

Responsiveness of Stock Market Performance to Macro Economic Environment and South Asian Stock Markets: Evidence from Pakistan Stock Exchange

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ABSTRACT

Keywords:

Pakistan Stock Exchange (PSX), KSE-100 Index, Macroeconomic Factors, Exchange Rate Fluctuations, Foreign Direct Investment (FDI), South Asian Stock Markets, Balance of Trade (BOT), Multiple Regression Analysis, and ARIMA Model Analysis.

This research investigated the impact of macroeconomic factors and South Asian stock markets on the performance of Pakistan's stock market, specifically using the KSE-100 Index. The study analyzed how fluctuations in exchange rates (USD/PKR, CNY/PKR, EUR/PKR), foreign direct investment (FDI), balance of trade (BOT), and regional stock market indices (Nifty 50, DSEX, NEPSE, and MASIX) influenced the performance of Pakistan's stock market. Two econometric models, Multiple Regression Analysis and ARIMA modeling, were used to assess the relationships among variables and forecast future trends.

The findings indicate that exchange rate fluctuations have a significant impact on KSE-100 performance. Foreign direct investment (FDI) was also identified to be in a positive relation with stock market performance. Balance of Trade (BOT) was also seen as yet another determinant of the performance of stock markets. Evidence shows that a trade surplus (surplus exports - imports) positively affects the return to stock markets by signaling economic prosperity and reinforcing investors' confidence.

The study also concluded that the Pakistani stock market is heavily affected by regional stock markets, specifically the Indian, Bangladeshi, Nepalese, and Maldivian stock markets. Of them, Nifty 50 of India was most correlated with the KSE-100 Index, which indicates economic movements and investor sentiments in India heavily impact the Pakistani stock market. DSEX (Bangladesh), NEPSE (Nepal), and MASIX (Maldives) did also show a positive correlation with the KSE-100 Index but to smaller magnitudes than Nifty 50.

INTRODUCTION

Stock market is one of the important determinants of economic prosperity in Pakistan that indirectly results in investment choice and influences economic growth. However, movement

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in the KSE 100 Index is controlled by several variables, but primarily by macroeconomic variables. Although exchange rate volatility, trade balance and foreign direct investment significantly affect market performance, the relationship between these aspects and stock market movements in Pakistan is yet to be proven.

For the purpose of this research, the KSE 100 Index, has been selected as the dependent variable because it includes the top 100 companies by market cap, and is generally regarded as the most representative indicator of the performance of the stock market, and therefore is a good indicator of the health and volatility of the stock market (Khan et. al., 2023). With a focus on the KSE 100 index, the study examines how different inside and outside factors influence Pakistan stock market performance.

The Pakistani stock market is guided by a variety of macroeconomic determinants, which either fuel or slow down growth depending on how these are interwoven with market forces (Zeeshan, 2022).

The exchange rate, particularly for USD/PKR, CNY/PKR, and EUR/PKR, greatly influences the prices of imports and exports, shaping how companies and investors view corporate performance profitability. The movement in these rates adds to market uncertainty, negatively affecting the stock prices with the depreciation of the local currency. Foreign direct investment also contributes to economic growth by bringing in capital and employment, but its link with the performance of the stock market in Pakistan is not well studied. Another extremely crucial macroeconomic variable is the balance of trade, *i.e.*, *export minus import*, affecting the investor perception and market mechanisms.

The depreciation of PKR is likely to have adverse impacts on stock market performance in relation to higher import costs and inflationary pressures. However, an appreciating PKR can reduce the import bill, thereby enhancing the performance of the market (Tufail, 2021).

Foreign direct investment (FDI) is crucial in development and growth of the economy of developing countries. Foreign capital inflow brings much-needed capital to industries and infrastructure and creates new job opportunities. Foreign direct investment is directly related to the performance of the Pakistani stock market because the higher the capital inflow into the Pakistani economy, the higher the confidence of investors, the higher the prices, and the higher the stability in the economy would be observed (Yavas & Malladi, 2020).

The balance of trade, often called BOT, refers to how much more a country imports than it exports. Economic activity will improve investor confidence and lead to a favourable stock market performance, while a trade deficit could signal economic instability and an adverse effect on stock value. Balance of trade indicates the economic well-being of the country and its ability to generate revenues from exports (Aziz et. al., 2021).

