol. 6||Issue 9||pp 50-67||October||2026
Email: info@edinburgjournals.org||ISSN: 2789-0201

3.2 Research Philosophy

The study adopted a positivist philosophy to evaluate how selected macroeconomic factors affect stock market returns in Kenya. Positivism emphasizes objectivity, measurement, and quantifiable data to establish cause-and-effect relationships (Sumbl *et al.,* 2024). By using secondary data such as inflation, interest rates, exchange rates, and GDP growth, the study applies statistical techniques to test hypotheses and generate empirical evidence.

3.3 Empirical Models

A panel regression framework will assist in evaluating the correlation between stock returns and selected economic indicators. GARCH (I,1) model will explain conditional variance and volatility persistence of stock returns. The models are as below.

NSE25it=β0 + β1INFRit +β2TBRit + β3M3Git + β4RGDPit + ϵit

Where,

- $NSE25_{it}$ = Nairobi Securities Exchange All Share Index Return
- $INFR_{it}$= Inflation Rate
- CBR_{it}= Central Bank Rate
- $M3G_{it}$= M3 Money Supply Growth Rate
- $RGDP_{it}$= Real GDP Growth Rate
- β0 = Intercept
- β0, β1, β2, β3, β4 = Coefficients showing the effect of macroeconomic variable
- ϵ_{it}= Error term

GARCH (1,1)

$$h_t = \omega + \alpha\varepsilon_{t-1}^2 + \beta h_{t-1}$$

Where:

- h_t= conditional variance
- ω= constant
- α= ARCH effect
- β= GARCH effect

Table 1 shows how measurement variables will be utilized.

EdinBurg Peer-Reviewed Journals and Books Publishers
Journal of Finance and Accounting
Vol. 6||Issue 9||pp 50-67||October||2026
Email: info@edinburgjournals.org||ISSN: 2789-0201

Table 1: Operationalization and Measurement of Study Variables

Variable	Type	Operationalization	Measurement Indicators
Stock Market Returns	Dependent Variable	Percentage change in stock market value over time.	NSE 25 Share Index Returns
Inflation	Independent Variable	Calculate general increase in the prices of goods and services over time	Consumer Price Index
Interest Rate	Independent Variable	Calculate cost of borrowing money and the return on savings	91-Day Treasury Bill Rate,
Money Supply	Independent Variable	Total quantity of money circulating in the economy	M3 (Broad Money Supply),
GDP	Independent Variable	Economic output produced within Kenya in each period	Real GDP Growth Rate,

3.4 Target Population, Sampling Design, and Sample Size

The study selected firms in the Nairobi Stock Exchange 25 index series, which tracks the performance of 25 selected listed companies based on criteria such as market capitalization, liquidity, and trading activity. The study adopted a census approach because it includes all available time-series observations for the NSE 25 share index on inflation, interest rates, money supply, GDP growth, and stock market returns for the study period.

3.5 Data Collection Method

Data extraction tables were used to extract secondary data from the Kenya National Bureau of Statistics (KNBS) website. Data extraction occurs after eligible data are selected but before analysis and may include qualitative synthesis or quantitative analysis (Taylor, Mahtani & Aronson, 2020).

3.6 Diagnostic Tests

These tests examine the accuracy of statistical hypotheses and whether the regression model meets expected assumptions (Numiqo, 2021). Therefore, diagnostic tests were performed to ensure the regression's fundamental assumptions are met.

Normality Tests

Normality tests assessed whether the dataset followed a normal distribution and estimated the likelihood that a random variable underlying the dataset is normally distributed (Wikipedia, 2024). We evaluated this by running Shapiro-Wilk tests at a 5% significance level. A p-value smaller than or equal to the significance level implies that we reject the null hypothesis and conclude that the data do not conform to a normal distribution (Shapiro & Wilks, 1965).

Hausman Tests

The Hausman test, also known as the Durbin–Wu–Hausman (DWH) test, assesses an estimator's consistency by comparing it with a substitute estimator known to be consistent under certain assumptions (Fiveable Content Team, 2024). It helps determine whether to use a fixed- or random-effects model and test for endogeneity in regression models (Lee, 2025). The

Hausman test checks whether individual heteroskedasticity effects are correlated with the explanatory variables. If the p-value is greater than 0.05, fail to reject the null hypothesis and use random effects; if the p-value is less than 0.05, reject the null hypothesis and use fixed effects.

