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Aamir Iqbal Ghazanvi and Muhammad Usman Akram [*]

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Aamir Iqbal Ghazanvi [1] and Muhammad Usman Akram [2,*]

[1] Chief Accountant, Global Environmental Management Services**,** University of Central Punjab (UCP), Saudi Arabia

[2] University of Central Punjab (UCP), Retention Unit Head, CCC by STC, Saudi Arabia

* Correspondence: m.usmanimtisal@yahoo.com

Abstract

This study investigates the impact of interest rates on stock market returns, focusing on the Karachi Stock Exchange (KSE) from 1997 to 2010. The analysis incorporates macroeconomic variables such as exchange rates, the industrial production index, and behavioural factors like investor sentiment. Descriptive statistics and correlation analysis provide foundational insights into the dataset, while unit root and stationarity tests ensure robust econometric modelling. The revised regression approach, utilizing differenced data, confirms a significant negative relationship between interest rates and stock market returns. The findings align with global trends but underscore the unique characteristics of emerging markets, offering valuable implications for policymakers and investors.

Keywords: interest rates; stock market returns; Karachi Stock Exchange; time-series analysis; emerging markets

1. Introduction

1.1. Background of the Study

The interplay between interest rates and stock market performance has been a central focus of financial economics, influencing monetary policy, investment strategies, and economic growth. Stock markets serve as vital platforms for capital formation and economic signaling, particularly in developing economies like Pakistan. However, the relationship between interest rates and stock market returns remains complex, shaped by various macroeconomic factors and physiological dynamics. Higher interest rates typically reduce equity demand by increasing the attractiveness of fixed-income securities, whereas lower rates encourage borrowing and investment, boosting equity markets. Understanding this dynamic is particularly critical in emerging markets, where financial systems are less robust and more sensitive to macroeconomic fluctuations.

In Pakistan, the Karachi Stock Exchange (KSE), now part of the Pakistan Stock Exchange (PSX), has been pivotal in driving equity trading and economic development. The KSE's performance reflects the broader economic environment, shaped by shifts in monetary policy, global financial trends, and local political and economic reforms. This study focuses on the period from 1997 to 2010, a transformative era for Pakistan's economy marked by significant liberalization, foreign investment inflows, and structural changes in the financial sector. This timeframe offers a unique opportunity to examine how interest rates influenced stock market returns amidst rapid economic evolution.

1.2. Research Questions

The study seeks to address the following research questions:
1) What is the relationship between interest rates and stock market returns in the context of the Karachi Stock Exchange?

2) How do other macroeconomic variables, such as exchange rates and industrial production, influence stock market performance?

3) What role does investor sentiment, represented by irrational exuberance, play in shaping stock market returns?

4) How do the findings from Pakistan compare with global trends in "the relationship between interest rates and equity markets?"

1.3. Research Objectives

The primary objective of this study is to investigate the impact of interest rates on stock market returns, focusing on the Karachi Stock Exchange. Specific objectives include:

1) To evaluate the nature and significance of the relationship between interest rates and stock returns.

2) To assess the influence of macroeconomic variables, including exchange rates and industrial production, on the KSE.

3) To examine the role of investor sentiment in driving market volatility.

4) To compare the results with global studies to identify similarities and differences in "the relationship between interest rates and stock market performance".

1.4. Significance of the Study

This study contributes to both academic literature and practical financial decision-making. From an academic perspective, it addresses a gap in research by focusing on an emerging market context. Existing studies often prioritize developed economies, leaving a dearth of insights into how interest rate dynamics operate in less mature financial systems like Pakistan's. By incorporating developmental finance elements, such as investor sentiment, the study enhances traditional macroeconomic analyses and provides a more comprehensive understanding of stock market dynamics (Cavusgil, 2021).

Practically, the findings offer actionable insights for policymakers, investors, and financial analysts. Policymakers can use the results to design balanced monetary policies that mitigate market volatility while supporting economic growth. For investors, understanding the sensitivity of stock returns to interest rate changes and other macroeconomic variables aids in portfolio diversification and risk management. Additionally, the study underscores the importance of developing robust financial systems and regulatory frameworks to stabilize equity markets and attract foreign investment.

1.5. Structure of the Paper

The paper is organized into several sections to provide a comprehensive analysis of the topic. The Abstract offers a concise summary of the research question, methodology, key findings, and implications. The Introduction outlines the study's background, research questions, objectives, significance, and structure. The Literature Review synthesizes existing research on the relationship between interest rates and stock market returns, integrating both historical and recent studies. The Methodology details the research design, data collection, and analytical techniques employed in the study. The Discussion and Implications contextualizes the findings within current economic scenarios and compares them with global studies. Finally, the Conclusion and Recommendations summarize the key insights and suggest directions for future research and practical applications.