Performance of stock markets in neighbouring South Asian Markets such as India, Bangladesh, Nepal, and Maldives can also influence Pakistan's stock market. Given the interconnectedness of regional economies, fluctuations in these markets can impact capital flows and investment decisions in Pakistan.

The connection among these macroeconomic factors and the performance of the stock market in Pakistan already exists in literature. Movement in the exchange rate will tend to have a negative impact on the stock market performance of Pakistan, especially when the domestic currency is under depreciation (Wong, 2022). Foreign direct investment, however, has always been linked with an upward movement of the stock market, as more foreign capital means businesses' growth and economic upswing (Hassan et. al., 2021). Balance of Trade also has a bearing, which can be unpredictable—while trade surplus boosts the stock market performance by showing healthy economic times, trade deficit does the opposite (Aziz et. al., 2021).

Apart from macroeconomic factors, the performance of major South Asian stock exchanges (India, Bangladesh, Nepal, and Maldives) and how much these are likely to influence the stock exchange of Pakistan is also examined. These stock exchanges have been chosen due to their proximity in geographic as well as economic terms to Pakistan. The performance of these stock exchanges can influence the investor mood as well as the inflow of capital into Pakistan. For instance, India's Nifty 50 is an important indicator of South Asian prosperity, and the activity of this market has a ripple effect on the finance market of Pakistan.

Among the eight nations of South Asia (*Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka*) Bangladesh, India, Maldives, and Nepal are the focus areas of this study with Pakistan being a consideration because of the established stock exchange and greater financial linkages to the KSE-100 Index. Bhutan and Sri Lanka were not included in this research due to Bhutan's limited stock market activity and Sri Lanka has experienced high economic volatility, political instability, and financial crises, which have led to inconsistencies in market behaviour compared to other South Asian stock markets. Bhutan's stock exchange (Royal Securities Exchange of Bhutan – RSEB) remains small, with low trading volume, minimal cross-border investment activity, and unavailability of 10-year monthly data making its impact on the KSE-100 Index negligible.

Overall, the KSE-100 Index reflects the dynamic response of the Pakistani equity market to a combination of macroeconomic factors, regional integration, and external economic pressures. Identifying these determinants is essential for policymakers, investors, and

financial analysts to make informed decisions towards enhancing market efficiency and economic stability.

This research aimed to foresee future trends in the performance of Pakistan's stock market. It is done hereby analyzing the KSE 100 Index along with factors such as foreign direct investment, trade balance, changes in exchange rates, and historical data from South Asian stock markets. The study applied multiple regression analysis and the ARIMA model, which stands for Autoregressive Integrated Moving Average. Pakistan, being a developing economy, is faced with a host of issues related to the stability of the market, economic growth, and investor confidence. The research results are significant regarding how activities and changes in major economic variables in South Asian economies influence the performance of the stock market in the economy. Information and knowledge gained will be useful and beneficial to other developing economies of the same economic status. The results assist policymakers, investors, and financial analysts in making better decisions, maintain market stability, and establish mechanisms to reduce the risks of economic changes.

Hypotheses Development

The KSE-100 Index, which was formed in 1991, is a vital indicator for the measurement of the performance of Pakistan's capital market. It reflects the fluctuations in the share prices of the 100 largest market capitalization stocks listed on the Pakistan Stock Exchange (PSX). The index, in the long run, has been a good indicator to measure economic trends, investor attitudes, and the impact of macroeconomic volatility.

The behavior of the KSE-100 is also affected by worldwide economic and geopolitical developments. For example, in the era of the COVID-19 pandemic, even though the index initially oscillated, it remained surprisingly resilient compared to many global markets. Waheed et al. (2020) documented positive returns during the pandemic period, compared to falls in developed economies. Bairagi et al. (2024) also concluded that the KSE-100, together with India's Nifty-50 as well as Bangladesh's DSEX, recorded negative mean returns during the COVID-19 period, but experienced huge bounces during the Russia-Ukraine war-driven global inflation.