Stationarity Tests

Stationarity tests are vital because they help determine whether time series data are suitable for modeling. Nonstationary data may lead to spurious correlations, inflated R-squared values, and inaccurate predictions. Augmented Dickey-Fuller (ADF) was used to test for the presence of unit roots. The null hypothesis assumes unit roots (i.e., the data are nonstationary), while the alternative assumes no unit roots and that the series is stationary. If the p-value is less than 0.05, reject the null hypothesis and conclude that the data are stationary. If the p-value is more than 0.05, fail to reject the null hypothesis and conclude that the data is not stationary.

Cointegration Tests

Cointegration tests help determine whether a stable equilibrium relationship exists between nonstationary time series; if the stationarity test indicates the data are nonstationary but become stationary after first differencing, cointegration may exist (CFI Team, 2020). The Johansen test determines the number of cointegrating relationships between nonstationary time series (Thakar, 2023). The null hypothesis states that cointegration exists, whereas the alternative hypothesis states that it does not. If the p-value is less than 0.05, reject the null hypothesis and conclude that cointegration exists; if the p-value is greater than 0.05, fail to reject the null hypothesis and conclude that cointegration does not exist.

Multicollinearity Tests

Frost (2024) says multicollinearity occurs when independent variables are correlated and their correlation exceeds 0.70 in a linear regression model. In this study, we will use the correlation matrix and variance inflation factors (VIF). A VIF of 5 or higher indicates that the two independent variables are correlated. A p-value greater than 0.05 implies the absence of heteroskedasticity; therefore, we fail to reject the null hypothesis.

Heteroskedasticity Tests

Heteroscedasticity occurs when the residuals' (errors) variability varies across all levels of the independent variable (Frost, 2024). In contrast, homoscedasticity occurs when the residuals are dispersed equally (Fonseca, 2026). Breusch-Pagan test will be used to if variance of the error terms is correlated. If the p-value is less than 0.05, reject the null hypothesis and conclude that heteroskedasticity exists. A p-value greater than 0.05 implies no heteroskedasticity; therefore, fail to reject the null hypothesis.

Autocorrelation Tests

Autocorrelation refers to associations among residuals across the population, disregarding the independence assumption (Singh & Sharma, 2023). This analysis will use the Durbin-Watson statistic to examine this assumption, with values between 1.5 and 2.5 typically indicating no significant autocorrelation (Greene & Dreyer, 2021).

EdinBurg Peer-Reviewed Journals and Books Publishers
Journal of Finance and Accounting
Vol. 6||Issue 9||pp 50-67||October||2026
Email: info@edinburgjournals.org||ISSN: 2789-0201

3.7 Ethical Considerations

The study adhered to anti-plagiarism procedures to ensure that information from other parties is properly acknowledged. The data collected will be used only for the intended purpose.

4. Results and Discussion

4.1 Descriptive Statistics

Table 2: Descriptive Statistics

	stock_~_	gdp_gr~_	money_~_	inflat~_	intere~_
stock_retu~_	1.0000				
gdp_growth~_	0.6012	1.0000			
money_supp~_	0.5000	0.1133	1.0000		
inflation_~_	-0.5365	-0.1739	-0.0439	1.0000	
interest_r~_	-0.4324	0.0464	-0.0356	-0.0459	1.0000

As shown in Table 2, stock returns had a mean of 8.27122 for 40 observations, with a standard deviation of 6.405811 and minimum and maximum values of -7.604 and 30.144, respectively. Positive stock returns implied overall gains, while the high standard deviation and wide range of minimum and maximum suggested volatile performance with both profit and loss potential. GDP growth had a mean of 5.123674, a standard deviation of .7025343, and a minimum and maximum of 3.256 and 6.941. The gross domestic product growth rate averaged 5.12, with moderate volatility of 0.702, indicating stable economic expansion. The growth rate of gross domestic product averaged 5.12, with moderate volatility of 0.702, indicating stable economic expansion.

