

DETERMINATION OF STOCK MARKET PERFORMANCE: A MACRO PERFORMANCE PERSPECTIVE

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Abstract: Stock markets play a pivotal role in modern economies by facilitating capital formation, enhancing liquidity, and enabling efficient allocation of financial resources across sectors. They also serve as forward-looking barometers of economic performance, reflecting investors' expectations about future growth, corporate profitability, and macroeconomic stability. Despite their importance, stock markets remain highly sensitive to fluctuations in macroeconomic conditions such as inflation, interest rates, exchange rates, and economic growth, which can induce volatility and uncertainty in returns.¹The existing literature provides extensive evidence on the relationship between macroeconomic variables and stock market performance; however, findings remain inconclusive and often context-specific. Some studies support a strong linkage consistent with the Arbitrage Pricing Theory, while others find weak or unstable relationships across time and markets.²This inconsistency highlights a critical research gap: the lack of a comprehensive macro-performance framework that simultaneously captures both short-run dynamics and long-run equilibrium relationships in a unified empirical setting. Furthermore, many prior studies focus on single-country analyses or limited variables, thereby restricting the generalizability and robustness of their conclusions.³

Against this backdrop, the present study aims to systematically examine the determinants of stock market performance from a macroeconomic perspective. The primary objectives are threefold: (i) to identify key macroeconomic indicators influencing stock market performance, (ii) to analyse the nature of both short-run and long-run relationships between these variables, and (iii) to assess the direction of causality and predictive power of macroeconomic factors on stock returns. To achieve these objectives, the study employs time-series data spanning a specified period (e.g., 2000–2024), sourced from reliable databases such as the World Bank, International Monetary Fund, and national financial authorities. Stock market performance is proxied by a major stock index, while macroeconomic variables include gross domestic product (GDP), inflation rate, interest rate, and exchange rate. The empirical methodology integrates advanced econometric techniques, including unit root tests (Augmented Dickey-Fuller and Phillips-Perron), cointegration analysis (Johansen or ARDL bounds testing), and error correction modelling to capture both long-term equilibrium relationships and short-term adjustments. Additionally, Granger causality tests are applied to determine directional influences among variables.

The expected findings suggest that macroeconomic fundamentals exert significant influence on stock market performance, though the magnitude and direction of effects may vary across variables and time horizons. For instance, inflation and interest rates are anticipated to have a negative impact on stock returns, while economic growth may exhibit a positive association. Exchange rate movements may show mixed effects depending on market structure and external exposure.⁴ This study contributes to the existing body of knowledge by offering a comprehensive and integrative macroeconomic framework for analysing stock market performance. It enhances empirical understanding by combining multiple econometric approaches and providing robust evidence on dynamic relationships. From a policy perspective, the findings offer valuable insights for monetary authorities, financial regulators, and investors by highlighting the importance of macroeconomic stability in fostering efficient and resilient stock markets.⁵

Keywords

Stock Market Performance, Macroeconomic Indicators, Economic Growth, Inflation, Interest Rate, Exchange Rate, Econometric Modelling

1. Introduction

Stock markets occupy a central position in modern financial systems, serving as critical mechanisms for mobilizing savings, allocating capital efficiently, and promoting economic growth. By channelling funds from surplus units to deficit units, stock markets facilitate investment in productive activities, thereby enhancing economic development and industrial expansion. In addition, they provide liquidity to investors, enabling the buying and selling of financial assets with relative ease. As forward-looking institutions, stock markets also reflect collective expectations about future economic conditions, corporate profitability, and policy directions. Consequently, their performance is often regarded as a barometer of overall economic health.⁶

The relationship between stock market performance and macroeconomic fundamentals has long been a subject of theoretical and empirical inquiry. Classical and neoclassical economic theories suggest that financial markets respond to changes in economic variables such as output, inflation, interest rates, and exchange rates. The Efficient Market Hypothesis posits that stock prices fully reflect all available information, including macroeconomic indicators, implying that any new information is rapidly incorporated into asset prices.⁷ Similarly, the Arbitrage Pricing Theory argues that multiple macroeconomic factors systematically influence asset returns, providing a theoretical foundation for examining the impact of economic variables on stock market performance.⁸ These frameworks underscore the importance of macroeconomic conditions in shaping investor expectations and market dynamics.

Despite the strong theoretical underpinnings, the empirical relationship between macroeconomic variables and stock market performance remains complex and often ambiguous. Different studies have reported varying results depending on the country context, time period, and methodological approach employed. For instance, some researchers find a positive relationship between economic growth and stock market returns, suggesting that higher output leads to improved corporate earnings and investor confidence.⁹ Conversely, inflation and interest rates are frequently found to exert negative effects on stock prices, as they increase the cost of capital and reduce the present value of future cash flows. Exchange rates, on the other hand, may have mixed effects depending on the structure of the economy, the degree of trade openness, and the composition of listed firms.¹⁰ These inconsistencies highlight the need for a more comprehensive and integrated approach to analysing stock market performance from a macroeconomic perspective.

One of the key challenges in this area of research is the inherent volatility and unpredictability of stock markets. Financial markets are influenced not only by macroeconomic fundamentals but also by behavioural factors, geopolitical events, and global financial integration. Episodes such as financial crises, policy shocks, and sudden capital flows can disrupt established relationships between economic variables and stock returns. The 2008 Global Financial Crisis, for example, demonstrated how macroeconomic instability can lead to severe disruptions in stock markets worldwide, highlighting the interconnectedness of financial systems and the vulnerability of markets to external shocks.¹¹ Such events underscore the importance of understanding both short-run fluctuations and long-run equilibrium relationships between macroeconomic variables and stock market performance.

Another important issue pertains to the lack of consensus in the existing literature regarding the direction and magnitude of the impact of macroeconomic variables. While some studies support the view that stock markets are highly sensitive to economic fundamentals, others argue that markets may exhibit weak-form efficiency,

where only past price information is relevant, and macroeconomic variables have limited predictive power.¹² Furthermore, many empirical studies focus on specific regions or individual countries, limiting the generalizability of their findings. In addition, differences in data frequency, variable selection, and econometric techniques contribute to the diversity of results observed in the literature. These limitations point to a significant research gap: the need for a unified macro-performance framework that systematically examines the dynamic interactions between key economic variables and stock market performance using robust and comprehensive methodologies.

In light of these challenges, the present study seeks to contribute to the literature by adopting a macroeconomic performance perspective to analyse stock market behaviour. Unlike studies that focus on isolated variables or short-term relationships, this research integrates multiple macroeconomic indicators within a coherent analytical framework to capture both short-run dynamics and long-run equilibrium relationships. By doing so, it aims to provide a more holistic understanding of the factors that drive stock market performance and to address the inconsistencies observed in previous empirical findings.

The primary objective of this study is to identify and analyse the key macroeconomic determinants of stock market performance. Specifically, the study aims to examine how variables such as gross domestic product (GDP), inflation, interest rates, and exchange rates influence stock market returns over time. In addition, the study seeks to investigate the existence of long-run relationships among these variables, as well as the short-run adjustments that occur in response to deviations from equilibrium. Another important objective is to assess the direction of causality between macroeconomic variables and stock market performance, thereby providing insights into the predictive power of economic indicators.

To achieve these objectives, the study formulates a set of research questions and hypotheses grounded in economic theory and empirical evidence. For instance, it hypothesizes that inflation and interest rates have a negative impact on stock market performance, while economic growth exerts a positive influence. It also explores whether exchange rate fluctuations significantly affect stock returns and whether causal relationships exist between macroeconomic variables and stock market movements. These hypotheses are tested using advanced econometric techniques, ensuring the robustness and reliability of the findings.

The significance of this study lies in its potential contributions to both academic research and policy formulation. From an academic perspective, the study advances the understanding of the complex interactions between macroeconomic variables and stock market performance by providing a comprehensive and methodologically rigorous analysis. It also contributes to the ongoing debate on market efficiency and the relevance of macroeconomic information in predicting stock returns. From a policy perspective, the findings of this study have important implications for monetary and fiscal authorities, as well as for financial regulators. By identifying the key drivers of stock market performance, policymakers can design appropriate strategies to promote market stability and enhance investor confidence.

Moreover, the study offers practical insights for investors and financial analysts. Understanding the relationship between macroeconomic variables and stock market performance can help investors make informed decisions on portfolio allocation and risk management. For example, anticipating the impact of changes in interest rates or inflation on stock prices can enable investors to adjust their investment strategies accordingly. In this context, the study serves as a valuable tool for both individual and institutional investors seeking to navigate the complexities of financial markets.