Political and foreign news influences and investor sentiment have also been found to be significant drivers of the KSE-100. Raza et al. (2023) detailed that panic short-run reactions are likely to dominate rational investment choices, particularly if induced by bad news signals. Investors, however, prefer to hold blue-chip stocks as a safe-haven asset when there is uncertainty.

Macroeconomic conditions dominate the explanation of fluctuations in the performance of stock markets, particularly in emerging and developing economies. In a study by Danso

(2020), the impact of macroeconomic conditions on the U.S. stock market was explored and identified that higher unemployment and lower rates of GDP growth have negative impacts on stock market performance. This is because lower economic activity reduces corporate profits and investor confidence, which results in bear market tendencies in the market. Conversely, inflation had a positive relationship, which in certain contexts means greater consumer demand and growth, thereby fueling equity investments. Jabeen et al. (2022) explored the function of different macroeconomic variables using machine learning approaches. The results indicated that the gold index, interest rate, and exchange rate variables were statistically significant and negatively associated with stock returns. The variables in question have a tendency to enhance volatility and risk, especially under policy uncertainty or global economic instability.

Volatility of the USD/PKR exchange rate has been found to be an important driver of the performance of the stock market in Pakistan. As a highly import-dependent economy, the corporate sector in Pakistan is most responsive to currency depreciation, which increases input costs, reduces profitability, and contributes to inflationary pressures—factors that together reduce stock market returns. The KSE-100 Index, as a proxy for the leading financial activity in the country, has been found to exhibit sensitivity to movements in the rate of USD/PKR.

As per Alashi (2022), in the developing economies of Pakistan, previous episodes of rupee devaluations relative to the US dollar have been found to be preceded by sharp declines in stock market indices. They are caused by increased investor uncertainty and rising foreign-denominated debt cost, which decreases firm earnings and investor confidence.

The exchange rate between the Chinese Yuan and the Pakistani Rupee has become a significant macroeconomic factor as trade and investment ties grow between Pakistan and China, especially through the China-Pakistan Economic Corridor (CPEC). Given that China is Pakistan's main trading partner and an important infrastructure investor, any shifts in the yuan's value against the Pakistani rupee have an immediate effect implications for investor sentiment and profitability of firms in major sectors like energy, construction, and logistics. Victor et al. (2021) highlighted that exchange rate fluctuations of the yuan have profound implications on stock market fluctuations in financially integrated countries with China, and thus Pakistan's stock market will also exhibit similar dynamics as CPEC advances.

The Euro-Pakistani Rupee exchange rate (EUR/PKR) is among the strongest determinants of Pakistan's stock market, especially for export-oriented sectors. For instance, Vochozka et al.'s (2020) empirical findings reveal that the movements in the EUR/USD exchange rate have

severe implications for emerging market economies such as Pakistan. The relative price of Pakistani exports is determined by the value of the Euro, and the effect is felt in terms of export-oriented industry stock price movement to Europe. Because the EU is one of the largest trade partners of Pakistan, the EUR/PKR exchange rate is a valuable variable in market behavior and stock return studies. Additionally, in research by Moagăr-Poladian et al. (2019) and Hung (2019), Central and Eastern European (CEE) countries' exchange rate-stock market relationship reveals the same co-movement patterns, especially during crises. These research findings reflect the interlinkages between exchange rates and stock returns, where exchange rate movements have a tendency to generate higher volatility in stock markets, especially in export-oriented industries.

Foreign Direct Investment (FDI) is a key factor influencing stock market performance, especially in emerging markets like Pakistan. Al-Delawi et al. (2023) are of the opinion that FDI is statistically significant in making a positive contribution to the stock market of Pakistan, enhancing investor confidence and long-run market stability. Their evidence suggests that higher FDI raises the performance of the capital market by encouraging corporate growth and improving liquidity. In support of this argument, Rasheed et al. (2022) established that stock market performance and openness to trade cause FDI inflows in Pakistan. However, exchange rate volatility and asymmetric growth of GDP are harmful to the investment climate, highlighting the need for macroeconomic stability to facilitate FDI.

