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# A QUANTITATIVE ANALYSIS SHAPING ECONOMIC GROWTH IN PAKISTAN: INSIGHTS FROM STOCK MARKET PERFORMANCE

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**Abstract**
*The study evaluates the impact of Pakistan's stock market performance on its economic growth using econometric tools like Johansen Co-integration and a Vector Error Correction Model (VECM). The study uses quarterly time series data from Q1:2000 to Q2:2024 to establish a relationship. The industrial production index (IPI) is used as a proxy for economic growth, while other macroeconomic indicators like foreign direct investment (FDI), inflation (CPI), reserve money (M0), and the KSE-100 Index are used as predictors. The results show a long-term relationship between all variables, but a negative impact on long-term economic growth due to domestic industries' reluctance to compete with international ones. Reserve money has a positive long-term impact but a negative short-term impact. The Granger causality test confirms unidirectional causality between KSE-100 Index, M0, and IPI, but bidirectional causality exists between inflation and IPI. No causal relationship is found between FDI and IPI. The study recommends financial institutions to drive development in Pakistan.*

**Keywords:** Stock market performance, KSE-100, FDI, Inflation, reserve money (M0), Industrial production index (IPI), Economic growth, Pakistan

## Introduction

Capital markets are crucial for the growth and development of economies in both developed and developing countries. They facilitate the economic process and act as a fulcrum for the expansion of sectors, sub-sectors, industries, firms, and commerce. Capital markets attract the attention of economists, finance experts, and policymakers due to their perceived benefits for economic growth. They are the fulcrum of capital market activities and are often cited as a barometer of business direction. They also play a vital role in the mobilization and allocation of savings among competing users and uses, which are critical for the expansion and efficiency of an economy. In essence, capital markets facilitate the transfer of funds for economic performance, enabling businesses and economies to harness their human, material, and management resources for optimal output.

Capital markets play a significant role within the global economy where the financial markets generate finance for the economic process. This article focuses on certain factors that may be accustomed to measure capital markets' effect on a country's economic process. The stock market is a vital component of the financial sector that substantially impacts a nation's

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advancement (Demir, 2019). The stock market is recognized as the mechanism through which financial resources are redistributed among various economic entities. The advancement in the stock market is regarded as an indicator of the economic expansion of a nation (Aluko & Azeez, 2019; Pan & Mishra, 2018a).

The stock market is a productive way for states, businesses, and people to raise capital. It facilitates simple stock transactions amongst interested stakeholders due to its high liquidity. The number of individuals involved in stock market transactions and the stability of stock market trends are the main factors influencing the growth of capital and financial markets in any given country (Jadoon et al., 2024). The stock market's fluctuations are a barometer for a nation's economic condition; a positive performance indicates economic expansion, while a negative performance suggests the opposite. When the stock market exhibits a bullish trend, more investors seeking profit opportunities become interested in issuing Initial Public Offerings (IPO) to generate capital. Increased investment thus leads to higher economic activity and growth (Jadoon et al., 2024; Mamun et al., 2018). Many factors determine the performance of the stock market in any country. It is empirically tested that along with technological development and shareholder interest, several macroeconomic indicators and the administrative quality of a state do play a significant role in the stock market performance of the country (Salameh & Ahmad, 2022; Zeeshan, 2022). If investors are perfectly aware of changes in the value of a stock, they will gain maximum benefits by investing in stocks that are expected to increase in value. To avoid losses and gain maximum profits, investors search for techniques and tools to predict stock market movements (M. Ali et al., 2023; Sahu et al., 2023).

The financial structure covers banks, investment firms, insurance companies, real estate agents and microfinance businesses. The financial system, on the other hand, is a system formed by specialized institutions and organizations that transfer payments and mediate savings and investments. The developing countries give weight to financial development policies to acquire higher economic growth rates (Öncel et al., 2023). Economic growth accelerates in the countries whose financial sectors are robust, and the companies in this sector have a better capacity to manage risks. This would suggest that the finance sector is the bedrock and lifeline of the modern economic structure (Sajid et al., 2021). A developed financial system may create and finance new job opportunities, improve trade activities, hedge risks, diversify businesses, and incentivise investments by facilitating purchase of goods and services. On the other hand, a country needs an advanced and robust financial system in order to promote its export (Sulong et al., 2018; Wahid Ali, Nadia Azam, 2022).

**Pakistan Stock Exchange (PSX)**

The Pakistani stock market is a developing market that significantly impacts the economy and company performance. As a leading and liquid financial capital exchange in Pakistan, it has 36 listed sectors, contributing to the total stock market capitalization. The market's development is crucial for economic development and the overall performance of firms operating in the country (Sulong et al., 2018).

In terms of market capitalization, the Karachi Stock Exchange (KSE), which was founded in 1947, is the biggest stock exchange in the area. At first, it had five registered businesses and a KSE-50 index to gauge its success. However, in November 1991, the index was renamed the PSX index with a reference value of 1,000 due to rising trading activity. The most popular

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metric for assessing the success of Pakistan's stock market is the KSE-100 index, which is made up of the top 100 listed companies from various industries. Numerous researchers made extensive use of the KSE-100 index like (Acikalin et al., 2008; Alam et al., 2020; Demir, 2019; Haider, 2018; Ullah & Jan, 2020; Zeeshan, 2022; Jadoon et al., 2024).

According to the Pakistan Economic Survey, the nation's GDP is expected to grow by 37.1 billion dollars in the fiscal year 2023–2024, reaching an anticipated total of 374.6 billion dollars. Pakistan's market capitalization was 9.8% of its nominal GDP in June 2024, down from 7.6% in 2023. The most widely used tool for tracking market stock prices is the KSE 100 index, which is a market capitalization-weighted index of 100 firms. The three equities exchanges were combined into the Pakistan Stock Exchange on January 11, 2016, providing international investors with a single platform. The market's remarkable growth was mostly attributable to the Securities and Exchange Commission of Pakistan (SECP) changes, better macroeconomic indicators, and improved security circumstances.

