

The Interplay between Interest Rate and Stock Prices: Evidence from Pakistan's Financial Market



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Abstract: *This empirical study aims to examine the correlation between stock prices and interest rates in Pakistan. The existing literature had extensively explored the connection between stock prices and these financial variables, resulting in a variety of findings that underscore the complexity of their interaction. Some empirical evidence suggests a positive relationship between stock price fluctuations and changes in interest and exchange rates, indicating a significant association. However, a substantial body of research has also identified an inverse correlation between stock price fluctuations and changes in interest rates, further emphasizing the intricate nature of this relationship. This study utilizes data from the past ten years of the Pakistani Stock Exchange (KSE 100 index) to analyze this relationship. The findings reveal an inverse correlation between stock prices and changes in interest rate. Specifically, when stock prices are low, companies tend to avoid entering the capital markets unless the State Bank offers an alternative investment plan for the capital markets. Additionally, a firm's equity value is significantly influenced by variations in interest and exchange rates. Furthermore, the relaxation of Fiscal/Monetary policy can shrink both stock prices and interest rates as individuals have more disposable income to spend on goods or invest in stocks. This nuanced understanding of the association between monetary policy and stock prices is crucial for policymakers and investors. It highlights the need for strategic interventions by the State Bank to stabilize the market and foster an environment conducive to investment. Moreover, it underscores the importance for investors to consider the broader macroeconomic context when making investment decisions, as these financial variables play a pivotal role in determining market trends.*

Keywords: Interest rate, Exchange Rate, Pakistan Stock Exchange and Stock Price

Introduction

The relation between stock prices and economic activities has been the subject of extensive research, with stock prices widely regarded as indicators of economic well-being and societal sentiment (Huy et al., 2020). A robust stock market often signifies economic strength, providing companies with a crucial means to access capital (Ahmad et al., 2016). The

Pakistan Stock Exchange (PSX), formed through the amalgamation of the Karachi Stock Exchange (KSE), Islamabad Stock Exchange (ISE) and Lahore Stock Exchange (LSE), serves as a key platform for fundraising and securities trading. The stock market is shaped by a complex array of factors, including demand and supply dynamics, government policies, industry performance, and macroeconomic conditions (Duy et al., 2016). Among these factors, interest

rate, a critical macroeconomic variable, have a significant impact on stock prices. The majority of research suggests a negative relationship between interest rates and stock prices (Hilkevics et al., 2019), although some studies indicate a positive correlation (Kim J. et al., 2024).

This study focuses on examining the influence of interest rates on stock and securities prices in Pakistan, utilizing statistics from the Pakistan Stock Exchange and Pakistan Bureau of Statistics. Given Pakistan's unique economic landscape and policies, this research aims to provide valuable insights into the interest-rate and the stock price dynamics within this specific context. By analyzing historical data and trends, the study seeks to elucidate how fluctuations in interest rates influence stock market performance, and how these insights can inform both investors and policymakers. Understanding this relationship is particularly important for Pakistan, where economic conditions and policy decisions can have pronounced effects on the stock market. This research contributes to the broader discourse on financial markets by highlighting the specific interactions between interest rates and stock prices in an emerging economy, thereby offering practical implications for economic strategy and investment decision-making.

Literature Review

The stock exchange is crucial to the economy, serving as a reflection of the performance of its macroeconomic components (Arellano et al., 2019). In a free economy, the prices of goods are determined by supply and demand forces and adjust accordingly. In the securities market, prices are shaped by various micro and macro factors, including individual behaviors. For example, an increase in investor interest in buying shares of a particular company drives prices up, while a preference for selling drives them down. Interest, a significant macroeconomic variable, negatively impacts economic activity (Hilkevics et al., 2019). It is measured using price indices such as the GDP deflator, the consumer price index (CPI), and the producer price index. In Pakistan, the CPI is used to calculate interest. Interest diminishes the

value of money, affecting investment decisions, leading investors to seek safe-haven assets like gold, silver, and foreign currencies as a hedge against interest ((Huy et al., 2020). Stock prices are also influenced by financial and non-financial data sourced from various channels, showing uncontrolled changes in interest rates, interest rates, and oil prices (Fasani et al., 2018). Non-financial data includes political events, crises, and other circumstances impacting market decisions. The stock market functions as an economic barometer, with stock price changes indicating shifts in the overall economy (Ghironi, et al., 2020). In Pakistan, the PSX-100 index is a widely used benchmark for measuring stock market performance. While previous studies have primarily focused on assessing the impact of economic procedures on stock prices, there is limited research on the influence of administrative measures. This study aims to explore the impact of interest on stock prices in Pakistan.