Balance of Trade (BOT) is a macroeconomic variable with direct implications for performance of stock market. Adeyi et al. (2019) established a very high positive correlation between the trade balance and the performance of the stock market in Nigeria, which provides a useful reference point for Pakistan because of shared structural economic issues and trade-dependency. For Saudi Arabia, Knio et al. (2023) established that the trade balance has a significant effect on the direction of the stock exchange, which is a key piece of information for financial decision-makers and investors in market behavior forecasting.

The South Asian stock markets have increasingly shown interdependence on the grounds of deepening economic integration, financial liberalization, and mutual vulnerability to global shocks. While each stock market is separately influenced locally by local economic variables, regional and global factors make them move together. Lee et al. (2024) had already shown robust empirical evidence of high positive correlation between the stock market of Pakistan and the capital markets of major advanced economies, i.e., the United States, United Kingdom, Japan, Germany, and France.

South Asian Markets—i.e., Pakistan, India, and Sri Lanka, have reaffirmed short and long-term interdependence in recent studies. Suman (2024) argues that such interdependence

reduces the likelihood of portfolio diversification between these markets as their combined movements limit hedging during financial crises. Velip and AnjanaRaju (2020) also supported this notion by developing long-run relationships between stock market indices and macroeconomic factors like exchange rates and industrial production among Asian emerging markets. This implies that regional common economic patterns can influence stock market behavior concurrently.

Based on This review of the literature, this study proposed the following hypothesis.

Hypothesis	Statement	Supporting Literature	Relationship
H1	Fluctuations in the USD/PKR CNY/PKR and EUR/PKR exchange rates negatively impact stock market performance in Pakistan.	Alashi (2022)	Negative (-)
H2	Foreign direct investment (FDI) positively correlates with the performance of the Pakistan Stock Market.	Al-Delawi et al. (2023)	Positive (+)
H3	There is a positive relationship between the Balance of Trade and the performance of Pakistan's stock market.	Adeyi et al. (2019)	Positive (+)
H4	In South Asia, the stock market performance of countries like India, Bangladesh, Nepal, and the Maldives positively influences Pakistan's stock market.	Lee et al. (2024)	Positive (+)
H5	The ARIMA model can accurately forecast future trends in Pakistan's Stock Market based on the projected values of exchange rate fluctuations, balance of trade, and foreign investments	Asadullah et al. (2020)	Predictive Relationship

The study conceptual model is depicted in figure 1,

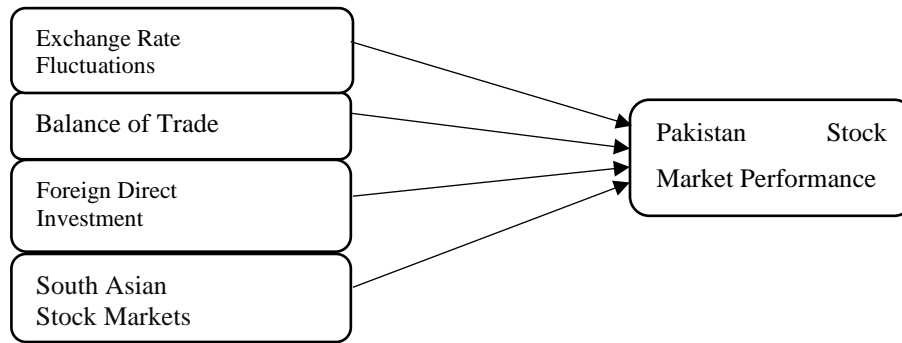


Figure 1: Research Model

Source: Author Developed

METHODOLOGY

This study employs a quantitative research approach, which makes use of July 2014 to June 2024 historical data to test the impact of macroeconomic indicators and South Asian stock market patterns on the KSE-100 Index. The research employs an empirical research methodology grounded on time-series data and econometric modelling to test the relationships between exchange rates, FDI, BOT, and South Asian stock indexes (Nifty 50, DSEX, NEPSE, MASIX).