Table 1 indicates that market capitalization is trending upward, indicating that firms with larger market capitalizations also have more liquid stocks. In 2020, 531 businesses with a combined market valuation of Rs 8,035.36 billion, share capital of Rs 1,421.09 billion, and share volume of Rs 108,426 million were listed. A key factor in the growth of the stock market is the stock market capitalization, which tends to rise and reached Rs 9,44769 in 2024.

Market capitalization, share turnover, and the KSE-100 index's monthly performance are shown in Table 2. Indicating that investors were actively making investments and engaging in trading activities, the turnover peaked in December 2023. However, because of the high stock prices after December, the volume fell. The KSE-100 index and total market capitalization, on the other hand, have been rising and peaked in June 2024 at 78,444.96 points and Rs. 10,374.79 billion, respectively.

**Table 1. Pakistan Stock Exchange**

| | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|
| Total No. of Listed Companies | 531 | 532 | 530 | 524 | 524 |
| Total Listed Capital - Rs in billion | 1,421.09 | 1,442.64 | 1,525.90 | 1,627.17 | 1,673.00 |
| Total Market Capitalization – Rs in billion | 8,035.36 | 8,297.31 | 6,956.51 | 6,369.47 | 9,44769 |
| New Companies Listed during the year | 3 | 5 | 5 | 4 | 4 |
| Average Daily Shares Volume - (Shares in Mn) | 323.51 | 527.50 | 408.00 | 273.00 | 602.2 |
| Total Volume Traded - (Rs in Mn) | 108,426 | 131,354 | 101657 | 67,199 | 113,184 |

Source: Pakistan Stock Exchange, Economic Survey of Pakistan (2023-24)

**Table 2. Month-wise performance of the KSE-100 Index**

| Months | KSE 100 index | Total Market Capitalization (Rs billion) | Turnover in shares (billion) |
|---|---|---|---|
| Jul 22 | 40,150.36 | 6,771.94 | 2.62 |

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| | | | |
|---|---|---|---|
| Aug 22 | 42,351.15 | 7,034.96 | 6.86 |
| Sep 22 | 41,128.67 | 6,782.04 | 3.84 |
| Oct 22 | 41,264.66 | 6,663.36 | 5.81 |
| Nov 22 | 42,348.63 | 6,768.15 | 4.28 |
| Sec 22 | 40,420.45 | 6,500.83 | 3.99 |
| Jan 23 | 40,673.06 | 6,394.03 | 3.89 |
| Feb 23 | 40,510.37 | 6,272.51 | 3.52 |
| Mar 23 | 40,000.83 | 6,108.17 | 3.67 |
| Apr 23 | 41,580.85 | 6,289.90 | 1.93 |
| May 23 | 41,330.56 | 6,277.07 | 3.55 |
| Jun 23 | 41,452.69 | 6,369.47 | 3.21 |
| Jul 23 | 48,034.60 | 7,231.76 | 7.68 |
| Aug 23 | 45,002.42 | 6,715.88 | 6.54 |
| Sep 23 | 46,232.59 | 6,885.57 | 3.20 |
| Oct 23 | 51,920.27 | 7,551.77 | 7.93 |
| Nov 23 | 60,531.27 | 8,729.52 | 13.74 |
| Dec 23 | 62,451.04 | 9,062.90 | 20.61 |
| Jan 24 | 61,979.18 | 9,073.76 | 11.29 |
| Feb 24 | 64,578.52 | 9,225.16 | 6.64 |
| Mar 24 | 67,005.11 | 9,447.69 | 7.29 |
| Apr 24 | 71,102.55 | 9,746.96 | 8.52 |
| May 24 | 75,878.48 | 10,169.95 | 11.14 |
| Jun 24 | 78,444.96 | 10,374.79 | 7.25 |

Source: Pakistan Stock Exchange, Economic Survey of Pakistan (2023-24)

**Literature Review**

Hossin & Hamid (2024) highlighted the importance of market capitalisation, stock turnover and GDP growth and examined how the performance of the capital markets influences the economy of Bangladesh. Many models show a strong positive correlation between the stock market and Bangladesh's GDP, and the results show a long-term relationship between these factors and GDP. Another study, Mugendi (2024) examined how macroeconomic factors influenced Kenya's stock market volatility. Important results show that interest rates, inflation and exchange rate fluctuations all have a major impact on market volatility. Short-term changes in exchange rates increase volatility, while higher inflation compounds it. The higher volatility is usually due to lower interest rates. Oil price volatility and GDP growth rates are two other factors that affect stock market volatility to varying degrees.

Chung (2022) examined the relationship between stock market performance and economic growth, and recent empirical studies have focused on the dynamics of the relationship. The stock market is a key component of a free market economy, allowing companies to manage capital from shareholders in exchange for ownership. Dabwor et al., (2022) examined the impact of financial market volatility on Nigeria's economic development and found that stock market returns have a positive and inelastic effect on economic growth. However, globalization, including its economic, social and political dimensions, has had a significant, elastic and statistically significant impact on the development of the world's population. Khan et al., (2021) examined the impact of terrorism on the growth of Pakistan's stock market and market volatility using data from October 7, 1999 to May 31, 2016 and found that terrorism had a significant impact on Pakistan's stock market growth and market volatility. It found that remittances, foreign direct investment (FDI) and foreign direct investment (FDI) had a

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positive impact on stock market performance in the long run, while FDI, FPI and the exchange rate had only a negligible effect. The study highlights the importance of understanding these factors in order to improve the performance of the Pakistani stock market.

Ullah & Jan (2020) found that economic freedom has a significant impact on the performance and liquidity of the stock market. It used variables such as the return of the KSE-100 index, the volume of trading, the total value of shares, interest rates, inflation and GDP growth. In the coherence test, the findings were significant. Shabbir et al., (2020) carried out a study on the effect of the value of gold and oil on the stock market in Pakistan. the discoveries have revealed this, gold and oil show a positive and significant influence on the money market.