The results also show a mean money supply of 8.905651, a standard deviation of .972117, and a minimum and maximum of 6.279 and 11.426. For money supply, all parameters are positive and moderately variable, implying steady liquidity growth that may trigger inflation risk if unmonitored. Inflation had a mean of 5.425924, a standard deviation of 917925, a minimum of 2.763, and a maximum of 11.426. Positive inflation parameters indicate incessant upward price pressure and a possible increase in inflation risk in the near future. This implies generally stable but slightly fluctuating borrowing costs that can influence inflation risk and investment decisions. Finally, the interest rate had a mean of 6.072758, a standard deviation of 4407876, a minimum of 4.652, and a maximum of 6.819. This implies generally stable but slightly fluctuating borrowing costs that can influence inflation risk and investment decisions

4.2 Diagnostic Tests

Normality Tests

Table 3: Normality Tests

Shapiro-Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
stock_retu~_	132	0.97027	3.101	2.549	0.00541

EdinBurg Peer-Reviewed Journals and Books Publishers
Journal of Finance and Accounting
Vol. 6||Issue 9||pp 50-67||October||2026
Email: info@edinburgjournals.org||ISSN: 2789-0201

As shown in Table 3, the Shapiro–Wilk test result (W = 0.97, p = 0.005) indicates that stock returns deviate substantially from normality, meaning the distribution does not follow a Gaussian distribution.

Autocorrelation Tests

Table 4 Autocorrelation Tests

```
Portmanteau test for white noise
---------------------------------------
 Portmanteau (Q) statistic =     86.5507
 Prob > chi2(4)            =      0.0000
```

The study used the Ljung-Box test to assess autocorrelation. The Portmanteau (Q) test for white noise results, Q = 86.55 and p = 0.0000, show that the residuals are not white noise, meaning they exhibit significant autocorrelation.

Stationarity Test

Table 4: Stationarity Tests

```
Dickey-Fuller test for unit root                   Number of obs   =       131

                                 ---------- Interpolated Dickey-Fuller ----------
                    Test         1% Critical       5% Critical      10% Critical
                  Statistic         Value             Value            Value
------------------------------------------------------------------------------
 Z(t)               -5.290           -3.500            -2.888           -2.578
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000
```

The null hypothesis is that the series is nonstationary, while the alternative hypothesis is that it is stationary. The Dickey–Fuller test result (test statistic = −5.29, p = 0.0000) is far below all critical thresholds (−3.50, −2.89, −2.58), meaning the null hypothesis of a unit root is rejected. This indicates the series is stationary; its mean and variance remain stable over time, with no persistent trend

Cointegration Tests

After establishing that all variables are integrated of order one, I(1), I conducted a Johansen cointegration test to determine whether a long-run equilibrium relationship exists among the variables: stock returns, GDP growth rate, money supply growth, inflation rate, and interest rate. Both the trace and maximum-eigenvalue statistics exceed their critical values at the 5% significance level, indicating at least one cointegrating relationship among the variables. Therefore, the variables share a long-run equilibrium association, meaning that although they may fluctuate in the short run, they move together over time.

Hausman Test

To choose between the fixed and random effects models, we used the Hausman test. The null hypothesis of the Hausman test was that the random effects model was preferred to the fixed effects model. The Hausman test reported a chi-square of 2.13 with a p-value of 0.9073, implying that, at the 10 percent level, the chi-square value was not statistically significant. The researcher therefore failed to reject the null hypothesis that the random-effects model was preferred to the fixed-effects model for ROA, as recommended by Greene (2008).

EdinBurg Peer-Reviewed Journals and Books Publishers
Journal of Finance and Accounting
Vol. 6||Issue 9||pp 50-67||October||2026
Email: info@edinburgjournals.org||ISSN: 2789-0201

Table 5: Correlation Tests

	stock_~_	gdp_gr~_	money_~_	inflat~_	intere~_
stock_retu~_	1.0000				
gdp_growth~_	0.6012	1.0000			
money_supp~_	0.5000	0.1133	1.0000		
inflation_~_	-0.5365	-0.1739	-0.0439	1.0000	
interest_r~_	-0.4324	0.0464	-0.0356	-0.0459	1.0000

Table 5 above shows how four predictor macroeconomic variables, inflation, GDP growth, interest rate, and money supply, along with their p-values, correlate with the predicted variable, stock returns for NSE 25 listed companies.

There was a moderate negative correlation between stock returns and inflation. Persistent inflation adversely affects returns; therefore, the government needs to take appropriate actions to mitigate its impact.

Stock returns and interest rates had a weak negative correlation, implying that increased interest rates adversely affect stock performance.