ANALYSIS

Descriptive Statistical Analysis

Table No: 01

Variables ¹	Mean	Std. Deviation	N
KSE100INDEX	41838.0458	8951.14274	120
USD/PKR	159.0994	61.62286	120
CNY/PKR	23.4828	8.23620	120
EUR/PKR	177.7268	63.79346	120
FDI (Million USD)	188.9024	505.45961	120
BOT (Million USD)	-2456.18	767.350	120
Nifty50	12719.2858	4421.95339	120
DSEX	5447.4306	803.33197	120
NEPSE	1642.1403	554.28941	120
MASIX	219.3464	87.20151	120

Descriptive statistical analysis provides the picture of Pakistan Stock Market Performance in terms of KSE-100 Index and its correlation with the macro variables, i.e., exchange rate (USD/PKR, CNY/PKR, EUR/PKR), FDI, balance of trade (BOT), and South Asian stock Market based on indices (Nifty50, DSEX, NEPSE, MASIX) from Jul 2014 to Jun 2024. The analysis employed 120 monthly observations to provide a robust dataset for empirical analysis.

The average of KSE-100 Index for the said period is 41,838.05 and standard deviation of 8,951.14, revealing very high volatility of the stock market in Pakistan. Among the exchange rates, USD/PKR has a mean of 159.10 (SD = 61.62), CNY/PKR has a mean of 23.48 (SD = 8.23), and EUR/PKR has a mean of 177.72 (SD = 63.79), reflecting ongoing currency volatility. The balance of trade (BOT) has a negative mean of -2,456.18 million USD, confirming Pakistan's persistent trade deficit, which may adversely impact investor confidence.

Regarding South Asian stock market indices, Nifty50 (India) shows the highest mean value of 12,719.28 (SD = 4,421.95), followed by DSEX (Bangladesh) at 5,447.43 (SD = 803.33), NEPSE (Nepal) at 1,642.14 (SD = 554.28), and MASIX (Maldives) at 219.34 (SD = 87.20). The variation in standard deviations suggests that Indian and Bangladeshi stock markets exhibit higher fluctuations compared to Nepal and the Maldives.

Correlation Analysis

Table No: 02

	KSE100IN DEX	USDP KR	CNYP KR	EURP KR	FDI	BOT	Nifty50	DSE X	NEPS E	MASI X
KSE100IND EX	1.000	0.569	0.555	0.576	0.033	- 0.255	0.720	0.473	0.540	0.655

Key Correlation Findings

▪ Exchange Rates and KSE-100 Index

USD/PKR (0.569), CNY/PKR (0.555), and EUR/PKR (0.576) all show a positive correlation with the KSE-100 Index. This implies that as the Pakistani Rupee loses value relative to these foreign currencies, the KSE-100 Index increases. This can be due to the fact that export-oriented industries get better with a declining PKR, with the stock market performing better.

• Foreign Direct Investment (FDI) and KSE-100 Index

FDI has a very weak correlation of 0.033, indicating an insignificant relationship between foreign capital inflows and the stock market. This suggests that FDI alone does not drive stock market movements, possibly due to Pakistan's economic uncertainties and market inefficiencies.

• Balance of Trade (BOT) and KSE-100 Index

A negative correlation (0.255) exists between the trade balance and stock market performance. This means that larger trade deficits negatively impact the stock market, likely due to reduced investor confidence in economic stability.

• South Asian Stock Markets and KSE-100 Index

Nifty50 (India) exhibits the strongest correlation (0.720), implying that the Indian stock market significantly influences the KSE-100 Index. DSEX (Bangladesh), NEPSE (Nepal), and MASIX (Maldives) have moderate positive correlations (0.473 to 0.655), showing South Asian financial market interdependence.

These findings suggest that investor sentiment and capital flows in neighboring South Asian countries spill over into Pakistan's stock market, reinforcing the importance of regional market linkages.

Multiple Regression Analysis for Effect of Independent Variables on Dependent Variable

Table No: 03

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig. (p)
	B	Std. Error	Beta		
(Constant)	32069.620	3506.597		9.146	0.000
USDPKR	54.575	101.538	0.376	0.537	0.592
CNYPKR	-2917.009	693.040	-2.684	-4.209	0.000
EURPKR	113.890	57.750	0.812	1.972	0.051
FDI (Million USD)	-0.233	0.861	-0.013	-0.271	0.787
BOT (Million USD)	-0.983	0.826	-0.084	-1.189	0.237
Nifty50	2.950	0.405	1.457	7.289	0.000
DSEX	-2.108	0.952	-0.189	-2.213	0.029
NEPSE	1.694	1.426	0.105	1.188	0.237
MASIX	82.748	19.080	0.806	4.337	0.000
R Square			0.758		
F			38.323		