Ain & Rashid (2020) focused on the relationship between the impact of monetary market developments and the non-financial drivers of economic growth in Pakistan. The results show that growth in stock markets is in direct correlation with growth in the economy. Another study by Rahman et al. (2020) examined the relationship between economic expansion and financial growth using the two-state Markov chain of inquiry. Nguyen & Bui (2019) analysed the relationship between the stock market, the property market and economic growth in Vietnam between 2004 and 2018 and found strong correlation between economic development and these markets, both in the fast and slow growth periods. The investigation by Naveed & Mahmood (2019) has shown the impact of domestic financial liberalisation on economic development in Pakistan. Domestic financial liberalisation has had a positive impact on economic expansion, but its impact is negative in the short term. Joyo & Lefen (2019) study The 2008 financial crisis has reduced the link between Pakistan's stock market and its trading partners, causing portfolio volatility and slowing down the integration of these markets.

Adenijia et al., (2018) explores the impact of financial strategy shockwaves on Nigerian stock market volatility. Results show a positive correlation between monetary policy and stock market volatility, with interest rates playing a significant role in explaining stock market volatility over short and long-term periods. Misra, (2018) analysed the impact of macroeconomic indicators on the Bombay Stock Exchange (BSE) in India. Key indicators such as industrial production, inflation, interest rates, currency rates, broad money supply, and the Indian stock market were found to have long-term causal relationships, while short-term causal relationships were observed.

Waqas, (2023) The study examines the impact of inflation, exchange rate, and foreign direct investment (FDI) on economic development in Pakistan, finding that direct investments significantly contribute to economic expansion and GDP growth. Woon et al., (2020) found that foreign direct investment (FDI) positively impacts economic growth in both the long and short run, indicating that any FDI inflow in a country leads to development. N. Ali and Shaheen, (2019) The study emphasized the significant impact of foreign direct investment (FDI) on Pakistan's economy, highlighting empirical studies indicating a strong correlation between FDI and economic development.

Alamin, (2024) reveals a strong correlation between reserve money and economic development in Bangladesh, highlighting the positive impact of reserve money on GDP and providing valuable insights into the relationship between these two factors. Z. Khan et al., (2021) showed that the money supply positively influences Pakistan's economy, contributing to long-term GDP growth and enhancing economic growth, with a broad money supply having a beneficial impact.

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**Problem Statement**

The rise of the stock market is seen as advantageous for a nation's economic development, and economists, financial experts, and business groups all focus heavily on how it affects the economy. However, it is unclear how stock market volatility and economic development are related, particularly in nations with unstable political systems, inconsistent policies, and volatile financial markets. Although the Pakistan Stock Exchange (PSX) has had phases of expansion and vibrancy, it is still unknown how it contributes to overall economic growth. Investigating whether Pakistan's stock market development has a direct, substantial, and long-term influence on the country's economic growth is essential to resolving this question. By encouraging savings, enabling investments, and enhancing resource allocation, variables including market capitalization, liquidity, stock turnover, and investor confidence can affect economic growth. Unexpected market shocks have made the Pakistani stock market erratic and very volatile, impacting liquidity and lowering investor trust because of dependability problems. Few researchers have looked at the connections between economic growth and the KSE-100 index, while the majority have looked at the linkages between market capitalization and economic growth.

**Research Objectives**

1. To examine the long-term and short-term relationships between Pakistan's stock market performance (KSE-100 Index) and economic growth (measured by the Industrial Production Index) using econometric techniques.
2. To provide policy recommendations for financial regulators, particularly the Securities and Exchange Commission of Pakistan (SECP), to enhance investor confidence and economic stability

**Research Hypothesis**

- The stock market performance has no impact on Pakistan's economic growth.
- The stock market performance has no impact on Pakistan's economic growth either long or short terms.
- The stock market performance has no reasons and effects on Pakistan's economic growth.

**Methodology**

This study explores the relationship between economic growth and stock market performance using quarterly datasets. The time series quarterly data from Q1: 2000 to Q2: 2024 have been used for data analysis. This study analyses Pakistan's developing economy using data from the International Financial Statistics (IFS), Karachi Stock Exchange (KSE), and State Bank of Pakistan (SBP). It considers the industrial production index (IPI) as a dependent variable and the KSE-100 index, foreign direct investment (FDI), and reserve money, and inflation (CPI) as independent variables. Study focuses the econometric conclusions for seasonal unit root tests of HEGY, Johansen co-integration, and Error Correction Model (ECM), among others.

**Econometric Model (Johansen Cointegration)**

To estimate the long-run relationship between the performance of Pakistan's stock market and selected macroeconomic indicators, the Johansen co-integration model was employed for co-integration analysis (Johamen & Jtiselius, 1990). The study utilizes following econometric model to determine the relationship between stock market performance and economic growth:

$$IPI_t = \beta_0 + \beta_1 SMP_t + \beta_2 INF_t + \beta_3 FDI_t + \beta_4 M0_t + \mu_t \quad (1)$$

Where;