Money supply had a weak positive association with stock returns, indicating a slight link between economic performance and liquidity.

GDP growth rate was strongly positively correlated with stock performance, implying that higher national income boosts stock market performance.

Table 6: Regression Results

Source	SS	df	MS		
Model	5082.94404	4	1270.73601	Number of obs	= 132
Residual	292.564022	127	2.30365371	F(4, 127)	= 551.62
				Prob > F	= 0.0000
				R-squared	= 0.9456
				Adj R-squared	= 0.9439
Total	5375.50806	131	41.0344127	Root MSE	= 1.5178

stock_return_	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdp_growth_rate_	4.537441	.1929753	23.51	0.000	4.155578	4.919304
money_supply_growth_	2.683265	.1374618	19.52	0.000	2.411253	2.955277
inflation_rate_	-3.163117	.1468602	-21.54	0.000	-3.453727	-2.872507
interest_rate_	-6.710986	.3016616	-22.25	0.000	-7.30792	-6.114053
_cons	19.04365	2.58541	7.37	0.000	13.92759	24.15971

Table 6 suggests the model is generally statistically significant, with an F-value of 155.62 and $p < 0.005$ ($p = 0.0000$), indicating an excellent fit. The four macroeconomic factors explain 94.56% of the variation in NSE 25 stock returns, while other factors explain 5.44%. Adjusted R2, which filters out noise, further showed that the model explains 94.39% of the variation in stock returns in this investigation, while other factors explain 5.61%. The lower error of 1.5178 indicates that predictions are close to actual values. Money supply and GDP growth rates had a significantly negative influence on stock returns. As GDP expands, stock performance also increases. Consequently, an increase in the money supply boosts trading activity in stock returns. Inflation and interest rates have a significant negative correlation with stock returns. Higher inflation reduces returns. Likewise, higher interest rates reduce stock returns. When all macroeconomic variables are zero (i.e., baseline stock returns), stock performance is 19.04.

EdinBurg Peer-Reviewed Journals and Books Publishers
Journal of Finance and Accounting
Vol. 6||Issue 9||pp 50-67||October||2026
Email: info@edinburgjournals.org||ISSN: 2789-0201

Table 7: Volatility and Persistence Table

stock_return_	Coef.	OPG Std. Err.	z	P>|z|	[95% Conf.	Interval]
stock_return_						
gdp_growth_rate_	4.389958	.1734362	25.31	0.000	4.05003	4.729887
money_supply_growth_	2.561588	.1256998	20.38	0.000	2.315221	2.807955
inflation_rate_	-3.21942	.1226755	-26.24	0.000	-3.45986	-2.97898
interest_rate_	-7.165551	.2648139	-27.06	0.000	-7.684577	-6.646526
_cons	23.93448	2.147254	11.15	0.000	19.72594	28.14302
ARCH						
arch L1.	.5052238	.2516421	2.01	0.045	.0120144	.9984333
garch L1.	.2131464	.2753789	0.77	0.439	-.3265862	.7528791
_cons	.7292256	.4162984	1.75	0.080	-.0867043	1.545155

ARCH effect of 0.5 shows the extent to which past shocks influenced the study. The GARCH effect of 0.2 indicates the extent of volatility in stock returns, yielding an overall persistence of 0.7.

The significant ARCH term indicates that volatility in stock returns responds to recent shocks; periods of high or low returns tend to be followed by similar volatility patterns. The insignificant GARCH term suggests limited long-term persistence of volatility, meaning shocks fade relatively quickly.

5. Conclusion

This study examined the influence of selected macroeconomic variables, GDP growth rate, money supply growth, inflation rate, and interest rate on stock returns. Using regression analysis on 132 observations, the model showed strong explanatory power, with an R-squared of 0.9456 and an Adjusted R-squared of 0.9439, indicating that these variables explain nearly 95% of the variation in stock returns.

GDP growth and money supply had moderately strong positive correlations of approximately 0.6 and 0.5, respectively, while inflation and interest rates had a moderate negative correlation. This implies that the first two variables moved together moderately strongly, while the last two moved inversely.

A one percent increase in GDP growth rate is associated with a 4.54 % increase in stock returns, holding other factors constant. Similarly, a one percent increase in money supply positively increases stock returns by 2.68%, likely through increased liquidity. A 1-unit increase in inflation reduces stock returns by 3.16%, reflecting erosion of real investment value, while a 1-unit increase in interest rates significantly depresses stock returns by 6.71% as borrowing costs and discount rates rise.