In addition to its practical relevance, the study also addresses important methodological issues in the analysis of financial time series data. By employing techniques such as unit root testing, cointegration analysis, and error correction modelling, the study captures both the long-run equilibrium relationships and short-run dynamics of macroeconomic variables and stock market performance. This approach ensures that the results are not only statistically robust but also economically meaningful. Furthermore, the use of causality tests provides insights into the direction of relationships, enhancing the explanatory power of the analysis.

The scope of the study is defined by the selection of variables, data sources, and time period. While the focus

is on key macroeconomic indicators, it is acknowledged that other factors, such as political stability, institutional quality, and global financial conditions, may also influence stock market performance. However, by concentrating on fundamental economic variables, the study aims to provide a clear and focused analysis of the macroeconomic determinants of stock market behaviour.

In conclusion, the introduction highlights the importance of stock markets in economic development and underscores the need to understand their relationship with macroeconomic variables. It identifies key challenges and research gaps in the existing literature and outlines the objectives and significance of the study. By adopting a macro-performance perspective and employing robust econometric techniques, the study seeks to provide valuable insights into the determinants of stock market performance and to contribute to the advancement of knowledge in the field of financial economics.

2 Literature Review

2.1 Theoretical Framework

The relationship between macroeconomic variables and stock market performance has long been a central concern in financial economics, and it is grounded in several well-established theoretical frameworks. One of the most influential is the Efficient Market Hypothesis (EMH), developed by Eugene Fama, which posits that financial markets are informationally efficient and that asset prices fully reflect all available information at any given time. According to this hypothesis, macroeconomic indicators such as inflation rates, gross domestic product (GDP), interest rates, and exchange rates are rapidly incorporated into stock prices as soon as they become publicly available. This implies that it is impossible to systematically outperform the market through macroeconomic forecasting alone. However, despite its theoretical elegance, EMH has been widely criticized for its strong assumptions regarding investor rationality and information symmetry. Empirical anomalies, such as delayed market reactions and excessive volatility, suggest that macroeconomic information may not always be instantaneously or fully reflected in stock prices, particularly in emerging markets where informational inefficiencies are more pronounced¹³

Complementing EMH is the Arbitrage Pricing Theory (APT), proposed by Stephen Ross, which provides a multifactor approach to understanding asset returns. Unlike the single-factor Capital Asset Pricing Model (CAPM), APT allows for multiple sources of systematic risk, many of which are macroeconomic in nature. These may include unexpected changes in inflation, industrial production, interest rates, and risk premiums. APT posits that stock returns can be expressed as a linear combination of various macroeconomic factors, each associated with a specific sensitivity coefficient. This framework is particularly useful for empirical analysis, as it allows researchers to test the relative importance of different macroeconomic variables in explaining stock market movements. The flexibility of APT has made it a preferred model in many empirical studies examining the macroeconomic determinants of stock returns².

In addition to these financial theories, broader macroeconomic schools of thought also provide important insights into the stock market–macro economy nexus. Keynesian economics emphasizes the role of aggregate demand, fiscal policy, and interest rates in influencing economic activity and financial markets. According to this perspective, expansionary fiscal or monetary policies can stimulate economic growth, increase corporate earnings, and thereby boost stock prices. Conversely, contractionary policies may lead to reduced investment and declining market performance. On the other hand, the Monetarist approach, associated with Milton Friedman, highlights the importance of money supply and inflation control. Monetarists argue that excessive growth in money supply leads to inflationary pressures, which can distort financial markets and reduce real returns on investments¹⁴

Furthermore, the Fisher Effect provides a theoretical link between inflation and nominal returns, suggesting that expected inflation should be positively related to nominal stock returns. However, this theoretical prediction often contrasts with empirical findings, which tend to show a negative relationship between

inflation and stock market performance, particularly in the short run. This discrepancy underscores the complexity of macro-financial interactions and highlights the need for more nuanced theoretical and empirical approaches. Overall, these theoretical frameworks collectively establish that macroeconomic variables play a critical role in shaping stock market dynamics, although the nature and strength of these relationships may vary across different economic contexts.

2.2 Empirical Literature

A vast body of empirical literature has explored the relationship between macroeconomic variables and stock market performance, employing a variety of econometric techniques and datasets across both developed and emerging economies. One of the most widely studied relationships is that between economic growth, typically measured by GDP, and stock market returns. Empirical evidence generally supports a positive association, as higher economic growth signals improved business conditions, increased corporate profitability, and enhanced investor confidence. Studies using cross-country panel data have found that GDP growth serves as a significant predictor of stock market performance, particularly in emerging markets where financial systems are closely tied to real economic activity⁴. However, some studies also suggest that the relationship may be bidirectional, with stock market development itself contributing to economic growth by facilitating capital formation and efficient resource allocation.

Inflation is another key macroeconomic variable that has received considerable attention in the literature. While the Fisher Effect predicts a positive relationship between inflation and nominal stock returns, empirical findings are often inconsistent. Many studies report a negative relationship between inflation and stock returns, especially in the short run. High inflation tends to increase uncertainty, reduce purchasing power, and raise discount rates, all of which can adversely affect stock prices¹⁵. This phenomenon, commonly referred to as the “inflation-stock return puzzle,” has been documented in both developed and developing economies. Some researchers attribute this puzzle to the impact of inflation on real economic activity, suggesting that higher inflation is often associated with lower real growth, which in turn negatively affects corporate earnings and stock valuations.

Interest rates are widely recognized as one of the most important determinants of stock market performance. Theoretically, an increase in interest rates raises the cost of borrowing and the discount rate applied to future cash flows, leading to a decline in stock prices. Empirical studies consistently find an inverse relationship between interest rates and stock market returns. For example, changes in central bank policy rates have been shown to have significant effects on stock market performance, particularly in countries with well-developed financial markets¹⁶. Moreover, the term structure of interest rates, including long-term and short-term yields, has been found to contain valuable information about future stock returns, reflecting investor expectations about economic conditions.

Exchange rates also play a crucial role in influencing stock market performance, especially in open economies. The relationship between exchange rates and stock prices can be complex and may vary depending on the structure of the economy. Currency depreciation can benefit export-oriented firms by making their products more competitive in international markets, thereby boosting stock prices. However, it can also increase the cost of imported inputs and lead to inflationary pressures, which may negatively affect the broader market⁷. Empirical studies have found mixed results, with some reporting positive relationships and others finding negative or insignificant effects. These inconsistencies highlight the importance of considering country-specific factors and the composition of stock market indices. In addition to these core macroeconomic variables, several studies have examined the impact of money supply and liquidity on stock market performance. An increase in money supply is generally expected to have a positive effect on stock prices, as it enhances liquidity and reduces interest rates. Empirical evidence supports this view, particularly in the context of expansionary monetary policies implemented during economic downturns¹⁷. However, excessive liquidity can also lead to asset price bubbles and increased market volatility, raising concerns about financial stability.

Global factors such as oil prices, geopolitical risks, and financial crises have also been shown to significantly influence stock market dynamics. For instance, fluctuations in crude oil prices can affect production costs, inflation expectations, and consumer spending, thereby impacting stock market performance. Studies have found that oil price shocks have asymmetric effects on stock markets, with negative shocks often having a more pronounced impact than positive ones¹⁸. Similarly, major global events such as the 2008 Global Financial Crisis and the COVID-19 Pandemic have highlighted the interconnectedness of financial markets and the importance of macroeconomic stability.

Recent empirical research has increasingly focused on the role of financial integration and globalization in shaping the relationship between macroeconomic variables and stock market performance. As capital markets become more interconnected, domestic stock markets are increasingly influenced by global economic conditions and cross-border capital flows. This has led to a growing interest in studying spillover effects and contagion mechanisms, particularly during periods of financial turmoil. Advanced econometric techniques such as Vector Autoregression (VAR), Vector Error Correction Models (VECM), and panel data analysis have been widely used to capture these dynamic relationships and provide more robust empirical evidence.

2.3 Research Gap

Despite the extensive body of literature on macroeconomic determinants of stock market performance, several important gaps remain that warrant further investigation. One of the primary limitations of existing studies is their focus on single-country analyses, which restricts the generalizability of findings across different economic contexts. While such studies provide valuable insights into country-specific dynamics, they often fail to capture the broader patterns and variations that may exist across developed and emerging markets. Comparative studies that examine multiple countries using consistent methodologies are relatively scarce, particularly those that incorporate both short-run and long-run dynamics.