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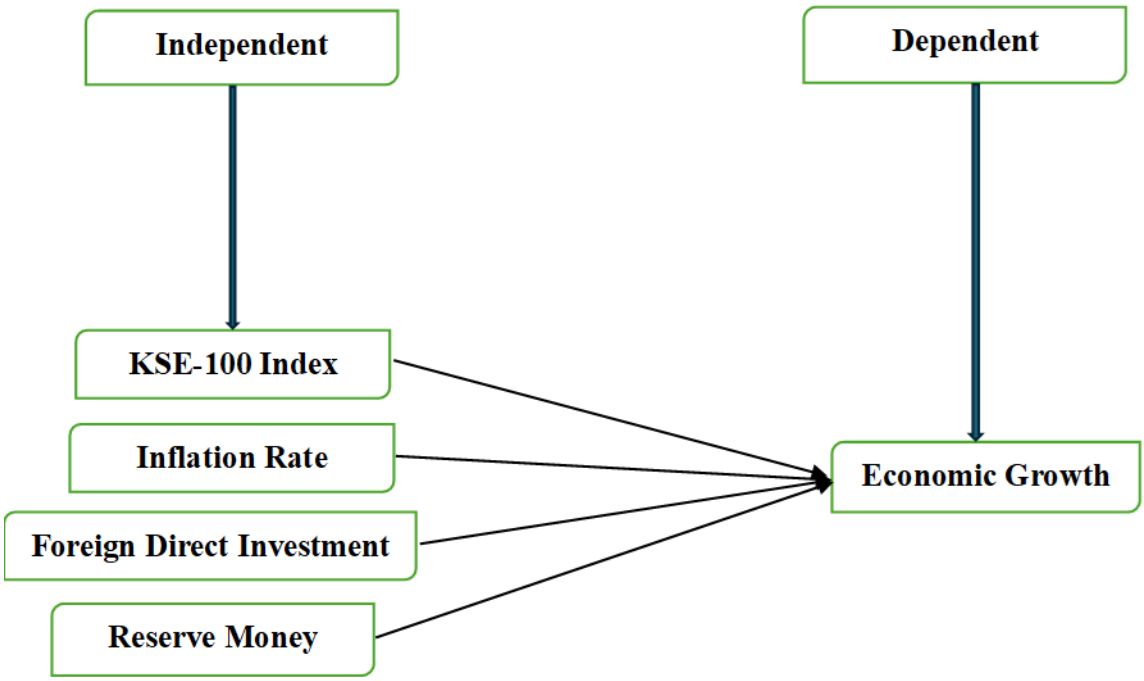
IPI= Industrial Production Index (proxy for economic growth).
SMP= Stock Market Performance measured as (KSE-100 index).
INF= Inflation Rate measured by consumer price index (CPI).
FDI= Foreign Direct Investment proxy of by (net inflow of the country).
M0= Reserve Money measured by M1, M2 and bank deposits held by SBP.
$\beta_0$= intercept, $\beta_{1...4}$= Coefficients of independent variables, $\mu$= error terms.
The error correction specification from above equation (1) is presented in equation (2)

$$\Delta IPI_t = \beta_0 + \beta_1 \Delta SMP_t + \beta_2 \Delta INF_t + \beta_3 \Delta FDI_t + \beta_4 \Delta MO_t + \beta_5 \mu_{t-1} + \varepsilon_t \quad (2)$$

Where, $\mu_t$ is Error Correction Term, $t-1$ showing the variables were lagged by one period, $\varepsilon_t$ is White Noise Residuals.
The error correction model i.e. equation (2) can be applicable to determine the long run equilibrium relationship between variables. The Granger causality test is used to evaluate whether there exists a unidirectional or bidirectional relationship between stock market performance and economic growth.

**Theoretical and Conceptual Framework**

Fama, **(**1970) put out the Efficient Market Hypothesis (EMH), a theory about financial markets, in the 1960s. It implies that since financial markets take into account all available information, investors cannot regularly beat the market through timing or stock selection. According to this view, macroeconomic factors have little or no effect on stock market volatility since stock prices instantaneously and correctly reflect all available information, including macroeconomic indicators. Recent research, however, casts doubt on the strong version of the EMH, arguing that investors may take advantage of macroeconomic variable inefficiencies, which would cause stock market volatility (Ball et al., 2020; Mugendi, 2024; Popoola et al., 2017). The conceptual framework derived from theory.



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## Results and Discussion

### Unit Root Test

The study describes unit root tests using the HEGY test, which observes each variable separately for stationarity. Seasonal unit roots are assumed at zero frequency $\pi_1$, biannual frequency $\pi_2$, and annual frequency $\pi_3, \pi_4$ concurrently. The calculated value and crucial value are compared at a 5% significance level, and it was developed by (Hylleberg et al., 1990).

To avoid the existence of spurious results, this study employed HEGY test for deducting the seasonal unit roots in the model. Results show that all variables became stationary at first difference I (1). See the tables below:

**Table 1: Industrial Production Index**

| **Level** | | | | **1st Difference** | | | |
|---|---|---|---|---|---|---|---|
| IPI | Calculated | Critical Value at 5% | Sea/Tr/C | Calculated | Critical Value at 5% | Sea/Tr/C | Decision |
| $H_0^A: \pi_1$ | -2.12 | -3.28 | Sea., T., C | -4.71 | -2.76 | Sea., C | I (1) |
| $H_0^B: \pi_2$ | -4.03 | -2.75 | Sea., T., C | -3.36 | -2.76 | Sea., C | I (1) |
| $H_0^C: \pi_3 = \pi_4$ | 35.33 | 6.60 | Sea., T., C | 20.47 | 6.57 | Sea., C | I (1) |

Source: (Authors' computation, Eviews-12)

**Table 2: Stock Market (KSE-100 Index)**

| **Level** | | | | **1st Difference** | | | |
|---|---|---|---|---|---|---|---|
| KSE-100 | Calculated | Critical Value at 5% | Sea/Tr/C | Calculated | Critical Value at 5% | Sea/Tr/C | Decision |
| $H_0^A: \pi_1$ | -2.66 | -3.32 | T., C | -4.86 | -3.28 | Sea., T., C | I (1) |
| $H_0^B: \pi_2$ | -5.76 | -1.88 | T., C | -5.19 | -2.75 | Sea., T., C | I (1) |
| $H_0^C: \pi_3 = \pi_4$ | 58.96 | 2.98 | T., C | 34.56 | 6.60 | Sea., T., C | I (1) |

Source: (Authors' computation, Eviews-12)