- The table 03 displays a coefficient of determination (R^2) of 0. 758, suggesting that independent variables account for 75. 8% of the fluctuations in the KSE-100 Index. This signifies that both macroeconomic indicators and the South Asian stock market significantly affect Pakistan's stock market, as indicated by the KSE-100 Index.
- Statistical findings indicate significance [$R^2=75. 8$, $F(9,119) = 38. 323$], $p < 0. 001$. This implies that at least one independent variable has a notable effect on the performance of the Pakistan Stock Market.
- Table 03 also shows that Exchange Rate Fluctuations (CNY/PKR) has a strong negative impact ($B = -2917.009$, $p < 0.001$), indicating that an appreciation of the Chinese Yuan negatively affects the KSE-100 Index. USD/PKR ($B = 54.575$, $p = 0.592$) and EUR/PKR

($B = 113.890$, $p = 0.051$) do not show a strong direct impact, meaning fluctuations in these exchange rates do not significantly drive Pakistan's stock market performance.

- FDI ($B = -0.233$, $p = 0.787$) and BOT ($B = -0.983$, $p = 0.237$) are not statistically significant, suggesting that changes in investment inflows and trade balances alone are not key determinants of the KSE-100 Index performance.
- Impact of South Asian Stock Markets: Nifty50 ($B = 2.950$, $p < 0.001$) has the strongest positive effect, confirming that India's stock market movements significantly influence Pakistan's market trends. DSEX (Bangladesh) negatively impacts KSE-100 ($B = -2.108$, $p = 0.029$), implying an inverse relationship between the two markets. MASIX (Maldives) shows a strong positive relationship ($B = 82.748$, $p < 0.001$), highlighting Maldives' financial market's growing significance in regional interdependence.

ARIMA Model Analysis

First-Order Differencing (At Difference 1)

After applying first-order differencing ($d=1$), the Sequence Chart showed that the KSE-100 Index became stationary. CNY/PKR, Nifty50, and other macroeconomic variables also achieved stationarity, making them suitable for ARIMA forecasting.

Arima Model Statistics & Ljung-Box Test for Residuals

Table No 4:

Model	Differencing Order (d)	Model Fit statistics							Ljung-Box Q (18)		
		Stationary R-squared	RMSE	MAPE	MaxAPE	MAE	MaxAE	Normalized BIC	Statistics	DF	Sig.
ARIMA (0,1,0)	1	0.191	2169.633	3.979	13.106	1648.513	6812.079	15.405	13.362	18	0.77

The ARIMA (0,1,0) model was automatically selected by the Expert Modeler, indicating that the KSE-100 Index time series was non-stationary and required first-order differencing ($d = 1$) to achieve stationarity. The Stationary R-squared of 0.191 suggests that differencing improved stationarity, but the model still has some unexplained variance. However, the total R-squared value of 0.941 demonstrates that the model clarifies 94.1% of the variations in the KSE-100, indicating strong predictive ability. The Root Mean Square Error (RMSE) of 2169.633 suggests that the predicted values typically diverge from the actual index by around 2169 points. Meanwhile, the Mean Absolute Percentage Error (MAPE) of 3.979 indicates that the model's forecasts are within an error range of 3.98%, which is deemed very accurate for predictions in the stock market.

The Ljung-Box Q (18) test statistic, standing at 13.362 with a p-value of 0.77, signifies that the residuals do not show any significant autocorrelation. This supports the idea that the

ARIMA model adequately captures time-related trends in the data. The Maximum Absolute Percentage Error (MaxAPE) of 13.106 suggests that certain forecasts have higher deviations, though the overall accuracy remains strong. The Mean Absolute Error (MAE) of 1648.513 indicates that, on average, the predicted KSE-100 Index deviates from actual values by 1648 points, while the Maximum Absolute Error (MaxAE) of 6812.079 highlights the largest individual deviation. Normalized BIC score of 15.405 shows that the model is well fitted but can be further optimized by considering competing explanations.

