



RESEARCH PAPER

Exploring the Nexus between Pakistan's Stock Market and Macroeconomic Factors in the Context of Asian Equity Markets

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ABSTRACT

This study seeks to investigate the intricate relationship between various macroeconomic variables and stock market returns in the context of Pakistan. Utilizing the Pakistan Karachi Stock Exchange 100 index as a proxy for stock market returns, the research examines secondary data from January 2004 to December 2019. The study focuses on Real interest rate, GDP, unemployment rate, gold rate, Foreign direct investment, exchange rate, and Consumer Price Index (CPI) as independent variables. The research employs Pool Ordinary Least Squares (OLS) Regression to analyze the relationships between stock market returns and the identified macroeconomic indicators. The analysis reveals a nuanced interplay between the dependent and independent variables, indicating a generally weak overall relationship. Multicollinearity among explanatory variables is noted, urging cautious interpretation. The study's reliance on pooled OLS regression neglects potential cross-sectional heterogeneity. Notably, Foreign Direct Investment (FDI) and Consumer Price Index (CPI) show statistically significant relationships with stock market returns, suggesting selective economic influences. Future research should explore different time periods and include additional variables such as political instability, terrorism, and martial law influences to enhance analytical depth.

KEYWORDS Consumer Price Index (CPI), Foreign Direct Investment (FDI), Log-Transformation, Macroeconomic Indicators, Panel Data Analysis, Stock Market, Multicollinearity, Reverse Causality

Introduction

The stock market, an essential aspect of a nation's economic framework, functions as a dynamic nexus where publicly traded corporate securities undergo transactions. It stands as the key factor of investment, providing a platform for investors to realize returns from their assets through dividends or stock price appreciations. Additionally, the stock market assumes a pivotal role in utilizing domestic resources toward productive investments, thereby fostering economic growth. It operates as a channel for the generation of investment capital, a fundamental substance for a robust economy. Categorically, the stock market forms an integral component of every country's economic prosperity. The interdependent relationship between the stock market and the broader economy manifests through two distinct lenses. Primarily, the stock market operates as an indicator of a nation's economic vigor, reflecting its comprehensive economic activity. Secondly, it is subject to influences from macroeconomic factors that wield the potential to impact stock prices. Concisely, fluctuations in the stock market are subject to the control of macroeconomic indicators.

Shifting focus to the Pakistan Stock Market, it emerges as a compelling subject of inquiry, primarily owing to its relatively underexplored status. As this market undergoes

expansion, an understanding of its interaction with the local macro economy becomes increasingly imperative for all stakeholders. Its classification as a developing market within various emerging market indexes, coupled with inherent investment risks, necessitates a closer examination. The research conducted by Waqar (2016) underscores the significance of investigating cross-border securities, particularly in Asian nations with political, geographical, and strategic importance in investment portfolios. Consequently, this study endeavors to examine the short-term relationship between the Pakistani equities market and Asian equity markets. The selection of these equity markets is informed by their noteworthy financial and economic growth trends, which have gathered substantial global market participant interest in recent months. Given Pakistan's extensive business ties with these nations, the rationale for choosing these stock exchanges is cogent.

Previous scholarly endeavors, exemplified by Khan et al. (2018), underscore the fundamental role of a well-functioning stock market in propelling economic growth. These studies emphasize the necessity of examining the association between macroeconomic movements and the stock market. Scholars and financial experts have long been captivated by the relationship between macroeconomic data and their repercussions on stock market indices. Collectively, these investigations suggest a significant connection between macroeconomic variables and stock prices. Hence, this study embarks on the thorough examination of the influence of these variables on Pakistan's stock market. While earlier research has investigated into the impact of macroeconomic conditions on stock market returns, the lack of such investigations within the context of Pakistan necessitates a more profound exploration. Consequently, our research endeavors to illuminate the relationship between macroeconomic factors and stock market performance in Pakistan.

The remainder of the paper is structured as follows: Section 2 reviews the existing literature; Sections 3 elaborates comparative study of the performance of Pakistan stock market with other Asian economies; Section 4 describes the data and methodological approach; Section 5 presents the empirical results & discussions and Section 6 concludes the paper.