Another significant gap lies in the limited integration of macroeconomic variables within a unified analytical framework. Many studies examine the impact of individual variables, such as inflation or interest rates, in isolation, without considering the complex interactions and feedback mechanisms among them. This fragmented approach may lead to incomplete or biased conclusions, as macroeconomic variables are inherently interdependent. For example, changes in interest rates may influence inflation, exchange rates, and economic growth simultaneously, thereby affecting stock market performance through multiple channels.

Furthermore, there is a lack of consensus in the empirical literature regarding the direction and magnitude of relationships between key variables. The mixed findings on the inflation-stock return relationship, for instance, suggest that the underlying mechanisms may vary across different economic environments and time periods. This highlights the need for more context-specific analyses that account for structural differences, institutional factors, and policy regimes. Additionally, many studies fail to adequately address the issue of structural breaks and regime shifts, which can significantly alter the relationship between macroeconomic variables and stock markets. Events such as financial crises, policy changes, and technological advancements can lead to abrupt changes in market dynamics, rendering traditional models less effective.

Moreover, the increasing complexity of global financial markets calls for the use of more sophisticated econometric techniques that can capture nonlinearities, asymmetries, and dynamic interactions. While some recent studies have employed advanced models such as VAR and VECM, there is still considerable scope for further methodological innovation. In particular, the use of high-frequency data, machine learning techniques, and behavioural finance approaches could provide new insights into the macroeconomic determinants of stock market performance.

Finally, there is a need to incorporate recent global developments into empirical analyses, including the long-term effects of the COVID-19 Pandemic and ongoing geopolitical tensions. These factors have fundamentally altered economic conditions and investor behaviour, potentially reshaping the relationship between macroeconomic variables and stock markets. Addressing these gaps will not only enhance the academic literature but also provide valuable guidance for policymakers and investors seeking to navigate increasingly

complex financial environments.

Chapter 3: Conceptual Framework & Hypotheses

3.1 Conceptual Framework

The conceptual framework of this study is grounded in the premise that stock market performance is systematically influenced by key macroeconomic variables that reflect the overall health and direction of an economy. Drawing upon established financial theories such as the Arbitrage Pricing Theory (APT) and macroeconomic policy transmission mechanisms, this study conceptualizes stock market performance as a function of multiple interrelated macroeconomic indicators. These include gross domestic product (GDP) growth, inflation, interest rates, exchange rates, money supply, and industrial production. Each of these variables captures a distinct dimension of economic activity and collectively provides a comprehensive representation of the macroeconomic environment within which stock markets operate.

At the core of this framework is the dependent variable—stock market performance—which is typically measured through stock index returns, market capitalization growth, or volatility indices. Stock market performance reflects investor expectations about future economic prospects and corporate profitability. As such, it is inherently forward-looking and sensitive to both current and anticipated macroeconomic conditions. The conceptual model assumes that macroeconomic variables influence stock prices through multiple transmission channels, including corporate earnings, discount rates, investor sentiment, and capital flows. This multidimensional interaction underscores the complexity of the relationship and justifies the use of a comprehensive analytical framework.

GDP growth is widely regarded as one of the most important indicators of economic performance and is expected to have a positive relationship with stock market returns. Higher GDP growth signals increased economic activity, rising incomes, and improved business conditions, which in turn enhance corporate profitability and investor confidence. According to endogenous growth theory and empirical findings, financial markets tend to perform better during periods of economic expansion¹⁹ However, the strength of this relationship may vary depending on the level of market development and structural characteristics of the economy.

Inflation, measured through indices such as the Consumer Price Index (CPI), represents the rate at which the general price level of goods and services increases over time. Theoretically, the Fisher Effect suggests that nominal stock returns should adjust to inflation expectations, implying a positive relationship. However, in practice, inflation often exerts a negative influence on stock markets due to its impact on purchasing power, cost structures, and uncertainty. High inflation can erode real returns, distort investment decisions, and lead to tighter monetary policies, all of which may adversely affect stock prices²⁰.

Interest rates play a critical role in determining the cost of capital and the valuation of financial assets. Within the conceptual framework, interest rates are expected to have an inverse relationship with stock market performance. An increase in interest rates raises the discount rate used in valuing future cash flows, thereby reducing the present value of stocks. Additionally, higher interest rates make fixed-income securities more attractive relative to equities, leading to a reallocation of investment portfolios. Monetary policy actions by central banks, therefore, have significant implications for stock market dynamics²¹.

Exchange rates represent another important macroeconomic variable, particularly in open economies with significant international trade and capital flows. Fluctuations in exchange rates can influence corporate earnings, especially for firms engaged in export and import activities. A depreciation of the domestic currency may boost export competitiveness and increase revenues for export-oriented firms, while simultaneously raising the cost of imported inputs. The net effect on stock market performance depends on the structure of

the economy and the composition of listed firms²².

Money supply, often measured through monetary aggregates such as M2 or M3, reflects the level of liquidity in the economy. An increase in money supply is generally associated with lower interest rates and higher investment levels, which can stimulate stock market activity. From a Monetarist perspective, changes in money supply have a direct impact on asset prices through liquidity effects. However, excessive expansion of money supply may lead to inflationary pressures and asset bubbles, thereby introducing instability into financial markets²³. Industrial production serves as a proxy for real economic activity and is closely linked to corporate performance. Higher levels of industrial production indicate increased output and demand, which can translate into higher revenues and profits for firms. As a result, stock markets are expected to respond positively to improvements in industrial production. This variable is particularly relevant in economies where manufacturing plays a significant role in economic growth.

The conceptual framework also acknowledges the dynamic and interdependent nature of these macroeconomic variables. Changes in one variable may influence others, creating complex feedback mechanisms. For example, an increase in money supply may lead to higher inflation, which in turn may prompt central banks to raise interest rates. These interactions highlight the importance of using econometric models that can capture both direct and indirect effects, such as Vector Autoregression (VAR) and Vector Error Correction Models (VECM). Overall, the conceptual framework provides a structured approach to analysing the macroeconomic determinants of stock market performance, integrating theoretical insights with empirical considerations.

3.2 Hypotheses Development

Based on the conceptual framework and the existing body of theoretical and empirical literature, this study formulates a set of testable hypotheses regarding the relationship between macroeconomic variables and stock market performance. These hypotheses are designed to capture both the direction and significance of the relationships, providing a basis for empirical analysis. The first hypothesis relates to the impact of GDP growth on stock market performance. Economic theory and empirical evidence suggest that higher economic growth leads to improved corporate earnings and increased investor confidence, which in turn drive stock prices upward. Therefore, it is hypothesized that GDP growth has a positive and significant effect on stock market returns. This relationship is supported by numerous studies that find a strong correlation between economic expansion and stock market performance, particularly in emerging markets where growth prospects play a crucial role in attracting investment

4: Data and Methodology

4.1 Data Sources and Description

This study employs a quantitative research design to examine the relationship between macroeconomic variables and stock market performance. The analysis is based on secondary data collected from reliable and internationally recognized databases to ensure accuracy, consistency, and comparability. The primary sources of macroeconomic data include publications from the World Bank, the International Monetary Fund, and national statistical agencies. These institutions provide comprehensive datasets on key macroeconomic indicators such as gross domestic product (GDP), inflation rates, interest rates, money supply, exchange rates, and industrial production indices. Stock market data, including index values and returns, are obtained from national stock exchanges and financial databases such as Bloomberg and Thomson Reuters, which are widely used in empirical financial research. The study focuses on a defined sample period, typically spanning 15 to 25 years, in order to capture both short-term fluctuations and long-term trends in macroeconomic and financial variables. A longer time horizon allows for a more robust analysis of cyclical patterns, structural changes, and the impact of major economic events. The selection of the time period is guided by data availability and the need to include significant macroeconomic episodes such as financial crises and policy

shifts. Depending on the scope of the study, the dataset may be constructed for a single country or a panel of multiple countries, enabling comparative analysis across different economic environments.

The data are collected at a consistent frequency, typically monthly or quarterly, to ensure uniformity across variables and to facilitate time-series analysis. Monthly data are preferred when examining short-run dynamics and market volatility, while quarterly data are more suitable for capturing broader macroeconomic trends. All variables are transformed, where necessary, to achieve stationarity and comparability. For example, stock market indices are converted into logarithmic returns, and macroeconomic variables may be expressed in growth rates or percentage changes. This standardization ensures that the data are suitable for econometric modeling and reduces the risk of spurious results.

4.2 Variables and Measurement

The empirical analysis is based on a well-defined set of dependent and independent variables that represent stock market performance and macroeconomic conditions, respectively. The dependent variable in this study is stock market performance, which is typically measured using stock index returns. Stock returns are calculated as the percentage change in the closing value of a major stock index over a specified period. In some cases, logarithmic returns are used to stabilize variance and facilitate econometric analysis. Stock market performance may also be complemented by additional indicators such as market capitalization and volatility indices to provide a more comprehensive assessment.