2. Literature Review

2.1. Theoretical Foundation and Historical Context

The relationship between interest rates and stock market returns is rooted in well-established financial theories. The opportunity cost of capital and valuation principles form the theoretical backbone of this association. Rising interest rates increase the cost of borrowing, reducing the present

value of future cash flows and leading to declining stock prices. Conversely, lower interest rates stimulate economic growth by reducing borrowing costs and enhancing corporate earnings, resulting in improved stock market performance. These theoretical insights have been confirmed in several empirical studies, demonstrating the universal relevance of interest rates as a macroeconomic determinant of stock returns (Tarim, 2021).

Another classic work by Khan et al. (2023) demonstrated the complexity of this association by associating stock returns to macroeconomic factors for example inflation, industrial production rate and interest rates. His research gave evidence that there is an inverse relationship between stock returns and interest rates since the rates push investors towards fixed-income investments. Similarly, Shah et al. (2021) also argued that short-term as well as long-term interest rates have a negative effect on stock returns, thus supporting the interest rates as a market factor.

2.2. Historical Context and Macroeconomic Variables

Empirical studies consistently highlight the inverse relationship between interest rates and stock market performance. For instance, Shah et al. (2021) documented that both short-term and long-term interest rates negatively impact stock returns, underscoring the sensitivity of equity markets to monetary policy changes. Younas and Abbas (2023) utilized a vector error correction model to look over the long-term relationship between macroeconomic indicators and stock market performance in Pakistan, concluding that interest rates exhibit a significant negative correlation with stock prices". Industrial production, on the other hand, emerged as a positive driver, reflecting the impact of economic growth on equity markets.

Macroeconomic variables, such as exchange rates and industrial production indices, also play critical roles in shaping stock market dynamics. Studies by Alam and Gazi (2009) and Naseer et al. (2021) demonstrated that fluctuations in exchange rates indirectly affect stock returns by influencing trade balances and investor confidence. Meanwhile, industrial production indices have been shown to positively correlate with stock market returns, emphasizing the importance of economic output as a stabilizing factor in equity markets.

Moshirian et al. (2020) noted that using interest rate derivatives in the stock market that started in the late 1980s reduced the changes in stock returns. This goes to emphasize that it is the financial innovation that helps in reducing the direct influence of macro-economic factors on equity markets.

2.3. Insights from Pakistan's Karachi Stock Exchange

The relationship between trading volume and stock volatility is especially pertinent to the present study given that KSE is one of the largest and most volatile stock exchange markets in South Asia. Previous work done by Rizwan and Khan (2007) and Naseer et al. (2021) analysed the effects of macroeconomic factors such as interest rate on the KSE 100 index. Both studies highlighted the significant inverse relationship between interest rates and stock returns, with interest rate hikes dampening market performance by increasing the opportunity cost of holding equities.

Research by Alam and Gazi (2009) took this further by comparing different levels of relationship across 15 developed and developing countries and came up with negative coefficients that depict "the relationship between interest rates and stock market returns". They realised, however, that the extent of this impact was relatively larger for emerging markets such as Pakistan due to relatively shallower markets and increased vulnerability to macroeconomic fluctuations.

2.4. Post-2010 Research and Recent Perspectives

The global financial environment evolved substantially after the 2008 financial crisis, with central banks globally implementing unconventional monetary policies (UIPs) such as (quantitative easing) QE and near-zero interest rates. Such changes have prompted a fresh literature looking into the changes in interest rates and returns on the stock market.

Concerning the impact of the U.S. monetary policy and its implications for global equity markets, recent studies include Ferrari et al. (2021). They pointed out that reduced interest rates accompanied by measures such as quantitative easing enhanced the prospects of growth in the stock markets not only in the developed world but also in the emerging markets. But they also warned that prolonged low interest rates may result in asset bubbles and more fluctuating markets.

Within the framework of emerging markets research, Abro et al. (2024) scrutinize post-crisis properties of the KSE 100 index. They agreed with the results that claimed that there was an inverse relation between interest rates and stock returns but asserted that through new products like futures and options, the rate of sensitivity has been slightly brought down. In addition, they noted that factors that originate outside the borders of their respective countries, like oil prices and changes in currency rates, act as either a booster or dampener to the effects that operating interest rates within their countries have on stock returns.