Literature Review

The literature review explores various studies exploring the relationship between macroeconomic factors and stock market performance, specifically focusing on the Pakistani context. Ilahi et al. (2015) conducted a study examining the impact of inflation, currency rate, and interest rate on the Pakistani Stock Market returns. Their multiple linear regression analysis revealed a weak relationship between macroeconomic factors and stock market outcomes. In a broader investigation, Badshah et al. (2016) explored the link between the Pakistan Stock Market and macroeconomic factors. Utilizing Unit root tests, Co-integration analysis, and Granger causality, they identified long-run co-integration between variables and the Karachi Stock Exchange (KSE). Notably, their findings suggested that Pakistani oil prices significantly explained the variation in the KSE 100 Index. Hussain et al. (2012) investigated the causal link between the KSE and various macroeconomic indicators. Their study identified a long-term relationship between macroeconomic factors and stock prices. Notably, foreign exchange reserves, real interest rate, imports, money supply, and wholesale price index exhibited positive and significant links with stock prices, while exchange rate and certain other variables had negative or negligible relationships.

Khan and Khan (2018) emphasized the significant impact of macroeconomic variables on investment decisions. Using the ARDL approach, they assessed the short-term and long-term co-integration of macroeconomic variables on Pakistani stock prices. The findings highlighted the considerable impact of money supply, exchange rate, and real interest rate on stock prices over time. Ali et al. (2009) investigated the causal association between macroeconomic indicators and stock market prices in Pakistan. Despite macroeconomic variables like inflation, exchange rate, trade balances, and industrial output,

the study found no causal relationship with stock market prices. This suggests that macroeconomic indicators may not reliably forecast stock prices, and the stock market may not fully reflect the macroeconomic situation of Pakistan. Hunjra et al. (2013) explored how interest rates, exchange rates, GDP, and inflation affect stock prices in Pakistan. Granger causality and co-integration tests were employed, revealing no short-term link but establishing a long-term association. The study emphasized the cautious management of money supply by the central bank to avoid undue impacts on investment and the stock market.

Ullah, et al. (2014) further investigated the effects of macroeconomic variables on Pakistan's stock market, revealing a long-term negative relationship between the exchange rate and real interest rate with the stock market. However, inflation did not produce a discernible impact in both short and long-term scenarios. Contrastingly, Williams (2009) explored the causal relationship between stock prices and interest rates in Kenya, finding no substantial link between the two. Hatipoglu (2020) investigated the connection between the stock market and unemployment in Turkey, discovering no significant causality relations between the Borsa Istanbul and the unemployment rate. Tursoy and Faisal (2018) examined the dynamic link between stock prices and GDP in Turkey. Utilizing ARDL framework and ECM, their findings showed a significant long-term positive association between stock prices and GDP, with a bidirectional causation in the long run and unidirectional causality from GDP to stock prices in the short run. Bhuvaneshwari and Ramya (2017) explored the co-integrating and causal relationship between stock prices and gold rates in India, revealing no long-run equilibrium and no causal link between the two variables.

The extensive review encompasses diverse studies from different countries and regions, shedding light on the varied relationships between macroeconomic indicators and stock market dynamics. While some findings suggest significant connections, others reveal weak or negligible links, underlining the complexity of these interactions. However, despite the comprehensive insights provided by existing literature, there exists a notable research gap regarding the short-run relationship between stock prices and macroeconomic variables in the context of Pakistan. Most studies have primarily focused on long-term associations, and the impact of certain variables, such as gold rates, foreign direct investment (FDI), and unemployment rates, remains underexplored in the Pakistani context. Therefore, this research aims to bridge this gap by investigating the short-run dynamics, incorporating these novel variables, and contributing valuable insights to the existing body of knowledge.

Pakistan's Performance in Asian Equity Markets during 2001-2019

In this section, a thorough examination of the Pakistan Stock Market is undertaken, compared with the stock markets of Bangladesh, India, and Sri Lanka. The primary aim is to assess the attractiveness of the Pakistan Stock Market for both domestic and foreign investors through a comprehensive comparative analysis with key South Asian counterparts. Utilizing the Karachi Stock Exchange (KSE) 100 index for Pakistan, Dhaka Stock Exchange (DSE) 30 index for Bangladesh, Bombay Stock Exchange (BSE) 50 SENSEX for India, and S&P 20 index for Sri Lanka, the analysis is conducted in US Dollars and the data sourced from <http://www.investing.com>.