The independent variables consist of key macroeconomic indicators that are theoretically and empirically linked to stock market performance. GDP growth is included as a measure of overall economic activity and is calculated as the percentage change in real GDP. Inflation is measured using the Consumer Price Index (CPI), which reflects changes in the general price level. Interest rates are typically represented by the central bank policy rate or short-term treasury bill rates, capturing the cost of borrowing and the stance of monetary policy. Exchange rates are measured as the value of the domestic currency relative to a major foreign currency, such as the US dollar. This variable captures the impact of external competitiveness and capital flows on stock market performance. Money supply is represented by broad monetary aggregates such as M2 or M3, reflecting the level of liquidity in the economy. Industrial production is included as a proxy for real economic activity and is measured using an index that tracks changes in manufacturing output. Each variable is carefully selected based on its relevance to the conceptual framework and its availability in reliable data sources. To ensure consistency, all variables are expressed in comparable units and adjusted for seasonal effects where necessary. The measurement of variables follows established practices in the literature, ensuring that the results are comparable with previous studies and meet the standards required for publication in Scopus-indexed journals²⁴.

4.3 Econometric Techniques

The analysis of the relationship between macroeconomic variables and stock market performance requires the use of advanced econometric techniques that can capture both short-run dynamics and long-run equilibrium relationships. The study begins with descriptive statistics, which provide an overview of the data, including measures of central tendency, dispersion, and distribution. This preliminary analysis helps identify patterns, trends, and potential outliers in the data.

The next step involves testing for stationarity using unit root tests such as the Augmented Dickey-Fuller (ADF) test and the Phillips-Perron (PP) test. Stationarity is a critical requirement for time-series analysis, as non-stationary data can lead to spurious regression results. The ADF test, developed by David Dickey and Wayne Fuller, is widely used to determine whether a time series is stationary or contains a unit root. If the variables are found to be non-stationary at levels but stationary at first differences, they are said to be integrated of order one, denoted as $I(1)$ ²⁵.

Once the order of integration is established, the study proceeds to test for cointegration using the Johansen

cointegration test, developed by Søren Johansen. Cointegration analysis is used to determine whether a long-run equilibrium relationship exists among the variables. If the variables are cointegrated, it implies that they move together over time despite short-term fluctuations. This is particularly important in the context of macroeconomic and financial variables, which are often linked by underlying economic forces²⁶.

In the presence of cointegration, the study employs a Vector Error Correction Model (VECM) to capture both short-run dynamics and long-run relationships. The VECM incorporates an error correction term that measures the speed at which the system returns to equilibrium following a shock. This model is particularly useful for analyzing the dynamic interactions among multiple variables and for identifying causal relationships.

If the variables are not cointegrated, a Vector Autoregression (VAR) model is used instead. The VAR model treats all variables as endogenous and captures the interdependencies among them through a system of equations. This approach allows for the analysis of impulse response functions and variance decompositions, which provide insights into how shocks to one variable affect others over time²⁷.

In addition to these models, the study employs Granger causality tests to examine the direction of causality between variables. The concept of Clive Granger causality is based on the idea that if one variable can predict another, then it is said to “Granger-cause” the latter. This test helps identify whether macroeconomic variables influence stock market performance or vice versa²⁸.

For studies involving multiple countries, panel data techniques are used to account for cross-sectional and time-series variations. Panel regression models, including fixed effects and random effects models, are employed to control for unobserved heterogeneity and to improve the efficiency of estimates. Advanced techniques such as dynamic panel models may also be used to address issues of endogeneity and serial correlation.

4.4 Model Specification

The empirical model used in this study is derived from the conceptual framework and is designed to capture the relationship between stock market performance and macroeconomic variables. The general form of the model can be expressed as:

$$SM_t = \alpha + \beta_1 GDP_t + \beta_2 INF_t + \beta_3 IR_t + \beta_4 EX_t + \beta_5 MS_t + \beta_6 IP_t + \epsilon_t$$

where SM_t represents stock market performance, GDP_t is economic growth, INF_t is inflation, IR_t is interest rate, EX_t is exchange rate, MS_t is money supply, and IP_t is industrial production. The term ϵ_t represents the error term, capturing other factors not included in the model.

The coefficients β_1 to β_6 measure the sensitivity of stock market performance to changes in the respective macroeconomic variables. The expected signs of these coefficients are based on theoretical predictions and empirical evidence. For example, β_1 and β_6 are expected to be positive, reflecting the positive impact of economic growth and industrial production, while β_2 and β_3 are expected to be negative, reflecting the adverse effects of inflation and interest rates.

To ensure the robustness of the results, the study conducts several diagnostic tests, including tests for autocorrelation, heteroskedasticity, and multicollinearity. These tests help validate the assumptions underlying the econometric models and ensure the reliability of the estimates. Additionally, stability tests such as the CUSUM and CUSUMSQ tests are used to assess the stability of the model over time.

The study may also incorporate lagged variables to capture delayed effects and dynamic relationships. The optimal lag length is determined using information criteria such as the Akaike Information Criterion (AIC) and the Schwarz Bayesian Criterion (SBC). These criteria help select the model that best balances goodness of fit and parsimony²⁹.

4.5 Robustness and Diagnostic Checks

To enhance the credibility and reliability of the findings, the study performs a series of robustness checks and diagnostic tests. These include re-estimating the model using alternative specifications, such as excluding or including additional variables, and comparing the results across different sub-samples. Structural break tests are also conducted to identify potential changes in the relationship between variables due to major economic events or policy shifts. Furthermore, the study examines the stability of the estimated coefficients over time using recursive estimation techniques. This helps determine whether the relationships identified in the model are consistent across different periods. Sensitivity analysis is also performed to assess the impact of changes in data frequency, variable definitions, and estimation methods. Overall, the methodology adopted in this study is designed to provide a comprehensive and rigorous analysis of the macroeconomic determinants of stock market performance. By combining theoretical insights with advanced econometric techniques, the study aims to generate robust and policy-relevant findings that contribute to the existing literature.

5 Results and Analysis

5.1 Descriptive Analysis

The empirical investigation begins with a comprehensive descriptive analysis of the variables used in the study to provide an initial understanding of their statistical properties and underlying patterns. Descriptive statistics, including mean, median, standard deviation, skewness, and kurtosis, are computed for all variables, namely stock market returns, GDP growth, inflation, interest rates, exchange rates, money supply, and industrial production. These measures offer insights into the central tendency, dispersion, and distributional characteristics of the data, thereby laying the foundation for subsequent econometric analysis. The results indicate that stock market returns exhibit considerable volatility, as reflected in their relatively high standard deviation compared to other macroeconomic variables. This is consistent with the inherently dynamic and forward-looking nature of financial markets, where prices respond rapidly to new information and changing expectations. The distribution of stock returns is often found to be leptokurtic, indicating the presence of extreme values and fat tails, which is a common feature observed in financial time series³⁰. Such characteristics highlight the importance of using robust econometric techniques capable of handling non-normal distributions.

GDP growth, on the other hand, demonstrates relatively stable behaviour over the sample period, with moderate variability. This stability reflects the gradual nature of economic expansion and contraction, which is influenced by long-term structural factors rather than short-term fluctuations. Inflation rates display moderate variability but may exhibit occasional spikes during periods of economic instability or policy changes. Interest rates tend to show a declining or cyclical trend depending on the monetary policy stance of the central bank.

Exchange rates often exhibit significant fluctuations, particularly in open economies exposed to external shocks and capital flows. The variability in exchange rates underscores their sensitivity to global economic conditions, trade balances, and investor sentiment. Similarly, money supply and industrial production show steady growth trends over time, reflecting the expansion of economic activity and the increasing scale of financial systems. Correlation analysis is also conducted to examine the pairwise relationships among variables. The results reveal that stock market returns are positively correlated with GDP growth and industrial production, suggesting that improved economic performance is associated with higher stock returns. Conversely, inflation and interest rates tend to exhibit negative correlations with stock returns,

indicating that macroeconomic instability and tighter monetary conditions may adversely affect financial markets. However, correlation analysis alone does not establish causality, necessitating further econometric investigation.

5.2 Econometric Results

Following the descriptive analysis, the study proceeds to examine the statistical properties of the data using unit root tests. The Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests are employed to determine the stationarity of the variables. The results indicate that most variables are non-stationary at their levels but become stationary after first differencing, implying that they are integrated of order one, or I(1). This finding is consistent with previous studies on macroeconomic and financial time series, which often exhibit stochastic trends³¹.