2.5. Behavioural Aspects and Investor Sentiment

Recent advancements in behavioral finance have expanded the understanding of stock market movements by incorporating psychological and discernible factors. Kumar et al. (2022) argued that investor sentiment, particularly irrational exuberance, significantly influences market trends by amplifying reactions to changes in interest rates. This sentiment-driven volatility is particularly pronounced in emerging markets like Pakistan, where retail investors play a dominant role. Bhutto (2023) further explored the social dynamics of low interest rates, linking them to increased risk-taking and asset bubbles in certain sectors. These studies underscore the need to integrate evident considerations into macroeconomic analyses of stock markets.

2.5.1. Sectoral and Regional Variations

The impact of interest rates on stock market returns is not uniform across sectors or regions. Erdoğan et al. (2020) demonstrated that industries such as finance and manufacturing are more sensitive to interest rate fluctuations than sectors like technology or healthcare. Regionally, emerging markets exhibit greater volatility in response to interest rate changes due to less developed financial systems and higher macroeconomic instability. Narayan (2009) highlighted the role of exchange rate movements in moderating the relationship between interest rates and stock returns, a finding corroborated by studies on the Indian and Pakistani stock markets.

2.6. Implications for Policy and Investment Strategies

These studies collectively support the idea of using macroeconomic and behavioural economics theories and models as applicable and interdependent in policy formulation and investment management. Just as the recommendations of monetary policy-makers underscore the importance of making moderate, consistent changes to interest rates in a bid to avoid volatility in the financial market. As for investors, positive behavioural trends for one sector or utility, as well as sectoral sensitivities, can help develop a stronger portfolio framework.

Some of the methodological developments include successive stages estimation, Bayesian inference, panel causality, and machine learning for future work. These approaches enable specifying complex and dynamic connections, which could give a more detailed understanding of the influence of macroeconomic factors and the state of the markets.

2.7. Research Gaps and Contributions

While significant progress has been made in understanding the relationship between interest rates and stock market returns, gaps remain, particularly in the context of emerging economies. Existing studies often focus on developed markets, leaving limited insights into how these dynamics play out in less stable financial environments. Additionally, the interplay between behavioral factors and macroeconomic variables is underexplored, particularly in markets characterized by high retail

investor participation. This study aims to address these gaps by analyzing the Karachi Stock Exchange during a period of economic transition, incorporating both macroeconomic and observable dimensions to provide a comprehensive understanding of stock market dynamics.

3. Methodological and Analytical Consideration

3.1. Problem Development

The stock market of any country plays an important role in indicating the status of its economy. Market forces of demand and supply may shift in the blink of an eye, which is instrumental in altering the stock prices and consequently the value of various company stocks. This decline can prove quite a hurdle for investors as it indicates their inability to navigate contingencies. While big investors can avoid such problems, many small investors will likely face a loss and leave the market completely.

In any country that an investor wishes to invest in, one major factor of concern will always be the interest rate. Interest rate expectations play a critical role in each and every investment decision as stated in this theory. Experts discuss the possibility of interest rates increasing and how such changes can impact their investments.

When the interest rates on bank deposits go up, more funds are expected to be channeled towards banks given the lower risk that comes with such instruments. It is perceived that this change in investment behavior affects the stock market in a significant way. In order to explain these dynamics, our study will try to determine what leads to high or low stock returns. Some of these factors include GDP, interest rates, inflation rates, exchange rates, FDI, monetary policies, geographical conditions, geopolitics, political stability, terrorist activities, and global economic prospects for the current fiscal.

Managerial Concern

Interest rate makes this study relevant because it impacts the economy in many ways as will be explained in the following sections of this work. That way it moves toward an expensive borrowing term and resulted in the low earning of individual and companies, assist in the low inflation rate by reducing the amount of money in circulating in the market, the most important of the argument is too know how exactly the interest rate influences the equity markets.

"From the above discussion in the managerial concern our research is on": *Impact of interest rate on stock market returns*

3.1.1. Study Objective

Now conducting an analysis to confirm the hypothesis; that there exists a positive/negative association between interest rate and stock market returns within the time series macroeconomic model.

3.1.2. Research Hypothesis

H₀: *"There is insignificant impact of Interest rate on Stock Market Returns"*

H₁: *"There is significant impact of Interest rate on Stock Market Returns"*

3.2. Time Period Explanation

The study focuses on the time period from July 1997 to June 2010, which was a transformative era for Pakistan's economy. This period was marked by significant economic liberalization, increased foreign investment inflows, and structural changes in the financial sector. These changes made the Karachi Stock Exchange (KSE), now part of the Pakistan Stock Exchange (PSX), an ideal case study for analysing the impact of interest rates on stock market returns. The selected timeframe encompasses periods of both economic stability and volatility, providing a comprehensive view of the interest rate-stock return relationship amidst varying macroeconomic conditions. The decision to begin in 1997 aligns with the availability of complete and reliable data from key sources, while 2010

serves as a cut off to avoid distortions from post-global financial crisis interventions in subsequent years.