**Table 3: Inflation Rate**

| **Level** | | | | **1st Difference** | | | |
|---|---|---|---|---|---|---|---|
| Inflation | Calculated | Critical Value at 5% | Sea/Tr/C | Calculated | Critical Value at 5% | Sea/Tr/C | Decision |
| $H_0^A: \pi_1$ | -3.01 | -3.28 | Sea., T., C | -3.22 | -2.76 | Sea., C | I (1) |
| $H_0^B: \pi_2$ | -7.25 | -2.75 | Sea., T., | -5.97 | -2.76 | Sea., C | I (1) |

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | C | | | | |
| $H_0^C: \pi_3 = \pi_4$ | 39.23 | 6.60 | Sea., T., C | 29.49 | 6.57 | Sea., C | I (1) |

Source: (Authors' computation, Eviews-12)

**Table 4: Foreign Direct Investment**

| Level | | | | 1st Difference | | | |
|---|---|---|---|---|---|---|---|
| FDI | Calculated | Critical Value at 5% | Sea/Tr/C | Calculated | Critical Value at 5% | Sea/Tr/C | Decision |
| $H_0^A: \pi_1$ | -2.31 | -3.28 | Sea., T., C | -6.51 | -3.28 | Sea., T., C | I (1) |
| $H_0^B: \pi_2$ | -5.88 | -2.75 | Sea., T., C | -5.42 | -2.75 | Sea., T., C | I (1) |
| $H_0^C: \pi_3 = \pi_4$ | 30.73 | 6.60 | Sea., T., C | 28.30 | 6.60 | Sea., T., C | I (1) |

Source: (Authors' computation, Eviews-12)

**Table 5: Reserve Money**

| Level | | | | 1st Difference | | | |
|---|---|---|---|---|---|---|---|
| RM (0) | Calculated | Critical Value at 5% | Sea/Tr/C | Calculated | Critical Value at 5% | Sea/Tr/C | Decision |
| $H_0^A: \pi_1$ | -1.79 | -3.28 | Sea., T., C | -3.79 | -3.28 | Sea., T., C | I (1) |
| $H_0^B: \pi_2$ | -5.45 | -2.75 | Sea., T., C | -4.09 | -2.75 | Sea., T., C | I (1) |
| $H_0^C: \pi_3 = \pi_4$ | 52.43 | 6.60 | Sea., T., C | 17.22 | 6.60 | Sea., T., C | I (1) |

Source: (Authors' computation, Eviews-12).

**Lag Length Selection**

The table below represents the lag length selection criteria. The second lag of variables is found to be better lag for the data with regard to the case of our study, majority of the steric values also suggest the second lag.

**Table 6: Lag Order Selection Criteria**

| Lag | LogL | LR | FPE | AIC | SC | HQ |
|---|---|---|---|---|---|---|
| 0 | -142.2307 | NA | 6.05e-08 | 3.244146 | 3.436022 | 3.321589 |
| 1 | 623.4254 | 1398.155 | 1.04e-14 | -12.33534 | -10.80033* | -11.71580 |
| 2 | 731.1318 | 180.2911* | 2.95e-15* | -13.61156* | -10.73343 | -12.44992* |
| 3 | 771.1645 | 60.91926 | 3.76e-15 | -13.41662 | -9.195364 | -11.71288 |
| 4 | 819.3522 | 65.99629 | 4.18e-15 | -13.39896 | -7.834580 | -11.15313 |
| 5 | 872.6769 | 64.91693 | 4.43e-15 | -13.49298 | -6.585467 | -10.70505 |
| 6 | 919.0337 | 49.38011 | 5.98e-15 | -13.43552 | -5.184881 | -10.10549 |

Source: (Authors' computation, Eviews-12)

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**Johansen Cointegration Test**

The study aims to determine if variables have a long-term equilibrium connection using the Johansen cointegration test. The table shows the number of long-term connections between integrated variables, with Trace and Max-Eigen statistics indicating at least three cointegrating equations at a 5% level of significance.

**Table 7: Johansen Cointegration Test Result**

| | Trace statistics | | Maximum Eigenvalue Statistics | | |
|---|---|---|---|---|---|
| Hypothesized No. of CE (s) | Trace Statistic | 0.05 Critical Value | Max-Eigen Statistic | 0.05 Critical Value | Conclusion |
| None * | 250.3095 | 125.6154 | 101.4736 | 46.23142 | Reject $H_0$ |
| At most 1 * | 148.8358 | 95.75366 | 67.08022 | 40.07757 | Reject $H_0$ |
| At most 2 * | 81.75561 | 69.81889 | 42.33338 | 33.87687 | Reject $H_0$ |
| At most 3 | 39.42222 | 47.85613 | 18.43454 | 27.58434 | Do not reject $H_0$ |
| At most 4 | 20.98768 | 29.79707 | 13.03962 | 21.13162 | Do not reject $H_0$ |
| At most 5 | 7.948064 | 15.49471 | 7.672301 | 14.26460 | Do not reject $H_0$ |
| At most 6 | 0.275764 | 3.841466 | 0.275764 | 3.841466 | Do not reject $H_0$ |

Source: (Authors' computation, Eviews-12)

**Long Run Relationship and Short Run Error Correction Model**

The ARDL model was used to analyse the long-run relationship between Pakistan's stock market performance and macroeconomic indicators. Once co-integrated, a vector error correction mechanism (VECM) was used to determine the short-run relationship between cointegrated variables. A significant equilibrium error term indicates cointegration, and deviation from the long-run equilibrium relationship leads to convergence to a long-run equilibrium.