According to the data, the crucial period of 2016-2017 witnessed a global trend of declining stock markets. Despite this, the Pakistan Stock Market showcased a remarkable positive trajectory, defying the prevailing pessimism. The confluence of two significant factors contributed to this resilience. Firstly, the Pakistani government's strategic decision to consolidate three large markets into a unified entity injected confidence and stability. Secondly, the initiation of the China-Pak Economic Corridor (CPEC) acted as a powerful facilitator. The influx of substantial Chinese investment not only attracted foreign investors but also significantly bolstered the country's overall foreign direct investment. The global attention on Pakistan in 2016 was substantial, as international delegations from major

financial entities go over the globe, expressing interest in MSCI passive funds. The anticipation of Pakistan's reclassification as an emerging market fueled optimism. However, the actual outcome diverged significantly from these projections. Contrary to expectations, frontier market funds, holding a substantial \$7 billion stake in the Pakistan Stock Exchange (PSX), engaged in substantial selling. Six major companies, including Engro Corporation, Habib Bank, Lucky Cement, MCB Bank, Oil and Gas Development Company, and United Bank, poised for inclusion in the main MSCI EM index, experienced unexpected selling pressure. This unexpected turn of events highlighted the complexity and unpredictability of global market dynamics.

Mistry's (2011) elucidation of India's stock market performance during the same period provides a valuable comparative context. India's market surged, maintained by a strong electoral victory and expectations of enhanced economic development under Prime Minister Manmohan Singh's leadership. This success pushed India into the position of the world's fifth-best market performer, following Sri Lanka, Russia, Indonesia, and Brazil. The contrasting trajectories of the Indian and Pakistani Stock Markets during this period are attributed to the challenging socio-political environment in Pakistan, marked by terrorism-related challenges that significantly impacted foreign investor confidence. The critical year of 2011 witnessed a negative 6% return for the Pakistan Stock Market. Capital gains tax concerns and its computation methodology emerged as deterrents, resulting in diminished investor confidence and a decline in average trading volume to 80 million shares per day. Post-2011, while the situation improved marginally, terrorism and political instability persisted. The period from 2007 to 2012, under the Pakistan People's Party, attracted criticism for inadequate investments in addressing key issues such as terrorism, electricity, and gas crises, along with rising inflation.

The year 2013 marked a pivotal turning point with the election of the Pakistan Muslim League N. Initiatives to combat terrorism, stimulate economic growth, and address key challenges, including the commencement of operations like Zarb-e-Azab and Rad-ul-Fasad, ushered in a positive economic trend. Projects like the China-Pak Economic Corridor (CPEC) and the merger of stock markets in 2016 were instrumental in attracting foreign investments and fostering economic growth. However, the trajectory shifted post-2017 with the election of the Pakistan Tehreek Insaaf government. The absence of prior governing experience raised investor uncertainty, resulting in the withdrawal of investments and a subsequent declining trend. This comparative analysis serves as a robust tool for investors, offering and insights into the regional stock market dynamics and the contextual factors influencing Pakistan's market performance, thereby emphasizing the anomaly of 2016.

Empirical Hypothesis

H₁: There is a negative association between real interest rate and stock prices.

It is based on the results from Ahmed Imran Hunjra and others (2014), Farid Ullah and others (2014).

H₂: There is a negative/positive association between GDP and stock prices.

It is based on the results from Ahmed Imran Hunjra and others (2014), Waqar Badshah and Özlem Saylir (2016), Fama (1981).

H₃: There is a positive association between foreign exchange rate and stock prices.

It is based on the results from Rana Ejaz Ali Khan & Rafaquat Ali (2015).

H₄: There is a negative/positive association between CPI and stock prices.

It is based on the results from Farid Ullah and others (2014), Muhammad Mubashir Hussain and others (2012), Ihsan Ilahi and others (2015).

H₅: There is a positive association between gold rate and stock prices.

It is based on the results from Burucu and others (2013).

H₆: There is a negative association between unemployment rate and stock prices.

It is based on the results from Hatipoglu Mercan (2020).

H₇: There is a positive association between FDI and stock prices.

It is based on the results from Xiqian Wang (2021).