The ARCH coefficient of 0.5052 (p-value = 0.045) indicates volatility clustering, meaning past shocks significantly influence current volatility. A positive and significant coefficient means large past movements increase current volatility. The GARCH result of 0.2131 (p-value = 0.439) suggests weak overall volatility persistence; volatility mainly arises from recent shocks

rather than long-term memory. A Constant (0.7292) indicates baseline volatility when no shocks occur.

The results underscore the critical role of macroeconomic stability in shaping stock market outcomes. Economic expansion and liquidity growth boost investor returns, while inflation and high interest rates reduce profitability. This suggests that policymakers should prioritize maintaining low inflation and stable interest rates while fostering economic growth to support a favorable investment climate.

References

Byrne, P. (2024). The Impact of Interest Rate Changes on Stock Market Performance: An Empirical Analysis. *Journal of Economics and Economic Education Research. Volume 25, Special Issue 4, 2024*

Chawla S. Raman N., Sahu H. Brandon Victor Dsouza B. V., & Agrawal A. (2024). Impact of interest rate changes on the stock market. *International Journal of Multidisciplinary Research and Development. Volume 11, Issue 8, 2024, Page No. 105-109*

Conrad C. (2021). The Effects of Money Supply and Interest Rates on Stock Prices: Evidence from Two Behavioral Experiments. *Applied Economics and Finance, Vol. 8, No. 2*

Eldomiaty T., Saeed Y., Hammam R. and Salma AboulSoud S. (2020). Associations between stock prices, inflation rates, and interest rates remain persistent. *Journal of Economics, Finance and Administrative Science (2020) 25 (49): 149–161*

Famubode O. Hafidh H. A. (2024). The impact of the exchange rate, interest rate, and inflation on stock price. *International Journal of Educational Research and Studies. Volume 6, Issue 2, 2024, Page No. 70-75*

Ferdinand F. and Joebges H. (2023). Stock market returns and GDP growth. *Journal of Economics, Finance and Administrative Science (2023) 22 (9): 120–131*

Islam S., Parvin R., Kanti M., M. (2023). The Impact of Gross Domestic Product on the Bangladesh Stock Market: An Empirical Analysis. *International Journal of Finance and Accounting, 2023, 12(1): 1-12*

Jibril M., Mairafi S., L., Mahmud A., A., Bello B., M. (2023). Effect of Gross Domestic Product and Inflation on Stock Returns of Quoted Companies in Nigeria. *Filafia International Journal of Business and Allied Studies (FIJBAS), Vol. 1, Issue 1*

Judith Kanini Mwiwa J. K., & Jagongo A. O. (2025). Impact of Inflation on Stock Market Returns: Evidence from Banking Stocks of Nairobi Securities Exchange, Kenya. *Asian Journal of Economics, Finance and Management. Vol 7, Issue 1, Page 214-227*

Kesuma Y., & Trisnawati R. (2024). Effect of Gross Domestic Product, Cash Flow, Company Size, EPS, and PER on Stock Returns. *International Journal of Economics and Management Research Vol. 3 No. 1*

Liu L., Bashir T., Abdalla A. A., Salman A., Ramos C. S., Jain V., & Shabbir M., S., (2022). Can money supply endogeneity influence bank stock returns? A case study of South Asian economies. *Environment, Development and Sustainability. Volume 26, pages 2775–2787*

Nugraha G and Sari M. D., (2023). The Effect of Money Supply and Interest Rate on Stock Price. *Central European Management Journal. Vol. 31, Issue 1*

Opara, G. I., Ogu, C., & Ojinnaka, H. C. (2025). Money Supply and Stock Market Prices in Nigeria. *British International Journal of Applied Economics, Finance and Accounting, 9(6), 48*

Purkayastha S. and Goswami J. (2026). Interest Rates and Stock Market Returns: A Cross-Country Literature Review. *Journal of Economics, Finance and Administrative Science (2026) 14 (3): 2320 – 2882*

Tsai Y. S., Chang C. P., and Tzang S. H. (2022). The Relationship Between Money Supply and Stock Returns Before and After Quantitative Easing Policy. *Journal of Economics, Finance and Administrative Science (2026) 14 (8): 2320 – 2882*