Table 8 reveals a negative relationship between stock market performance and macroeconomic variables, showing that a 1% increase in foreign direct investment (FDI) can decrease Pakistan's economic growth by 0.176 units. Similar outcomes were found in the previous research of (H. Ali et al., 2019; Qayyum, 2018). Foreign direct investment negatively impacts Pakistan's economic expansion, as domestic industries struggle to compete with foreign firms offering cheaper goods. Currently, foreign direct investment has minimal effect on Pakistan's GDP. Inflation also negatively impacts economic development, with a one percent increase in inflation resulting in a 0.652-unit loss in economic growth. Therefore, foreign direct investment is not a significant factor in developing nations' growth (Waqas, 2023). The reserve money coefficient positively and significantly impacts Pakistan's economic development, with a one percent increase in reserve money boosting economic growth by 0.880 units. The previous study of (Alamin, 2024) also has confirmed same relationship. The study found a negative but significant impact of the KSE-100 index on the development of Pakistan's industrial production sector. An increase in the index led to a decline in industrial production growth by 0.13 units in the long run. This negative relationship between Pakistan's stock market and economic improvement aligns with previous research by (Alajekwu and Achugbu, 2012; kamran et al., 2018).

In the short-term analysis, we exposed the inverse associations between economic development in Pakistan and foreign direct investment, the stock market index, inflation, and reserve money. The results are shown in table 9 as under.

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**Table 8: Results of Long Run Relationship**

| Variables | Coefficients | Std. Error | t-Statistics | Conclusion |
|---|---|---|---|---|
| KSE-100 | 0.126131 | (0.03985) | [3.1651] | Negative and significant |
| INF | 0.652019 | (0.13325) | [4.8932] | Negative and significant |
| FDI | 0.176177 | (0.02543) | [6.9279] | Negative and significant |
| M0 | -0.880478 | (0.09965) | [-8.8357] | Positive and significant |

Source: (Authors' computation, Eviews-12)

**Table 9: Results of Short Run Error Correction Model**

| Variables | Coefficient | Std. Error | t-Statistics | Conclusion |
|---|---|---|---|---|
| ECT | -0.5772 | (0.220) | [-2.624] | Negative and significant |
| D(KSE-100) | -1.9285 | (0.459) | [-4.199] | Negative and significant |
| D(INF) | -0.1409 | (0.073) | [-1.919] | Negative and significant |
| D(FDI) | -3.3884 | (3.289) | [-1.030] | Negative and significant |
| D(M0) | -0.7225 | (0.216) | [-3.359] | Negative and significant |

Source: (Authors' computation, Eviews-12)

**Table 10: Results of Granger Causality Test**

| **Null Hypothesis** | **F-Statistics** | **Prob.** | **Decision** |
|---|---|---|---|
| KSE-100 does not Granger cause IPI | 4.58574 | 0.0001 | Reject Ho |
| IPI does not Granger cause KSE-100 | 0.49231 | 0.8579 | Do not reject Ho |
| FDI does not Granger cause IPI | 1.00667 | 0.4387 | Do not reject Ho |
| IPI does not Granger cause FDI | 1.87274 | 0.0774 | Do not reject Ho |
| INF does not Granger cause IPI | 2.10715 | 0.0458 | Reject Ho |
| IPI does not Granger cause INF | 3.04927 | 0.0051 | Reject Ho |
| M0 does not Granger cause IPI | 2.62928 | 0.0137 | Reject Ho |
| IPI does not Granger cause M0 | 1.35629 | 0.2303 | Do not reject Ho |

Source: (Authors' computation, Eviews-12)

The Granger causality test was used to estimate the Industrial Production Index (IPI). The results showed a strong unidirectional causality, indicating that the IPI is Granger caused by the KSE-100 index. There was also a unidirectional causality between reserve money (M0) and IPI, indicating that M0 Granger causes the IPI. However, a bidirectional causality was observed between inflation rate (INF) and IPI. Lastly, there was no causal link between IPI and foreign direct investment (FDI).

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**Table 11: Diagnostic and Stability Tests**

| Tests | Null hypothesis | Obs*R-Square | Prob.Chi-Square | Source | Conclusion |
|---|---|---|---|---|---|
| Serial correlation | No serial correlation | 0.168529 | 0.9192 | Breusch-Godfrey LM test | No evidence of serial correlation |
| Heteroscedasticity | No Heteroscedasticity | 30.12215 | 0.9927 | Breusch-Pagan-Godfrey | No evidence of heteroscedasticity |
| Normality | Residuals are normally distributed | | 0.667098 | Jarque-Bera | Normally distributed |

Source: (Authors' computation, Eviews-12)

The above table focuses on the results of the diagnostics and stability tests. The evidence of serial correlation and heteroscedasticity does not exist in the model.

**Policy Recommendations**

The findings suggest that while Pakistan's stock market and macroeconomic indicators influence economic growth, strategic policy interventions are needed to maximize positive impacts. By improving financial market stability, controlling inflation, and encouraging productive investments, Pakistan can achieve sustainable economic growth. Regulatory bodies like the SECP and SBP must collaborate to implement these recommendations effectively.

1. Pakistan should revise its FDI policies to attract investments in high-value sectors (e.g., manufacturing, technology, and export-oriented industries).
2. Introduce automated trading mechanisms and faster settlement systems to enhance market efficiency.
3. The SBP should ensure that money supply growth aligns with productive economic activities rather than speculative investments

**Conclusion**

In conclusion, the relationship between stock market performance and the economy of Pakistan is examined by utilizing quarterly time series data of KSE-100 index, inflation, FDI, reserve money, and industrial production index (IPI) from 2000q1 to 2024q2. To establish the relationship between the variables, this study adopted Johansen cointegration test, VECM, and Granger causality test.

The cointegration test results revealed that there is three co-integrating equations between dependent and independent variables. The coefficient of the error correction term in VECM is negative and statistically significant. It indicates the existence of a long-run association between KSE-100 index, FDI, reserve money, and inflation as independent variables with industrial production (economic growth). Again, the results of normalized co-integration coefficients for long-term correlation there found an inverse relation between KSE-100 index, FDI, inflation except reserve money that is found as positive relation with economic growth of Pakistan. Finally, Granger causality test confirms that there is a unidirectional causality running from KSE-100 index and reserve money to economic growth. However, a

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bidirectional causality from inflation and no causal link is found between FDI and economic growth, respectively. Capital market regulator, that is, Security and Exchange Commission of Pakistan (SECP), should formulate the policies in such a way that they would reduce the uncertainty regarding stock market development, thereby boosting the confidence of investors and also the economy of Pakistan.