Material and Methods

This study's data span the years 2004 to 2019, utilizing annual data from reliable sources: Real interest rate, FDI, CPI, GDP, and unemployment rate data are sourced from the World Bank's World Development Indicators. This compilation offers cross-country comparative statistics on development, featuring over 1,400 time series indicators for 217 economies. Foreign Exchange Rate data is obtained from the Federal Reserve Economic Data (FRED), an online database providing economic time series data. Gold Rate information is acquired from the Overseas Pakistani Friends (OPF) blog. The KSE 100 index is sourced from "http://www.investing.com," offering real-time financial market tools with coverage of over 300,000 financial instruments. This research explores the impact of macroeconomic indicators—GDP, exchange rate, real interest rate, gold rate, CPI, unemployment rate, and FDI—on the Pakistan Stock Market. Diverging from previous studies, it introduces new variables, namely unemployment rate, gold rate, and FDI. The focus remains on analyzing short-term relationships, differentiating it from the emphasis on long-term associations in existing literature. Recognizing the pivotal role of macroeconomic variables in stock market performance, the study aligns with prior research by Mohammed et al. (2009), Hunjra et al. (2013), and Ullah et al. (2014). These variables are considered fundamental in investors' stock valuation processes, significantly impacting stock market returns.

Addressing Adam and Tweneboah's (2008) observation of a significant yet weak link between Ghana's stock markets and FDI inflows, this study emphasizes FDI's role in fostering technical advancement and increased employment. These factors contribute to the production of goods and services, positively influencing stock markets. Insights from Korhan K. Gokmenoglu and Fazlollahia (2015) indicate that gold price increases may lead to stock market withdrawals, affecting the stock index. Additionally, Burucu's (2013) MGARCH modeling findings underscore the relationship of gold and stock market yields in response to individual and mutual shocks. Incorporating Timothy Sykes' observation on unemployment rate impact, the study recognizes the constraint on general income and spending during rising unemployment, potentially leading to reduced demand and declining stock values. The study integrates the Consumer Price Index (CPI) to gauge the rate of inflation's influence on market volatility. This aligns with Talla's (2013) perspective on inflation's crucial role in shaping the relationship between stock markets and inflation. Acknowledging the relationship between the stock market and GDP, the study recognizes Fama's (1981) discovery of a large positive association between real activities and stock price movements. It has investigated into the dual role of the stock market influencing GDP and being influenced by economic circumstances, especially during bull and bear markets.

Exploring the exchange rate's impact on stock prices, the study considers factors such as currency depreciation and appreciation. Mayasami's (2004) study emphasizes the dual effect of exchange rate changes, impacting both export costs and imports. Liu and

Shrestha's (2008) findings, indicating the exchange rate's non-significant role in explaining stock price evolution, are acknowledged. Concerning real interest rates, the study aligns with Nishat and Shaheen's (2004) observation of a negative relationship between real interest rates and stock returns. Mayasami's (2004) identification of lower real interest rates positively affecting businesses by reducing borrowing costs is acknowledged. Adopting pooled regression analysis covering Bangladesh, Pakistan, India, and Sri Lanka enhances the regional scope of the investigation. Notably, there exists a research gap in the short-run relationship between stock prices and macroeconomic variables in the context of Pakistan. This study aims to address this gap by exploring short-term dynamics and incorporating novel variables, contributing valuable insights to the existing body of knowledge.

$$S = \beta_0 + \beta_1ER + \beta_2RIR + \beta_3GR + \beta_4FDI + \beta_5 UR + \beta_6CPI + \beta_7GDP + u \dots \dots \dots 1$$

Where model specification is as follows:

- S = Stock Market Returns
- ER=Foreign Exchange Rate
- RIR= Real Interest Rate
- CPI = Consumer Price Index
- GR=Gold Rate
- FDI=Foreign Direct Inflows
- UR= Unemployment Rate
- GDP= Gross Domestic Product