Research Methodology

This study investigates correlation between two variables: the stock prices and interest rate. Secondary data has been utilized to analyze the connection between stock prices and the interest rate within the Pakistani economy. Similar studies, such as those conducted by Rochman (2020) have investigated the impact of macro-economic variables on price of stocks, with interest rate being one of the key factors. In this study, the interest rate is treated as the independent variable, while stock prices are the dependent variable. The data focuses on three major indices in the Pakistan Stock Exchange, specifically using the PSX 100 index data from the past ten years. Interest rate data has been sourced from the State Bank of Pakistan and the Bureau of Statistics of Pakistan.

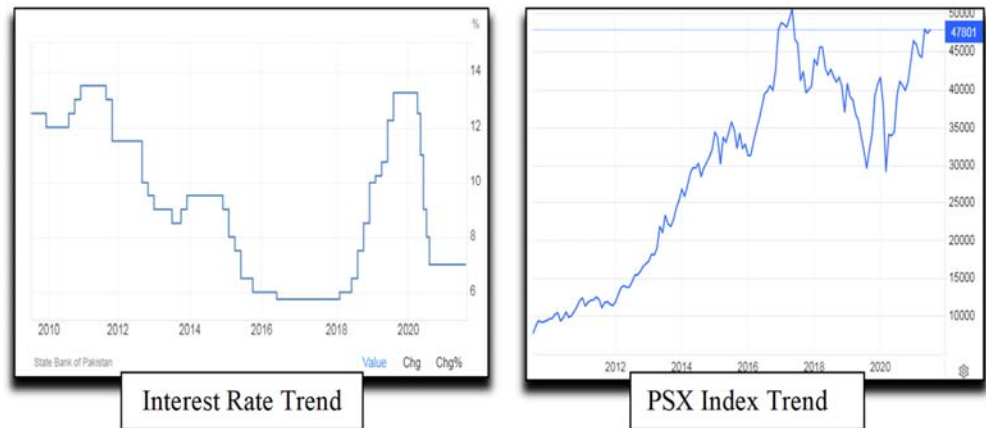
These empirical studies span the previous decade, a period during which the Pakistani economy experienced significant changes and volatile interest trends. Researchers like Fredrick et al. (2021) and Gure et al. (2023) have also utilized ten-year data sets (2008 to 2018) to meet their research requirements. In this study, data analysis has been conducted by utilizing correlation and regression analysis through

SPSS to illustrate historical records in the PSX 100 index.

Model,

$$\text{Stock Price} = \beta_0 + \beta_1 \text{Interest rate} + \mu_i$$

Results and Discussion



The PSX 100 index has been employed in this study as a metric for evaluating stock performance, with a line graph illustrating the trend over the past decade. The graph clearly indicates an upward trajectory in the PSX 100

index throughout this period, culminating in a peak in 2017. Following this peak, a decline was observed, but the index managed to recover some momentum from 2009 to 2021.

Table No. 1: Regression Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.919 ^a	0.844	0.843	1.12392

a. Predictors: (Constant), Interest Rate

As shown in table no. 1, we can observe R-Square value is 0.844 which indicates that

Interest Rate causes 84.4 % change in dependent variable i.e., Stock Index.

Table No. 2: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Interest Rate	120	5.75	14.5	9.3938	2.83745
Stock Index	120	5413	50592	25247.7	13622.379

The under-observation study utilizes secondary data in nature and have its base on end-of-year figures for the past ten years. During this period, as shown in table no. 2, the maximum observed interest rate was 14.5%, while the minimum

observed inflation rate was 5.75%. Over the past decade, the average interest rate was 9.39%, with a standard deviation of 2.83. Furthermore, the maximum value of the KSE-100 index during this period was 50592, while the

minimum value was 5413.43. The average value of the KSE-100 index over the past ten years was 25,247.74, with a standard deviation of 13622.37.

Table No. 3: Coefficients

Model	B	Std. Error	Beta	t-value	Sig.
Stock Price	14.226	0.217		65.628	<.001
Interest Rate	.000	.000	-0.919	-25.307	<.001

a. Dependent Variable: Stock Price

Table no. 3 indicates coefficients results, As shown in table above, beta value is -0.919 which tells us that there is inverse relationship in dependent and independent variable, and change in

one unit in independent variable brings 0.919 units change in dependent variable i.e., stock price. We can inference lowering the interest rate brings boost in stock price and vice versa.

Table No. 4: ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	809.026	1	809.026	640.459	<.001 ^b
Residual	149.057	118	1.263		
Total	958.083	119			

a. Dependent Variable: SP

b. Predictors: (Constant), IR

Table no. 4 depicts that P-Value is less than 0.001 which is less than 0.05, so we can conclude there is significant relationship lies

between Independent Variable i.e., Interest Rate and Dependent Variable i.e., Stock Price.