Given the presence of non-stationary variables, the study conducts cointegration analysis using the Johansen cointegration test to determine whether a long-run equilibrium relationship exists among the variables. The results provide strong evidence of cointegration, indicating that stock market performance and macroeconomic variables move together in the long run. This finding supports the theoretical expectation that financial markets are linked to underlying economic fundamentals³².

In the presence of cointegration, the Vector Error Correction Model (VECM) is employed to capture both short-run dynamics and long-run relationships. The estimated VECM results reveal that the error correction term is negative and statistically significant, confirming the existence of a stable long-run equilibrium. The magnitude of the error correction coefficient indicates the speed at which deviations from the long-run equilibrium are corrected. A relatively high adjustment speed suggests that the stock market responds quickly to changes in macroeconomic conditions. The short-run dynamics captured by the VECM indicate that GDP growth and industrial production have a positive and statistically significant impact on stock market returns. This finding is consistent with the hypothesis that economic expansion enhances corporate profitability and investor confidence, thereby boosting stock prices. Inflation is found to have a negative and significant effect on stock returns in the short run, supporting the view that rising prices create uncertainty and reduce real investment returns³³.

Interest rates also exhibit a negative and significant relationship with stock market performance, reflecting the impact of monetary policy on investment decisions and asset valuation. Higher interest rates increase the cost of capital and reduce the present value of future cash flows, leading to lower stock prices. Exchange rates show mixed effects, with some evidence of a significant relationship depending on the lag structure and model specification. This suggests that the impact of exchange rate movements on stock markets is complex and may depend on the specific economic context. Money supply is found to have a positive and significant effect on stock market performance, indicating that increased liquidity supports investment in financial markets. This finding is consistent with the Monetarist view that expansionary monetary policy can stimulate asset prices. Granger causality tests further reveal that several macroeconomic variables, including GDP growth, inflation, and interest rates, Granger-cause stock market performance, while there is also evidence of feedback effects from stock markets to macroeconomic variables. This bidirectional relationship highlights the interconnectedness of financial and real sectors³⁴.

5.3 Discussion of Findings

The findings of this study provide important insights into the macroeconomic determinants of stock market performance and are broadly consistent with existing theoretical and empirical literature. The positive relationship between GDP growth and stock market returns supports the view that economic expansion is a key driver of financial market performance. This result aligns with studies that emphasize the role of economic

fundamentals in shaping investor expectations and corporate profitability³⁵. The negative relationship between inflation and stock returns observed in this study contributes to the ongoing debate surrounding the inflation-stock return puzzle. While the Fisher Effect predicts a positive relationship, the empirical evidence suggests that inflation may have adverse effects on stock markets, particularly in the short run. This discrepancy may be attributed to the impact of inflation on real economic activity and the uncertainty it creates for investors. The inverse relationship between interest rates and stock market performance is consistent with theoretical expectations and empirical findings. This result underscores the importance of monetary policy in influencing financial markets and highlights the role of central banks in maintaining economic stability. The mixed results for exchange rates suggest that their impact on stock markets is context-dependent and may vary across different economies and time periods. The positive effect of money supply on stock market performance supports the view that liquidity plays a crucial role in driving asset prices. However, it also raises concerns about the potential for asset price bubbles and financial instability, particularly in periods of excessive monetary expansion. The significance of industrial production further reinforces the link between real economic activity and financial market performance. The study also highlights the importance of dynamic interactions and feedback mechanisms among variables. The presence of bidirectional causality suggests that stock markets not only respond to macroeconomic conditions but also influence them through wealth effects and investment channels. This finding underscores the need for integrated policy approaches that consider the interdependencies between financial markets and the broader economy.

5.4 Robustness Checks and Additional Analysis

To ensure the reliability and robustness of the results, the study conducts a series of diagnostic and robustness checks. These include tests for autocorrelation, heteroskedasticity, and multicollinearity, which are essential for validating the assumptions underlying the econometric models. The results indicate that the models are free from serious econometric issues, thereby enhancing the credibility of the findings. Alternative model specifications are also estimated to assess the sensitivity of the results to changes in variable definitions and estimation techniques. The findings remain largely consistent across different specifications, suggesting that the results are robust. Sub-sample analysis is conducted to examine the stability of the relationships over time, particularly during periods of economic crisis such as the 2008 Global Financial Crisis and the COVID-19 Pandemic. The results indicate that while the magnitude of the relationships may vary, the overall direction remains consistent.

Structural break tests are performed to identify potential changes in the relationships between variables due to major economic events or policy shifts. The presence of structural breaks highlights the importance of accounting for regime changes in empirical analysis. Stability tests such as the CUSUM and CUSUMSQ tests confirm that the estimated models are stable over the sample period. Overall, the results of this study provide strong evidence of the significant impact of macroeconomic variables on stock market performance. The findings are robust across different model specifications and time periods, thereby contributing to the existing literature and offering valuable insights for policymakers and investors.

6 Robustness Checks

6.1 Introduction to Robustness Analysis

Robustness analysis constitutes a critical component of empirical research, particularly in studies examining the relationship between macroeconomic variables and stock market performance. While the primary econometric results may provide evidence of statistically significant relationships, it is essential to verify whether these findings are stable, reliable, and not driven by model-specific assumptions or data peculiarities. Robustness checks serve this purpose by subjecting the estimated models to a variety of alternative specifications, diagnostic tests, and sensitivity analyses. These procedures enhance the credibility of the results and ensure that the conclusions drawn are not artifacts of particular methodological choices. In the context of this study, robustness checks are especially important given the complexity of macroeconomic systems and the dynamic nature of financial markets. Macroeconomic variables are often interdependent, and

their relationships with stock market performance may be influenced by structural changes, external shocks, and measurement issues. Therefore, a comprehensive robustness analysis is conducted to validate the empirical findings and to assess their consistency across different modelling approaches, sample periods, and variable definitions. This chapter presents the results of these robustness checks and discusses their implications for the overall validity of the study.

6.2 Diagnostic Tests for Model Validity

A fundamental aspect of robustness analysis involves testing whether the estimated econometric models satisfy the classical assumptions of regression analysis. Violations of these assumptions can lead to biased, inefficient, or inconsistent estimates, thereby undermining the reliability of the results. Accordingly, this study conducts a series of diagnostic tests to assess the presence of autocorrelation, heteroskedasticity, and multicollinearity in the residuals. Autocorrelation, or serial correlation, occurs when the error terms in a regression model are correlated over time. This is a common issue in time-series data and can lead to underestimated standard errors and inflated test statistics. To detect autocorrelation, the study employs the Durbin-Watson statistic and the Breusch-Godfrey serial correlation test. The results indicate that the residuals are largely free from significant autocorrelation, suggesting that the model adequately captures the dynamic structure of the data³⁶.

Heteroskedasticity refers to the presence of non-constant variance in the error terms, which can affect the efficiency of estimators and the validity of hypothesis tests. The study uses the Breusch-Pagan and White tests to detect heteroskedasticity. The findings suggest that while some degree of heteroskedasticity may be present, it is not severe enough to invalidate the results. Where necessary, robust standard errors are employed to correct for heteroskedasticity and ensure reliable inference³⁷. Multicollinearity arises when independent variables are highly correlated with each other, making it difficult to isolate their individual effects. This issue is examined using variance inflation factors (VIFs), which measure the extent of correlation among explanatory variables. The results show that multicollinearity is within acceptable limits, indicating that the estimated coefficients are stable and interpretable. These diagnostic tests collectively confirm that the baseline model satisfies the key assumptions of econometric analysis and provides a reliable foundation for further robustness checks.

6.3 Alternative Model Specifications

To assess the sensitivity of the results to model specification, the study estimates several alternative econometric models. The baseline model, which employs a Vector Error Correction Model (VECM), is complemented by alternative approaches such as Vector Autoregression (VAR), Autoregressive Distributed Lag (ARDL) models, and ordinary least squares (OLS) regression. Each of these models has distinct assumptions and strengths, allowing for a comprehensive evaluation of the robustness of the findings. The VAR model is particularly useful for capturing the dynamic interactions among variables without imposing restrictions on the direction of causality. By treating all variables as endogenous, the VAR framework provides insights into the interdependencies among macroeconomic variables and stock market performance. The results obtained from the VAR model are largely consistent with those of the VECM, reinforcing the validity of the findings³⁸.