**References**

1. Acikalin, S., Aktas, R., & Unal, S. (2008). Relationships between stock markets and macroeconomic variables: An empirical analysis of the Istanbul Stock Exchange. *Investment Management and Financial Innovations*, *5*(1), 8–16.
2. Adenijia, S. O., B, • S. A. J. Obansa, & Okoroaforc, • David O. K. (2018). Monetary policy shocks and stock market prices volatility in Nigeria. *A, Business and Economic Quarterly*, *3*, *3–26.*, 25.
3. Alajekwu, U., & Achugbu, A. (2012). The Role of Stock Market Development on Economic Growth in Nigeria: A Time Series Analysis. *African Research Review*, *6*(1), 51–70. https://doi.org/10.4314/afrrev.v6i1.5
4. Alam, I., Mohsin, M., Latif, K., & -Rehman, M. Z. (2020). The Impact of Macroeconomic Factors on Stock Market: An Evidence from China and Pakistan. *NICE Research Journal*, *13*(2), 1–26. https://doi.org/10.51239/nrjss.v0i0.171
5. Alamin, M. (2024). Relationship Between Reserve Money and Economic Growth in Bangladesh: An Empirical Analysis using the Autoregressive Distributed Lag (ARDL) Approach. *International Journal of Social Science, Management and Economics Research*, *2*(2 March-April 2024), 8. https://doi.org/https://doi.org/10.61421/IJSSMER.2024.2202
6. Ali, H., Farooq, F., Sardar, K., & Masood Bhutta, Z. (2019). How Does Foreign Direct Investment Affect Economic Growth in Pakistan: A Time Series Data Analysis. *Review of Economics and Development Studies*, *5*(3). https://doi.org/10.26710/reads.v5i3.711
7. Ali, M., Khan, D. M., & Alshanbari, H. M. (2023). *applied sciences Prediction of Complex Stock Market Data Using an Improved Hybrid EMD-LSTM Model*.
8. Ali, N., & Shaheen, R. (2019). *The Role of FDI in Economy of Pakistan for the Period of 1971-2018*. *8*(1), 10–17.
9. Aluko, O. A., & Azeez, B. A. (2019). Effectiveness of legal institutions in stock market development in sub-Saharan Africa. *Economic Change and Restructuring*, *52*(4), 439–451. https://doi.org/10.1007/s10644-018-9233-x
10. Areeba Khan, Quratul Ain, & Hafiz Abdur Rashid. (2020). The Drivers of Stock Market Growth in Pakistan: How Relevant is Irrelevant? *Journal of Accounting and Finance in Emerging Economies*, *6*(4), 1189–1197. https://doi.org/10.26710/jafee.v6i4.1479
11. Ball, R., Gerakos, J., Linnainmaa, J. T., & Nikolaev, V. (2020). Earnings, retained earnings, and book-to-market in the cross section of expected returns. *Journal of Financial Economics*, *135*(1), 231–254. https://doi.org/10.1016/j.jfineco.2019.05.013
12. Bui, T. N., & Doan, T. T. T. (2021). The impact of stock market development on economic growth: A GMM approach. *Investment Management and Financial Innovations*, *18*(3), 74–81. https://doi.org/10.21511/imfi.18(3).2021.07
13. Chungu, D. A. (2022). Determinants of Stock Market Performance in Zambia. *Journal of Economics, Management and Trade*, 62–76. https://doi.org/10.9734/jemt/2022/v28i430405
14. Dabwor, D. T., Iorember, P. T., & Yusuf Danjuma, S. (2022). Stock market returns, globalization and economic growth in Nigeria: Evidence from volatility and cointegrating analyses. *Journal of Public Affairs*, *22*(2), 1–9. https://doi.org/10.1002/pa.2393
15. Demir, C. (2019). Macroeconomic determinants of stock market fluctuations: The case of BIST-100. *Economies*, *7*(1). https://doi.org/10.3390/economies7010008
16. Fama, E. F. (1970). Stock market price behavior. *The Journal of Finance*, *25*(2), 383–417.
17. Haider, S. W. (2018). Impact of Interest Rate, Inflation Rate, Exchange Rate and Gold Prices on Karachi Meezan Index 30. *European Journal of Islamic Finance*, *0*(10), 1–8.