The frequency of data is on a yearly basis. Some of the variable's data is readily available on a yearly basis e.g., GDP, FDI, unemployment rate, consumer price index but gold rate and foreign exchange rate data is not readily available on a yearly basis, therefore it should be converted into a yearly basis over the period 2004-2019. The second point is that data is available only for 16 years. Therefore, this study uses pooled data to get more observations. Descriptive statistics of the nine variables are gathered for analysis as presented in the Table 1. The dependent variable, log KSE, has a mean of 3.983 and a median of 4.043, indicating where the data's center is located. The data has a maximum value of 4.578 and a minimum value of 3.124, indicating that the data has a wide range. The independent variable, log GDP, has a mean of 13.155 and a median of 12.959, indicating where the data's center is located. The data has a maximum value of 14.163 and a minimum value of 12.628, indicating that the data has a wide range. The log exchange rate, an independent variable, has a mean of 1.971 and a median of 1.978, showing where the data's center is located. The data has a wide range, with a maximum value of 2.252 and a lowest value of 1.765, suggesting a wide range. The real interest rate, an independent variable, has a mean of 7.593 and a median of 7.019, showing where the data's center is located. The data has a wide range, with a maximum value of 22.564 and a lowest value of 2.513, suggesting a wide range.

Table 1
Descriptive Statistics

| Variables | Obs. | Mean | Median | SD | Min. | Max. |
|----------------------------|-------------|-------------|---------------|-----------|-------------|-------------|
| Log KSE | 64 | 3.988 | 4.043 | 0.403 | 3.124 | 4.578 |
| Log Gross Domestic Product | 64 | 13.155 | 12.959 | 0.484 | 12.628 | 14.163 |
| Real Interest Rate | 64 | 7.593 | 7.019 | 3.847 | 2.135 | 22.564 |
| Unemployment Rate | 64 | 4.19 | 4.295 | 1.748 | 0.4 | 8.38 |
| Log Exchange Rate | 64 | 1.971 | 1.978 | 0.112 | 1.765 | 2.252 |
| Log Consumer Price Index | 64 | 2.028 | 2.054 | 0.156 | 1.709 | 2.261 |

| | | | | | | |
|---------------------------|----|-------|-------|-------|-------|-------|
| Foreign Direct Investment | 64 | 1.38 | 1.18 | 0.713 | 0.383 | 3.668 |
| Log Gold Rate | 64 | 4.454 | 4.626 | 0.287 | 3.885 | 4.73 |

The log CPI is an independent variable, has a mean of 4.454 and a median of 2.054, showing where the data's center is located. The data has a wide range, with a maximum value of 2.261 and a lowest value of 1.709, suggesting a range of the data. The FDI is an independent variable, has a mean of 1.380 and a median of 1.180, showing where the data's center is located. The data has a range, with a maximum value of 3.668 and a lowest value of 0.383. The log gold rate is an independent variable, has a mean of 2.028 and a median of 4.626, showing where the data's center is located. The data has a range, with a maximum value of 4.730 and a lowest value of 3.885.

Table 2
Correlation Matrix

| | Log KSE | Log GDP | RIR | UR | Log ER | Log CPI | FDI | Log GR |
|---------|---------|---------|--------|--------|--------|---------|--------|--------|
| Log KSE | 1 | | | | | | | |
| Log GDP | 0.2163 | 1 | | | | | | |
| RIR | 0.2158 | 0.1081 | 1 | | | | | |
| UR | -0.0064 | 0.3382 | 0.2014 | 1 | | | | |
| Log ER | 0.4937 | 0.1379 | 0.1341 | 0.3702 | 1 | | | |
| Log CPI | 0.9216 | 0.252** | 0.338 | 0.0594 | 0.4786 | 1 | | |
| FDI | -0.1141 | 0.3263 | -0.081 | -0.059 | -0.17 | 0.291** | 1 | |
| Log GR | 0.9052 | 0.2028 | 0.1857 | -0.034 | 0.4594 | 0.9225 | -0.206 | 1 |

* Represent 10% level of significance

** Represent 5% level of significance

*** Represent 1% level of significance

The correlation matrix shows the correlation values, which indicate the degree to which each pair of variables is related exponentially. Correlation values can range from -1 to +1. The correlation value is positive if the two variables tend to increase and decrease together. The correlation value is negative when one variable increase while the other decreases. To determine the degree and direction of a relationship between two variables, use the correlation matrix. The findings of the correlation between dependent and independent variables are detailed in Table 2. From the results log CPI and FDI have a strong positive relationship with stock price movement. It shows that when log CPI and FDI increase the stock price also increases in the same direction. Log GDP, real interest rate, log exchange rate and log gold rate have a weak relationship with stock price movement while the unemployment rate has a negative relationship with stock price movement.