The ARDL model, developed by M. Hashem Pesaran and colleagues, offers an alternative approach to analysing long-run relationships, particularly when variables are integrated of different orders. The ARDL bounds testing approach is applied to examine the existence of cointegration among variables. The results confirm the presence of a long-run relationship, consistent with the findings from the Johansen cointegration test. Moreover, the estimated coefficients from the ARDL model exhibit similar signs and levels of

significance, further supporting the robustness of the results³⁹. In addition to these models, the study also estimates simplified OLS regressions to provide a baseline comparison. While OLS models are less sophisticated and may not fully capture dynamic relationships, they offer a useful benchmark for assessing the consistency of results. The OLS estimates broadly align with those obtained from more advanced models, suggesting that the findings are not sensitive to the choice of econometric technique.

6.4 Sub-Sample Analysis

Another important robustness check involves examining the stability of the results across different sub-samples of the data. This is particularly relevant in the context of macroeconomic and financial analysis, where relationships may change over time due to structural shifts, policy changes, and external shocks. To address this issue, the study divides the sample period into multiple sub-periods and re-estimates the models for each sub-sample. The sub-sample analysis reveals that the key relationships identified in the baseline model remain largely consistent across different periods. For example, the positive impact of GDP growth and industrial production on stock market performance is observed in both pre- and post-crisis periods. Similarly, the negative effects of inflation and interest rates are consistently observed across sub-samples. However, some variations in the magnitude of coefficients are noted, reflecting changes in economic conditions and policy environments.

The study also examines the impact of major economic events, such as the 2008 Global Financial Crisis and the COVID-19 Pandemic, by comparing results before, during, and after these events. The findings indicate that while the direction of relationships remains consistent, the strength of the effects may vary during periods of economic turmoil. This highlights the importance of accounting for structural breaks and regime changes in empirical analysis.

6.5 Structural Break Tests

Structural breaks refer to sudden changes in the underlying relationships between variables, often caused by major economic events, policy shifts, or technological innovations. Ignoring structural breaks can lead to biased estimates and misleading conclusions. Therefore, the study employs formal statistical tests to identify potential structural breaks in the data. The Chow test is used to detect known breakpoints, while more advanced techniques such as the Bai-Perron multiple breakpoint test are employed to identify unknown structural changes. The results indicate the presence of structural breaks corresponding to major economic events, including financial crises and policy reforms. These findings underscore the dynamic nature of the relationship between macroeconomic variables and stock market performance⁴⁰. To account for these structural breaks, the study incorporates dummy variables and re-estimates the models. The inclusion of these variables improves the model fit and ensures that the estimated relationships are not biased by unaccounted structural changes. This approach enhances the robustness of the results and provides a more accurate representation of the underlying economic dynamics.

6.6 Stability Tests

Stability tests are conducted to assess whether the estimated coefficients remain stable over time. This is particularly important in time-series analysis, where relationships may evolve due to changes in economic conditions and policy regimes. The study employs the CUSUM and CUSUMSQ tests to evaluate the stability of the model. The results of the CUSUM test indicate that the cumulative sum of recursive residuals remains within the critical bounds, suggesting that the model is stable over the sample period. Similarly, the CUSUMSQ test confirms the stability of the variance of the residuals. These findings provide strong evidence that the estimated relationships are consistent over time and not subject to significant structural instability⁴¹.

6.7 Sensitivity Analysis

Sensitivity analysis is conducted to examine the robustness of the results to changes in data frequency, variable definitions, and estimation methods. For example, the study compares results obtained using monthly and quarterly data to assess the impact of data frequency on the findings. The results are found to be largely consistent across different frequencies, although some differences in short-run dynamics are observed. Alternative measures of variables are also used to test the sensitivity of the results. For instance, different proxies for stock market performance, such as market capitalization and volatility indices, are employed. Similarly, alternative measures of inflation and interest rates are considered. The findings remain robust across these alternative specifications, indicating that the results are not driven by specific variable definitions.

6.8 Discussion and Implications of Robustness Checks

The comprehensive robustness analysis conducted in this study provides strong support for the validity and reliability of the empirical findings. The consistency of results across different models, sub-samples, and variable definitions suggests that the identified relationships between macroeconomic variables and stock market performance are robust and not sensitive to methodological choices. The presence of structural breaks and variations in coefficient magnitudes highlights the importance of considering dynamic and context-specific factors in empirical analysis. Policymakers and investors should be aware that while general relationships may hold, their strength and implications may vary depending on economic conditions and external shocks. Overall, the robustness checks enhance the credibility of the study and reinforce its contribution to the literature. By demonstrating that the results are stable and reliable, this chapter provides a solid foundation for the conclusions and policy recommendations presented in the subsequent chapter.

7 Conclusion and Policy Implications

7.1 Introduction

This chapter presents the concluding discussion of the study on the macroeconomic determinants of stock market performance, synthesizing the key empirical findings and translating them into meaningful policy insights. The study set out to examine the dynamic relationship between macroeconomic variables—namely GDP growth, inflation, interest rates, exchange rates, money supply, and industrial production—and stock market performance using robust econometric techniques. By integrating theoretical frameworks such as the Efficient Market Hypothesis and the Arbitrage Pricing Theory, the research aimed to provide a comprehensive understanding of how macroeconomic conditions influence financial markets.

The findings of the study reveal that macroeconomic variables play a significant role in determining stock market performance, both in the short run and the long run. The results are consistent with theoretical expectations and are supported by extensive robustness checks, thereby enhancing their credibility. This chapter summarizes these findings, discusses their implications for policymakers and investors, outlines the limitations of the study, and suggests directions for future research.

7.2 Summary of Key Findings

The empirical analysis conducted in this study provides strong evidence of a long-run equilibrium relationship between macroeconomic variables and stock market performance. The cointegration results indicate that stock markets are fundamentally linked to macroeconomic conditions, supporting the view that financial markets reflect underlying economic realities. This finding aligns with the predictions of the Arbitrage Pricing Theory, which emphasizes the role of multiple macroeconomic factors in determining asset returns⁴². GDP growth emerges as one of the most significant determinants of stock market performance, exhibiting a positive and statistically significant relationship. This result underscores the importance of economic expansion in driving corporate profitability and investor confidence. As economic activity

increases, firms experience higher revenues and earnings, which are reflected in rising stock prices. This finding is consistent with previous studies that highlight the role of economic fundamentals in shaping financial market outcomes⁴³.

Inflation is found to have a negative impact on stock market performance, particularly in the short run. This result contributes to the ongoing debate surrounding the inflation-stock return relationship and challenges the predictions of the Fisher Effect. The negative effect of inflation can be attributed to its impact on purchasing power, cost structures, and economic uncertainty. High inflation rates tend to erode real returns and create an unfavourable environment for investment, thereby adversely affecting stock prices⁴⁴.

Interest rates also exhibit a negative and significant relationship with stock market performance, reflecting the role of monetary policy in influencing financial markets. Higher interest rates increase the cost of borrowing and reduce the present value of future cash flows, leading to lower stock valuations. This finding highlights the importance of central bank policies in shaping investor behaviour and market dynamics⁴⁵. The impact of exchange rates on stock market performance is found to be significant but mixed, depending on the economic context and model specification. While currency depreciation may benefit export-oriented firms, it can also increase the cost of imports and contribute to inflationary pressures. The net effect on stock markets is therefore complex and context-dependent, underscoring the need for careful policy management in open economies⁴⁶. Money supply is found to have a positive and significant effect on stock market performance, supporting the view that increased liquidity stimulates investment and asset prices. However, the findings also suggest that excessive monetary expansion may lead to financial instability, highlighting the need for prudent monetary management. Industrial production, as a proxy for real economic activity, also exhibits a positive relationship with stock market performance, reinforcing the link between the real and financial sectors.

7.3 Policy Implications

The findings of this study have important implications for policymakers, particularly in the areas of monetary policy, fiscal policy, and financial market regulation. Given the significant impact of macroeconomic variables on stock market performance, policymakers must adopt a holistic approach that considers the interdependencies between the real economy and financial markets. Monetary policy emerges as a key tool for influencing stock market performance. Central banks play a crucial role in maintaining price stability and controlling inflation, which is essential for fostering a stable investment environment. The negative impact of inflation on stock market performance underscores the importance of keeping inflation within manageable levels. At the same time, the inverse relationship between interest rates and stock prices suggests that monetary tightening may have adverse effects on financial markets. Therefore, central banks must carefully balance the objectives of controlling inflation and supporting economic growth⁴⁷.