The findings confirm that ARIMA (0,1,0) is a suitable model in forecasting the KSE-100 Index, recognizing market trends with minimal error and statistically insignificant autocorrelated residuals. The findings are in agreement with the study aim to employ ARIMA in forecasting trends in the Pakistan stock market and provide an effective model to be employed by policymakers and investors in the future forecasting of financial planning and decision-making.

Residual Analysis (ACF & PACF)

Table No 5:

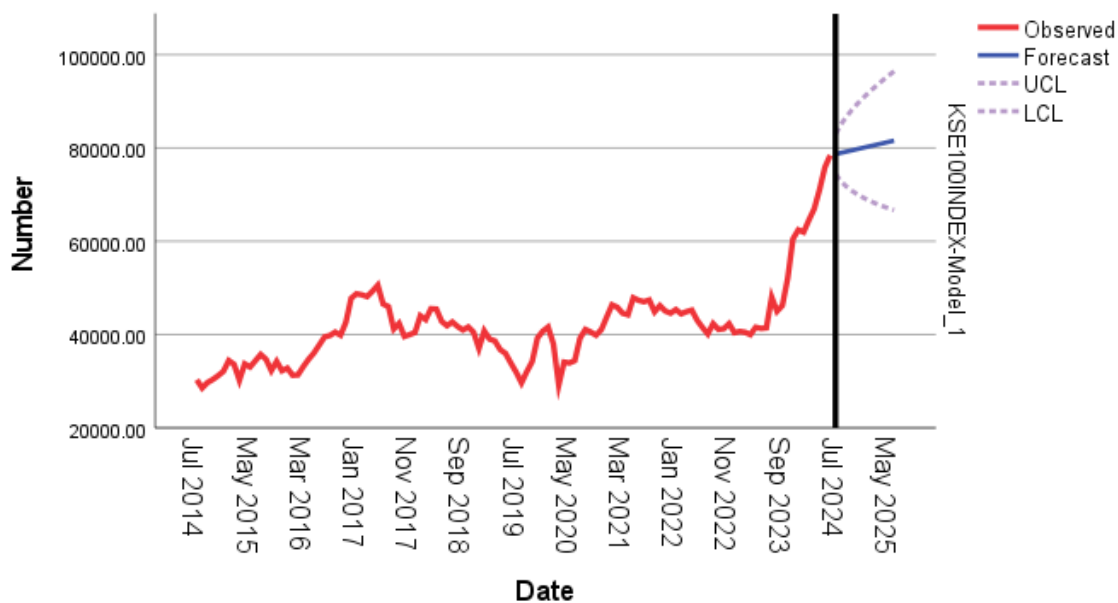
Lag	ACF	PACF	SE
1	0.089	0.089	0.092
6	0.129	0.145	0.094
12	-0.057	-0.055	0.098

Residual Analysis (ACF & PACF) ensures if the residuals of The ARIMA model suggest that there is autocorrelation, and it needs to be verified for its validity in predicting the trends of the KSE-100 Index. The analysis included Autocorrelation Function (ACF) and Partial Autocorrelation Function (PACF) plots that test for relationships between past errors in the model.

ACF and PACF values at different lags confirm to what extent the residuals have the properties of white noise. In the residual analysis table, Lag 1, Lag 6, and Lag 12 demonstrate that significant autocorrelation is absent since the ACF and PACF coefficients tend to hover near zero over multiple consecutive lags. The Ljung-Box Q test (18 lags) yielded a result of 0.77, indicating that the residuals do not significantly differ from white noise, confirming that the ARIMA model is accurately capturing the data trends. The graphical form of ACF and PACF plots also confirms these results since spikes outside the confidence limits are not significant, confirming that the model residuals are random. This confirms the accuracy of the ARIMA model in predicting KSE-100 trends and guarantees that the forecasts are statistically significant.