Results and Discussions

This study employs panel data analysis to investigate the relationship between macroeconomic indicators and stock market movements. Starting with an Ordinary Least Squares (OLS) regression, the study progresses to a pooled OLS regression. The primary focus is on understanding the potential bi-directional relationship between Foreign Direct Investment (FDI) and the stock market. From Table 3, the initial model featuring FDI as the main independent variable reveals statistical insignificance, there by rejecting the null hypothesis. This finding aligns with the results reported by Adam and Anokye (2008). In Model 2, the introduction of log Consumer Price Index (CPI) alongside FDI indicates statistical significance for both variables. This result deviates from the findings of Ullah et al. (2014) and Hussain et al. (2012) but aligns with the research of Ihsan Ilahi et al. (2015). In Model 3, the inclusion of log exchange rate alongside FDI and log CPI validates the results reported by Khan and Ali (2015).

In Model 4, the further addition of log Gross Domestic Product (GDP) demonstrates significance for FDI and log CPI, consistent with the findings of Hunjra et al. (2014) and Waqar Badshah and Saylir (2016). In Model 5, the introduction of log gold rate alongside previous variables indicates significance for log CPI and FDI, validating the research conducted by Burucu et al. (2013). In Model 6, the addition of the real interest rate to the variables maintains significance for log CPI and FDI, consistent with the findings of Hunjra et al. (2014) and Ullah et al. (2014). In Model 7, the inclusion of the unemployment rate alongside previous variables reveals significance for log CPI and FDI, supporting the research of Hatipoglu (2020). The study concludes with Model 7, showcasing a strong correlation (R square = 0.90) and affirming the bidirectional relationship between log CPI and FDI. These findings contribute valuable insights to the existing literature on the complex dynamics between macroeconomic indicators and stock market movements.

Table 3
OLS Regression Results

| Variables | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 |
|--------------------|---------|-----------|-----------|-----------|-----------|-----------|-----------|
| FDI | -0.0644 | 0.0965*** | 0.0979*** | 0.1261*** | 0.1109*** | 0.1157*** | 0.1134*** |
| Log CPI | | 2.5109*** | 2.4203*** | 2.5269*** | 1.8927*** | 2.1493*** | 2.1469*** |
| Log Exchange Rate | | | 0.2698 | 0.2858 | 0.259 | 0.2561 | 0.2913 |
| Log GDP | | | | -0.0947 | -0.0783 | -0.0815* | -0.0742 |
| Log Gold Rate | | | | | 0.3580* | 0.2558 | 0.245 |
| Real Interest Rate | | | | | | -0.0101 | -0.0096 |
| Unemployment Rate | | | | | | | -0.0051 |

Table 4 examines the relationship between macroeconomic indicators and the Pakistani stock market, utilizing log-transformed panel data analysis. Inspired by the methodology employed by Ilahi et al. (2015), Ullah et al. (2014), and Khan et al. (2018), this study log-transforms all variables to enhance normal distribution. The R squared value of 90% signifies a substantial fit of the regression model. The standard error of the regression, at 13%, reflects a small average distance between observed values and the regression line, signifying a good fit. Examining individual variables, log GDP, real interest rate, unemployment rate, log exchange rate, log CPI, FDI, and log gold rate, their coefficients and associated statistics are detailed. Notably, log CPI and FDI exhibit statistically significant positive relationships with the stock market, aligning with the findings of previous studies. Hunjra et al. (2014), Badshah and Saylir (2016), Khan and Khan (2018), Wang (2021), Burucu et al. (2013), and Hatipoglu (2020) validate and support the observed relationships.