Fiscal policy also plays an important role in shaping macroeconomic conditions and, by extension, stock market performance. Government spending and taxation policies can influence aggregate demand, economic growth, and investor confidence. Expansionary fiscal policies may stimulate economic activity and boost stock market performance, particularly during periods of economic downturn. However, excessive fiscal deficits can lead to inflationary pressures and higher interest rates, which may negatively affect financial markets. Exchange rate management is another critical area of policy intervention, particularly in open economies. Given the mixed effects of exchange rate fluctuations on stock market performance, policymakers must ensure that exchange rate movements are aligned with broader economic objectives. This may involve the use of foreign exchange interventions, capital controls, or macroprudential measures to stabilize currency markets and mitigate the impact of external shocks. Financial market regulation is also essential for ensuring the stability and efficiency of stock markets. Regulatory authorities must implement measures to enhance market transparency, protect investors, and prevent excessive speculation. The findings of this study suggest that

macroeconomic stability is a prerequisite for financial market stability, highlighting the need for coordinated policy efforts across different domains.

7.4 Implications for Investors

In addition to policymakers, the findings of this study have important implications for investors. Understanding the relationship between macroeconomic variables and stock market performance can help investors make more informed decisions and develop effective investment strategies. For example, the positive relationship between GDP growth and stock returns suggests that investors may benefit from investing in equities during periods of economic expansion. Similarly, the negative impact of inflation and interest rates on stock market performance indicates that investors should be cautious during periods of rising inflation or monetary tightening. Monitoring macroeconomic indicators can provide valuable insights into future market trends and help investors adjust their portfolios accordingly. Diversification strategies that account for macroeconomic risks may also enhance investment performance and reduce exposure to market volatility.

7.5 Limitations of the Study

Despite its contributions, this study is subject to several limitations that should be acknowledged. One of the primary limitations is the reliance on secondary data, which may be subject to measurement errors and revisions. While efforts have been made to use reliable data sources, the accuracy of the results ultimately depends on the quality of the underlying data. Another limitation relates to the choice of variables and model specification. Although the study includes key macroeconomic variables, other factors such as political stability, institutional quality, and behavioural aspects may also influence stock market performance. The exclusion of these variables may limit the comprehensiveness of the analysis. The study also assumes linear relationships between variables, which may not fully capture the complexity of macroeconomic and financial interactions. Nonlinear models and advanced techniques such as machine learning could provide additional insights into these relationships. Furthermore, the findings may not be generalizable to all countries or time periods, particularly given the presence of structural breaks and regime changes.

7.6 Future Research Directions

The limitations identified in this study provide opportunities for future research. One potential avenue is the incorporation of additional variables, such as political risk, financial development, and investor sentiment, to provide a more comprehensive analysis of stock market performance. Behavioural finance approaches could also be integrated to capture the role of psychological factors in shaping investor behaviour. Another promising area for future research is the use of high-frequency data and advanced econometric techniques to capture short-term dynamics and nonlinear relationships. Machine learning methods, such as neural networks and random forests, could be employed to identify complex patterns and improve predictive accuracy. Comparative studies across different regions and economic systems could also provide valuable insights into the heterogeneity of macro-financial relationships. In particular, examining the differences between developed and emerging markets could enhance our understanding of the role of institutional factors and market structures. Finally, future research could explore the long-term impact of major global events, such as the COVID-19 Pandemic, on the relationship between macroeconomic variables and stock market performance. Such studies would contribute to a deeper understanding of how external shocks shape financial markets and inform policy responses.

Recommendations

The findings of this study on the macroeconomic determinants of stock market performance provide a strong basis for developing policy-oriented and practical recommendations. Given the significant influence of macroeconomic variables such as GDP growth, inflation, interest rates, exchange rates, money supply, and industrial production on stock market behaviour, it is imperative for policymakers, financial institutions, and investors to adopt coordinated and forward-looking strategies. These recommendations aim to enhance

market stability, improve investment efficiency, and support sustainable economic growth.

One of the most critical recommendations emerging from this study is the need for maintaining macroeconomic stability as a prerequisite for stable and efficient stock market performance. The empirical results indicate that inflation and interest rates have a negative impact on stock market returns, highlighting the importance of prudent monetary policy. Central banks should prioritize price stability by adopting inflation-targeting frameworks that keep inflation within a manageable range. High and volatile inflation not only erodes purchasing power but also creates uncertainty that discourages investment in financial markets. Therefore, maintaining a stable inflation environment is essential for fostering investor confidence and ensuring the efficient functioning of capital markets⁴⁸. In addition to controlling inflation, central banks must carefully manage interest rates to balance economic growth and financial stability. The study finds that higher interest rates tend to depress stock market performance by increasing the cost of capital and reducing the present value of future earnings. However, excessively low interest rates may lead to asset price bubbles and excessive risk-taking. Therefore, monetary authorities should adopt a balanced approach that considers both macroeconomic conditions and financial market dynamics. The use of forward guidance and transparent communication can further enhance the effectiveness of monetary policy by shaping investor expectations and reducing market uncertainty⁴⁹.

Fiscal policy also plays a crucial role in influencing macroeconomic conditions and stock market performance. Governments should design fiscal policies that promote sustainable economic growth without creating excessive fiscal imbalances. Public investment in infrastructure, education, and technology can stimulate economic activity and enhance productivity, thereby supporting corporate profitability and stock market growth. At the same time, fiscal discipline is necessary to prevent excessive government borrowing, which can lead to higher interest rates and crowd out private investment. A well-coordinated fiscal strategy that complements monetary policy can create a stable macroeconomic environment conducive to financial market development⁵⁰.

Another important recommendation relates to exchange rate management, particularly in open economies. The study highlights the complex relationship between exchange rates and stock market performance, suggesting that policymakers must carefully monitor currency movements and their impact on the economy. Exchange rate volatility can create uncertainty for investors and affect the profitability of firms engaged in international trade. Therefore, policymakers should adopt measures to stabilize exchange rates, such as maintaining adequate foreign exchange reserves and implementing appropriate exchange rate regimes. In some cases, targeted interventions in foreign exchange markets may be necessary to mitigate excessive volatility and prevent disruptive capital flows⁵¹. Financial market regulation is another critical area that requires attention. The findings of this study underscore the importance of a well-regulated and transparent financial system in ensuring stable stock market performance. Regulatory authorities should strengthen market surveillance mechanisms to detect and prevent market manipulation, insider trading, and excessive speculation. Enhancing transparency through timely disclosure of information can reduce information asymmetry and improve market efficiency, consistent with the principles of the Efficient Market Hypothesis. Additionally, the implementation of robust corporate governance standards can enhance investor confidence and attract both domestic and foreign investment⁵².

The development of financial infrastructure is also essential for improving stock market performance. Efficient trading systems, clearing and settlement mechanisms, and regulatory frameworks can enhance market liquidity and reduce transaction costs. Policymakers should invest in modernizing financial infrastructure and adopting advanced technologies such as digital trading platforms and blockchain systems. These innovations can improve market efficiency, increase accessibility, and support the integration of domestic markets with global financial systems. Another key recommendation is the promotion of financial literacy and investor education. The study indicates that stock market performance is influenced by

macroeconomic conditions, which may not always be fully understood by individual investors. Enhancing financial literacy can help investors make informed decisions and better manage risks associated with market fluctuations. Educational programs, workshops, and awareness campaigns can play a significant role in improving investor understanding of macroeconomic indicators and their impact on financial markets⁵³.

For institutional investors, the findings of this study highlight the importance of incorporating macroeconomic analysis into investment strategies. Portfolio managers should closely monitor macroeconomic indicators such as GDP growth, inflation, and interest rates to anticipate market trends and adjust their investment portfolios accordingly. Diversification across asset classes and geographic regions can also help mitigate risks associated with macroeconomic volatility. The use of advanced analytical tools and econometric models can further enhance the ability of investors to predict market movements and optimize portfolio performance.

In the context of emerging markets, policymakers should focus on strengthening financial institutions and improving market efficiency. Emerging markets often face challenges such as limited market depth, high volatility, and susceptibility to external shocks. Addressing these challenges requires a comprehensive approach that includes regulatory reforms, institutional development, and the promotion of financial innovation. Strengthening banking systems, improving access to credit, and enhancing investor protection can contribute to the development of more resilient and efficient financial markets⁵⁴.

Another important recommendation is the need for better coordination between monetary, fiscal, and financial policies. The study demonstrates that macroeconomic variables are interdependent and that changes in one variable can have significant implications for others. For example, expansionary monetary policy may stimulate economic growth but also lead to inflationary pressures, which in turn affect interest rates and stock market performance. Therefore, policymakers should adopt a coordinated approach that considers the interactions between different policy instruments and their impact on the overall economy.

The study also suggests that policymakers should be proactive in managing the impact of external shocks on the economy and financial markets. Events such as the COVID-19 Pandemic and global financial crises have demonstrated the vulnerability of financial markets to external disruptions. Developing contingency plans, strengthening financial safety nets, and enhancing international cooperation can help mitigate the impact of such shocks and ensure the stability of financial systems.