18. Hossin, M. S., & Hamid, M. K. (2024). Capital Market Performance and Bangladesh's Economy: An Empirical Study. *Global Business Review*, *25*(2_suppl), S165–S183. https://doi.org/10.1177/0972150920982247
19. Hylleberg, S., Engle, R. F., Granger, C. W. J., & Yoo, B. S. (1990). Seasonal integration and cointegration. *Journal of Econometrics*, *44*(1–2), 215–238. https://doi.org/10.1016/0304-4076(90)90080-D
20. Jadoon, A. K., Mahmood, T., Sarwar, A., Javaid, M. F., & Iqbal, M. (2024). Prediction of Stock Market Movement Using Long Short-Term Memory (LSTM) Artificial Neural Network: Analysis of KSE 100 Index. *Pakistan Journal of Life and Social Sciences*, *22*(1), 107–119. https://doi.org/10.57239/PJLSS-2024-22.1.009
21. Johamen, S., & Jtiselius, K. (1990). Maximum likelihood estimation and inference on cointegration-with applications to the demand for money. *Oxford Bulletin of Economics and Statistics*, *52*(2), 169–210.
22. Joyo, A. S., & Lefen, L. (2019). Stock market integration of Pakistan with its trading partners: A multivariate DCC-GARCH model approach. *Sustainability (Switzerland)*, *11*(2). https://doi.org/10.3390/su11020303
23. Khan, D., Ullah, A., Alim, W., & Haq, I. ul. (2022). Does terrorism affect the stock market returns and volatility? Evidence from Pakistan's stock exchange. *Journal of Public Affairs*, *22*(1). https://doi.org/10.1002/pa.2304
24. Khan, Z., Saad, M., & Uddin, I. (2021). The impact of unemployment, money supply, financial development, FDI, population growth, and inflation on Economic growth of Pakistan. *Meritorious Journal of Social Sciences & Management*, *04*(3). http://journal.mgp.org.pk/index.php/MJSSM
25. Mamun, A., Hasmat Ali, M., Hoque, N., Mowla, M. M., & Basher, S. (2018). The Causality between Stock Market Development and Economic Growth: Econometric Evidence from Bangladesh. *International Journal of Economics and Finance*, *10*(5), 212. https://doi.org/10.5539/ijef.v10n5p212
26. Misra, P. (2018). An investigation of the macroeconomic factors affecting the Indian stock market. *Australasian Accounting, Business and Finance Journal*, *12*(2), 71–86. https://doi.org/10.14453/aabfj.v12i2.5
27. Mugendi, J. (2024). Impact of Macroeconomic Variables on Stock Market Volatility in Kenya. *American Journal of Finance*, *10*(1), 59–71. https://doi.org/10.47672/ajf.1812
28. Muhammad Kamran, Dr. Muhammad Zahid, Said Wali, & Kamran Rizwan. (2021). Stock Market Development And Economic Growth: Evidence From Pakistan. *Journal of Business & Tourism*, *4*(2), 9–26. https://doi.org/10.34260/jbt.v4i2.159
29. Naveed, S., & Mahmood, Z. (2019). Impact of domestic financial liberalization on economic growth in Pakistan. *Journal of Economic Policy Reform*, *22*(1), 16–34. https://doi.org/10.1080/17487870.2017.1305901
30. Nguyen, M. L. T., & Bui, T. N. (2019). Stock market, real estate market, and economic growth: An ARDL approach. *Investment Management and Financial Innovations*, *16*(4), 290–302. https://doi.org/10.21511/imfi.16(4).2019.25
31. Öncel, A., Saidmurodov, S., & Kutlar, A. (2023). Financial development, export and economic growth: Panel data evidence from Commonwealth of Independent States. *Journal of International Trade and Economic Development*, *33*(1), 29–56. https://doi.org/10.1080/09638199.2022.2164045
32. Pan, L., & Mishra, V. (2018). Stock market development and economic growth: Empirical evidence from China. *Economic Modelling*, *68*(July 2016), 661–673. https://doi.org/10.1016/j.econmod.2017.07.005
33. Popoola Olabisi R., Ejemeyovwi O. Jeremiah, Alege O. Philip (Ph.D), A. O., & Ademola, O. A. (2017). Stock Market and Economic Growth in Nigeria. *International Journal of English Literature and Social Sciences (IJELS)*, 10.
34. Qayyum, A. (2018). Impact of foreign direct investment on growth in Pakistan: The ARDL

approach. *Munich Personal RePEc Archive*, *86961*. https://mpra.ub.uni-muenchen.de/86961/

35. Rahman, A., Khan, M. A., & Charfeddine, L. (2020). Financial development–economic growth nexus in Pakistan: new evidence from the Markov switching model. *Cogent Economics and Finance*, *8*(1). https://doi.org/10.1080/23322039.2020.1716446
36. Sahu, S. K., Mokhade, A., & Bokde, N. D. (2023). *applied sciences An Overview of Machine Learning , Deep Learning , and Reinforcement Learning-Based Techniques in Quantitative Finance : Recent Progress and Challenges*.
37. Sajid, A., Hashmi, M. A., Abdullah, A., Amin Hasan, M., & Hasan, M. A. (2021). Foreign Capital Inflows and Stock Market Development in Pakistan. *The Journal of Asian Finance, Economics and Business*, *8*(6), 543–552.
38. Salameh, S., & Ahmad, A. (2022). A critical review of stock market development in India. *Journal of Public Affairs*, *22*(1). https://doi.org/10.1002/pa.2316
39. Shabbir, A., Kousar, S., & Batool, S. A. (2020). Impact of gold and oil prices on the stock market in Pakistan. *Journal of Economics, Finance and Administrative Science*, *25*(50), 279–294. https://doi.org/10.1108/JEFAS-04-2019-0053
40. Shi, Y., Ahmed, K., & Paramati, S. R. (2021). Determinants of stock market development and price volatility in ASEAN plus three countries: The role of institutional quality. *International Journal of Finance and Economics*, *26*(1), 560–572. https://doi.org/10.1002/ijfe.1804
41. Sulong, S., Saleem, Q., & Ahmed, Z. (2018). The Role of Stock Market Development in Influencing the Firms Performance: A Study Based on Pakistan Stock Market. *International Journal of Economics and Finance*, *10*(12), 104. https://doi.org/10.5539/ijef.v10n12p104
42. Ullah, H., & Jan, S. (2020). Economic Freedom on Stock Market Performance and Liquidity: Evidence from KSE-100 Index Pakistan. *NUML International Journal of Business & Management*, *15*(1), 110–126.
43. Wahid Ali, Nadia Azam, M. W. (2022). *The Effects of Financial Development on Economic Growth in Pakistan*. 8.
44. Waqas, M. (2023). Impact of Inflation and FDI on Economic Growth: A Time Series: Analysis of Pakistan. *Pakistan Languages and Humanities Review*, *7*(1). https://doi.org/10.47205/plhr.2023(7-i)13
45. Woon, S., Business, G., & Gbfr, F. R. (2020). *Effect of foreign direct investment on economic growth of Pakistan : The ARDL approach Effect of Foreign Direct Investment on Economic Growth of Pakistan :*
46. Zeeshan, A. (2022). The Impact of Macro-economic Factors on Equity Market Return of Pakistan Stock Exchange (PSE). *International Journal of Business and Administrative Studies*, *8*(2), 91–104. https://doi.org/10.20469/ijbas.8.10004-2