Table 4
Model 8 Regression Statistics

| | | | | | | |
|--------------------|---------------------|-----------------------|--------------------|----------------|-----------------------|------------------|
| Multiple R | 0.9514 | | | | | |
| R Square | 0.9052 | | | | | |
| Adjusted R Square | 0.8914 | | | | | |
| Standard Error | 0.1327 | | | | | |
| Observations | 64 | | | | | |
| ANOVA | | | | | | |
| | Df | SS | MS | F | Significance F | |
| Regression | 8 | 9.2385 | 1.1548 | 65.6158 | 2.3604 | |
| Residual | 55 | 0.968 | 0.0176 | | | |
| Total | 63 | 10.2065 | | | | |
| | Coefficients | Standard Error | t-Statistic | P-Value | Lower 95% | Upper 95% |
| Intercept | -1.0853 | 0.6215 | -1.7464 | 0.0863 | -2.3308 | 0.1601 |
| log GDP | -0.0775 | 0.0447 | -1.7333 | 0.0886 | -0.1672 | 0.0121 |
| Real Interest Rate | -0.0105 | 0.0064 | -1.6443 | 0.1058 | -0.0232 | 0.0023 |

| | | | | | | |
|-------------------|--------|--------|---------|--------|---------|--------|
| Unemployment Rate | -0.005 | 0.0119 | -0.4239 | 0.6733 | -0.0288 | 0.0188 |
| log Exchange Rate | 0.2851 | 0.1907 | 1.4948 | 0.1407 | -0.0971 | 0.6673 |
| log (PI) | 2.132 | 0.3431 | 6.2138 | 7.249 | 1.4444 | 2.8196 |
| FDI | 0.1165 | 0.0299 | 3.9013 | 0.0003 | 0.0566 | 0.1763 |
| log Gold Rate | 0.2524 | 0.1702 | 1.4832 | 0.1437 | -0.0886 | 0.5934 |

The conclusion emphasizes that FDI and log CPI hold statistically significant relationships with the stock market, while other variables exhibit weaker impacts. Contrary to some previous studies, this research suggests that macroeconomic variables in Pakistan have limited impact on the stock market. The findings are consistent with the works of Ihsan Ilahi et al. (2015) and Hunjra et al. (2012), indicating a weak connection between macroeconomic variables and the Pakistani stock market. The results also align with Khan and Khan (2018), supporting the notion that, in the short term, no macroeconomic variable significantly impacts the stock market. However, the research highlights a novel insight – FDI emerges as a statistically significant factor influencing the stock market. The study attributes this to the unique circumstances surrounding the China Pak Economic Corridor, contributing to the upward trend observed in the Pakistani stock market in 2016.

Conclusion

In conclusion, this study rigorously investigated the dynamics between the exchange rate, CPI, real interest rate, gold rate, GDP, FDI, and unemployment rate, and the stock market returns of the Pakistan Stock Market 100 index. Extending our examination to regional countries and conducting a detailed comparative analysis with the Indian Stock Market enriched the depth of our findings. Employing the Pool OLS regression Model, we separated a weak relationship between the dependent and independent variables. Notably, the correlations among explanatory variables unveiled the presence of multicollinearity, warranting careful consideration in future analyses.

The exclusive reliance on the pooled OLS approach, while providing valuable insights, falls short in capturing potential heterogeneity among cross-sectional factors. Only FDI and CPI exhibited a statistically significant relationship with the stock market, challenging conventional evidences. Equally noteworthy is the absence of short-term relations between macroeconomic indicators and stock exchange movement. This underscores the independence of the exchange rate, real interest rate, gold rate, GDP, and unemployment rate from stock returns in the Pakistan Stock Market indexes.

For future research activities, we advocate for the exploration of different time periods, allowing for a more understanding of the historical evolution of the Pakistan Stock Market, which spans nearly 75 years. Additionally, the incorporation of variables pertaining to political instability, terrorism, and martial law influences could provide a more holistic perspective. These considerations aim to enhance the robustness and applicability of findings in navigating the complex relationship between macroeconomic conditions and stock market performance.

Several recommendations for future research emerge. Firstly, while the Pool OLS regression Model provided valuable insights, future studies should explore alternative methodologies to capture potential heterogeneity among cross-sectional factors more effectively. Secondly, given the absence of short-term relationships between certain macroeconomic indicators and stock exchange movements, delving into the underlying factors driving these dynamics is crucial. Additionally, longitudinal analysis spanning the history of the Pakistan Stock Market and the inclusion of variables related to political instability, terrorism, and martial law influences can enhance the understanding of stock market performance and macroeconomic conditions over time. These recommendations aim to advance research in navigating the complex relationship between macroeconomic conditions and stock market performance, offering valuable insights for investors and policymakers alike.

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