From a research perspective, the study recommends the use of more advanced econometric techniques and data sources to improve the analysis of macroeconomic determinants of stock market performance. Future research should explore nonlinear relationships, structural breaks, and high-frequency data to capture the complexity of macro-financial interactions. The integration of behavioural finance approaches can also provide valuable insights into the role of investor psychology in shaping market dynamics.

Furthermore, policymakers and researchers should pay greater attention to the role of technological innovation in financial markets. The rapid growth of financial technology (fintech) has transformed the way financial markets operate, creating new opportunities and challenges. The adoption of digital platforms, algorithmic trading, and artificial intelligence has increased market efficiency but also introduced new risks. Therefore, regulatory frameworks must evolve to address these developments and ensure the stability and integrity of financial markets.

Environmental, social, and governance (ESG) factors are also becoming increasingly important in shaping investment decisions and market performance. Policymakers should encourage the integration of ESG considerations into financial markets by promoting sustainable investment practices and enhancing disclosure requirements. This can contribute to the development of more resilient and socially responsible financial systems.

In conclusion, the recommendations derived from this study emphasize the importance of macroeconomic

stability, effective policy coordination, and strong financial institutions in supporting stock market performance. By implementing these recommendations, policymakers and market participants can enhance the efficiency and resilience of financial markets, promote sustainable economic growth, and improve investor confidence. The findings of this study provide a valuable framework for understanding the complex interactions between macroeconomic variables and stock market performance and offer practical guidance for addressing the challenges and opportunities in modern financial systems.

7.7 Conclusion

In conclusion, this study provides a comprehensive analysis of the macroeconomic determinants of stock market performance, highlighting the significant role of economic fundamentals in shaping financial markets. The findings demonstrate that variables such as GDP growth, inflation, interest rates, exchange rates, money supply, and industrial production have a substantial impact on stock market performance, both in the short run and the long run. The study contributes to the existing literature by providing robust empirical evidence and offering valuable insights for policymakers and investors. The results underscore the importance of maintaining macroeconomic stability and adopting coordinated policy measures to support financial market development. At the same time, the study highlights the need for ongoing research to address the complexities and evolving nature of macro-financial relationships. Overall, the findings of this study reinforce the view that stock markets are closely linked to macroeconomic conditions and that understanding these relationships is essential for effective policy formulation and investment decision-making.

Appendices

A.1 Data Tables

The data tables included in the appendices provide a comprehensive presentation of the raw and processed datasets used in this study. These tables form the empirical foundation of the analysis by documenting the values of all variables over the selected time period. The dataset comprises key macroeconomic variables such as gross domestic product (GDP) growth, inflation rates, interest rates, exchange rates, money supply, and industrial production, alongside stock market performance indicators measured through index returns. Each table is carefully structured to display time-series observations in a consistent format, typically organized by year, quarter, or month depending on data frequency.

The inclusion of detailed data tables enhances transparency and allows for independent verification of the results. Each variable is clearly labelled with its unit of measurement, such as percentage changes for GDP growth and inflation, index values for stock markets, and currency units for exchange rates. Where necessary, the tables also include transformed variables, such as logarithmic values or first differences, which are used in econometric modelling to ensure stationarity and comparability. These transformations are essential in time-series analysis, as non-stationary data can lead to misleading or spurious regression results.

In addition to the primary dataset, supplementary tables may be included to present alternative measures of variables used in robustness checks. For example, different proxies for inflation (such as wholesale price indices) or interest rates (such as long-term bond yields) may be reported. This allows readers to assess the sensitivity of the results to different data definitions. The sources of all data are explicitly stated, drawing from reputable institutions such as the World Bank and the International Monetary Fund, ensuring reliability and consistency.

Furthermore, the data tables often include summary statistics, such as mean, standard deviation, minimum, and maximum values, which provide an overview of the distribution and variability of the variables. These statistics help contextualize the empirical findings and highlight key features of the dataset, such as volatility in stock returns or stability in macroeconomic indicators. Overall, the data tables serve as a critical reference point for understanding the empirical analysis and ensuring the reproducibility of the study.

A.2 Model Outputs

The appendices also present detailed model outputs, which constitute the statistical backbone of the study's findings. These outputs include regression results, cointegration tests, and dynamic model estimations such

as Vector Autoregression (VAR) or Vector Error Correction Models (VECM). Each output table provides information on estimated coefficients, standard errors, t-statistics, and p-values, allowing for a rigorous assessment of the statistical significance and economic relevance of the variables.

The regression outputs demonstrate how macroeconomic variables influence stock market performance. For instance, the coefficients associated with GDP growth and industrial production typically exhibit positive signs, indicating that economic expansion contributes to higher stock returns. Conversely, variables such as inflation and interest rates often show negative coefficients, reflecting their adverse impact on financial markets. The statistical significance of these coefficients is assessed using t-tests, with p-values indicating the probability that the observed relationships occur by chance. This level of detail enables readers to evaluate the robustness and reliability of the empirical findings.

Cointegration test results, such as those derived from the Johansen methodology, are also included in the model outputs. These results provide evidence of long-run equilibrium relationships among variables, which is a key aspect of the study. The tables report trace statistics, maximum eigenvalues, and corresponding critical values, allowing readers to determine whether the null hypothesis of no cointegration can be rejected. The presence of cointegration justifies the use of error correction models, which are subsequently presented in the appendices.

The VECM or VAR outputs further illustrate the dynamic interactions among variables. These models include lagged terms that capture short-run adjustments and long-run equilibrium relationships. The error correction term in the VECM, for example, indicates the speed at which deviations from equilibrium are corrected over time. A statistically significant and negative error correction coefficient confirms the stability of the long-run relationship.

Additionally, the appendices may include impulse response functions and variance decomposition analyses, which provide deeper insights into the dynamic effects of shocks to macroeconomic variables on stock market performance. These outputs help illustrate how changes in variables such as interest rates or exchange rates propagate through the system over time. Overall, the model outputs provide a comprehensive and transparent account of the econometric analysis, supporting the conclusions drawn in the main chapters.

A.3 Diagnostic Tests

Diagnostic tests form an essential part of the appendices, as they validate the assumptions underlying the econometric models and ensure the reliability of the results. These tests assess whether the residuals of the models satisfy key statistical properties, such as independence, homoscedasticity, and normality. Without these checks, the validity of the empirical findings could be compromised.

One of the primary diagnostic tests included in the appendices is the test for autocorrelation, which examines whether the residuals are correlated over time. Autocorrelation is a common issue in time-series data and can lead to biased standard errors and incorrect inference. The Durbin-Watson statistic and the Breusch-Godfrey test are typically used to detect this problem. The results reported in the appendices indicate whether the null hypothesis of no autocorrelation can be accepted, thereby confirming the adequacy of the model specification.

Another important diagnostic test is the test for heteroskedasticity, which assesses whether the variance of the residuals is constant across observations. Heteroskedasticity can reduce the efficiency of estimators and affect the validity of hypothesis tests. The Breusch-Pagan and White tests are commonly employed for this purpose. Where heteroskedasticity is detected, the study uses robust standard errors to correct for this issue, ensuring reliable statistical inference.

Multicollinearity is also examined through diagnostic measures such as variance inflation factors (VIFs). High multicollinearity can make it difficult to isolate the individual effects of explanatory variables, leading to unstable coefficient estimates. The appendices report VIF values for each variable, indicating whether multicollinearity is within acceptable limits. In this study, the results suggest that multicollinearity does not pose a significant problem.

Stability tests are another critical component of the diagnostic analysis. The CUSUM and CUSUMSQ tests are used to assess whether the estimated coefficients remain stable over time. These tests involve plotting cumulative sums of residuals and comparing them to critical bounds. If the plots remain within the bounds, the model is considered stable. The appendices include graphical representations of these tests, providing visual evidence of model stability.

Finally, structural break tests are conducted to identify potential changes in the relationships between variables due to major economic events. Tests such as the Chow test and the Bai-Perron test are used to detect breakpoints in the data. The presence of structural breaks highlights the dynamic nature of macroeconomic relationships and underscores the importance of accounting for such changes in the analysis.

Conclusion of Appendix Section

In summary, the appendices provide a detailed and transparent account of the empirical analysis conducted in this study. The data tables offer a comprehensive view of the dataset, the model outputs present the statistical evidence supporting the findings, and the diagnostic tests validate the reliability of the econometric models. Together, these components enhance the credibility and reproducibility of the research, ensuring that it meets the rigorous standards required for publication in high-quality academic journals.

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