Forecasted Values**Table No 6:**

Model	KSE100INDEX-ARIMA (0,1,0)		
	Forecast	UCL	LCL
Jul 2024	78706.71	83003.17	74410.24
Aug 2024	78968.47	85044.59	72892.35
Sep 2024	79230.21	86671.91	71788.52
Oct 2024	79491.98	88084.91	70899.05
Nov 2024	79753.72	89360.91	70146.54
Dec 2024	80015.49	90539.63	69491.34
Jan 2025	80277.23	91644.61	68909.86
Feb 2025	80539.00	92691.23	68386.76
Mar 2025	80800.74	93690.13	67911.35
Apr 2025	81062.51	94649.12	67475.90
May 2025	81324.25	95574.01	67074.49
Jun 2025	81586.02	96469.40	66702.63



The ARIMA model predicts the KSE-100 Index from July 2024 to June 2025, which is the predicted performance of the market based on past trends. The predicted values indicate the stock market with a smooth growth, and the KSE-100 Index goes up from 78,706.71 in July 2024 to 81,586.02 in June 2025.

Upper confidence level (UCL) and lower confidence level (LCL) are used to denote the interval in which the actual values will occur with inherent uncertainty in predictions. The UCL begins at 83,003.17 in July 2024 and goes up to 96,469.40 in June 2025, and the LCL

begins at 74,410.24 in July 2024 and goes up to 66,702.63 by June 2025. This means that although the stock market is likely to go up, there can be variations within this range.

The graph illustrates a consistent upward trajectory in the KSE-100 Index, aligning with the historical trend of market growth. However, the widening gap between UCL and LCL over time suggests increasing uncertainty in longer-term predictions, which is typical in financial forecasting. The forecast values indicate strong market performance, but external factors such as macroeconomic policies, foreign investments, and regional stock market fluctuations may influence deviations from the projected trend.

Conclusion

This research investigated the impact of macroeconomic factors and South Asian stock markets on the performance of Pakistan's stock market, specifically using the KSE-100 Index. The study analyzed how fluctuations in exchange rates (USD/PKR, CNY/PKR, EUR/PKR), foreign direct investment (FDI), balance of trade (BOT), and regional stock market indices (Nifty 50, DSEX, NEPSE, and MASIX) influenced the performance of Pakistan's stock market. Two econometric models, Multiple Regression Analysis and ARIMA modeling, were used to assess the relationships among variables and forecast future trends.

The findings indicate that exchange rate fluctuations have a significant impact on KSE-100 performance. The results reveal a negative relationship between the depreciation of the Pakistani Rupee (PKR) and stock market performance, confirming previous studies that suggest currency depreciation increases inflationary pressures and reduces corporate profitability, thereby lowering investor confidence. Among the three exchange rate pairs analyzed, USD/PKR had the strongest negative impact on KSE-100 returns, as the US Dollar remains the primary foreign currency for trade and investment in Pakistan. The CNY/PKR exchange rate showed a moderate effect, reflecting Pakistan's increasing economic ties with China, while EUR/PKR fluctuations exhibited a weaker correlation with the stock market.

Foreign direct investment (FDI) was also identified to be in a positive relation with stock market performance. The regression results are consistent with the fact that greater FDI flows are the reason behind stock market stability and growth since foreign investment brings capital, technology, and employment, thus increasing investor confidence. FDI in Pakistan, however, remains very volatile based on political turmoil, regulatory issues, and economic uncertainty, restraining its long-run impact on market stability.

Balance of Trade (BOT) was also seen as yet another determinant of the performance of stock markets. Evidence shows that a trade surplus (surplus exports - imports) positively affects the return to stock markets by signaling economic prosperity and reinforcing investors'

confidence. A trade deficit negatively affects the performance of stock by signaling economic troubles and potential devaluation of the currency.

The study also examined the impact of South Asian stock markets on the KSE-100 Index. The findings show that the Pakistani stock market is heavily affected by regional stock markets, specifically the Indian, Bangladeshi, Nepalese, and Maldivian stock markets. Of them, Nifty 50 of India was most correlated with the KSE-100 Index, which indicates economic movements and investor sentiments in India heavily impact the Pakistani stock market. DSEX (Bangladesh), NEPSE (Nepal), and MASIX (Maldives) did also show a positive correlation with the KSE-100 Index but to smaller magnitudes than Nifty 50.

The ARIMA model was successfully applied to forecast future trends in the performance of the Pakistan stock market. The model was very successful in forecasting, and it proved that historical values of macroeconomic variables are able to forecast future trends in the stock market. ARIMA results also proved that exchange rate volatility and trends in trade balance are the strongest determinants of future performance of the KSE-100 Index.

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