Table No. 5: Correlations

		Interest Rate	%Change
Interest Rate	Pearson Correlation	1	-.919**
	Sig. (2-tailed)		<.001
	N	120	120
%Change	Pearson Correlation	-.919**	1
	Sig. (2-tailed)	<.001	
	N	120	120

****.** Correlation is significant at the 0.01 level (2-tailed).

This analysis of the PSX 100 index provides valuable insights into the performance of the

stock market over the last ten years. The significant rise leading up to 2017 suggests a

period of robust economic activity and investor confidence. The subsequent decline highlights a period of market correction or external economic pressures impacting stock prices. However, the partial recovery from 2009 to 2021 signifies resilience in the market, potentially driven by economic policies, investor behavior, and other macroeconomic factors. In the ANOVA analysis, the significant value was found to be 0.001, which is below the 0.05 threshold. This allows us to reject the null hypothesis, which posited that “there is no impact of interest on stock prices,” and accept the alternative hypothesis, which states that “there is an impact of interest on stock price.

Conclusions and Recommendations

Stock exchanges are essential indicators for assessing the economic condition of any country. Numerous factors both macro and microeconomic influence stock exchanges, each with varying degrees of impact. Among these, the interest rate is a critical macroeconomic variable that affects the stock market. Interest rates themselves depend on a wide array of factors such as oil prices and governmental policies, and their effects can vary significantly from one country or economy to another. In our analysis, we found a slight negative impact of interest rates on stock prices within our economy. Based on our findings, we accept the alternative hypothesis and reject the null hypothesis. The observed trend indicates a specific relationship between interest rates and the stock index. This relationship suggests that when the government implements an expansionary monetary policy to stimulate the economy, there is a direct effect on the stock prices. Lower interest rates are beneficial for the economy, making it an optimal duration for novice and lower-scale entrants to capitalize in the stock marketplace when interest rates and inflation are relaxed. However, the effect of interest rates on stock prices is not particularly strong, indicating that other factors such as a company's growth, earnings per share, dividend policy, GDP development and other macro and microeconomic factors can also significantly influence the stock market. Investors should monitor these elements closely when making

investment decisions. Additionally, the government should develop a strategy to find an optimal balance between interest rates and stock indices. This strategy should aim to control unreasonable increases in interest rates while encouraging a bullish trend in a positive manner, thereby attracting both local and international investors

References

- Ahmad, N., & Ramzan, M. (2016). Stock Market Volatility and Macroeconomic Factor Volatility, *International Journal of Research in Business Studies and Management*, 3(7), 37-44.
- Arellano, C., Bai, Y., & Kehoe, P. J. (2019). Financial frictions and fluctuations in volatility. *Journal of Political Economy*, 127(5), 2049–2103.
- Duy, V.Q. (2016). The Impact of Macroeconomic Factors on Stock Price Index, VN-Index, - *International Journal of Innovative Science, Engineering & Technology*, 3(7), 69-84.
- Fasani, S., & Rossi, L. (2018). Are uncertainty shocks aggregate demand shocks? *Economics Letters*, 167, 142–146.
- Fredrick, W. O. (2021). Macroeconomic Variables and Performance of Stock Prices of Companies Listed at Nairobi Securities Exchange, Kenya. *Journal of Finance and Investment Analysis*, 10(3), 87-101.
- Ghironi, F., & Ozhan, G. K. (2020). Interest rate uncertainty as a policy tool (Vol. No. w27084). National Bureau of Economic Research.
- Gure, I., & Mutswenje, V. S. (2023). Macroeconomic variable and stock market performance in Kenya. *International Academic Journal of Economics and Finance*, 4(1), 87-98.0
- Hilkevics, S., Semakina, V. 2019. The classification and comparison of business ratios analysis methods. *Insights into Regional Development*, 1(1), 48-57.
- Huy, D. T. N., Dat, P. M., & Anh, P. T. (2020).

BUILDING AN ECONOMETRIC
MODEL OF SELECTED
FACTORS'IMPACT ON STOCK
PRICE: A CASE STUDY. Journal of
Security & Sustainability Issues, 9.

- Kim, J., Kumar, A., Mallick, S., & Park, D.
(2024). Financial uncertainty and interest
rate movements: is Asian bond market
volatility different?. *Annals of Operations
Research*, 334(1), 731-759.
- Rochman, A. S. U. (2020). Macroeconomic
impact on share prices: Evidence from
Indonesia. *Solid State Technology*, 63(6),
646-660.