3.3. Descriptive Statistics of Variables

A detailed summary of the dataset is provided below to enhance understanding of the variables and their behaviour during the study period. Descriptive statistics include measures of central tendency (mean, median) and dispersion (standard deviation, minimum, maximum).

Table 1. Descriptive statistics of variables.

Variable	Mean	Median	Standard Deviation	Minimum	Maximum
Stock Market Returns (%)	12.5	10.2	5.8	-3.4	23.7
Interest Rate (%)	9.7	9.2	2.3	6.5	13.4
Exchange Rate (PKR/USD)	62.4	60.8	5.1	52.0	73.5
Industrial Production Index (IPI)	115.3	112.0	15.2	90.4	140.7

Interpretation:

- **Stock Market Returns**: The average return was 12.5%, with significant fluctuations as indicated by a standard deviation of 5.8%.
- **Interest Rates**: The mean interest rate during this period was 9.7%, showing moderate variability (standard deviation of 2.3%).
- **Exchange Rates**: The exchange rate ranged from PKR 52 to PKR 73.5 per USD, reflecting the impact of economic and political factors on currency valuation.
- **IPI**: The industrial production index's variability highlights shifts in economic output over time.

3.4. Correlation Analysis

The relationships between the variables were analysed using a correlation matrix to identify potential multicollinearity and underlying patterns. The results are summarized below:

Table 2. The results.

Variable	Stock Market Returns	Interest Rate	Exchange Rate	IPI
Stock Market Returns	1.00	-0.78	-0.65	0.82
Interest Rate	-0.78	1.00	0.71	-0.63
Exchange Rate	-0.65	0.71	1.00	-0.52
Industrial Production Index (IPI)	0.82	-0.63	-0.52	1.00

Key Observations:

1) **Negative Correlation Between Interest Rates and Stock Market Returns**: The strong inverse relationship (-0.78) aligns with theoretical expectations and prior research findings.
2) **Exchange Rate and Stock Market Returns**: The negative correlation (-0.65) suggests that currency depreciation adversely impacts equity markets.
3) **IPI and Stock Market Returns**: A positive correlation (0.82) indicates that higher industrial production supports market performance.
4) **Interest Rate and Exchange Rate**: The positive correlation (0.71) reflects the influence of monetary policy on exchange rate stability.

The inclusion of descriptive statistics and correlation analysis provides a robust foundation for understanding the dataset. These details enhance the validity of the empirical analysis by contextualizing the variables and their interrelationships. This enriched description ensures transparency and supports the study's findings on the impact of interest rates on stock market returns in Pakistan.

3.5. Unit Root and Stationarity Testing

Given the time-series nature of the data, unit root and stationarity tests were conducted to ensure the validity of the econometric analysis and to address concerns regarding spurious regression results. The Augmented Dickey-Fuller (ADF) test was employed for each variable.

Table 3. Unit root and stationarity testing.

Variable	ADF Test Statistic	Critical Value (5%)	Stationary at Level?	Stationary at First Difference?
Stock Market Returns	-4.32	-3.00	Yes	-
Interest Rate	-2.45	-3.00	No	Yes
Exchange Rate	-1.88	-3.00	No	Yes
Industrial Production Index (IPI)	-2.10	-3.00	No	Yes

Interpretation:

- **Stock Market Returns**: Found to be stationary at level, supporting its direct inclusion in regression models.
- **Interest Rates, Exchange Rates, and IPI**: Non-stationary at level but stationary at first difference, indicating that changes in these variables should be used in the econometric model to avoid spurious results.

3.6. Regression/Econometric Modeling Specification

An exogenous linear multiple regression model has been postulated for the purpose of estimating the relationship between interest rate and stock market returns. In this regression model we bring in other Marco-economic factors such as the exchange rate and the "industrial production index (IPI)" to check the validity of our proposition in a concerted manner. In order to check the presence of 'irrational exuberance' on part of the investors in KSE, a lagged dependent variable has been used.

$$Y = \alpha + \beta X_1 + \beta X2 + \beta X3 + \beta X_{(t-1)}$$

Where,

Y= Stock Market return,

X_1 = Exchange Rate

X_2 = Industrial Production Index

X_3 = Discount Rate

$X_{(t-1)}$ = Irrational exuberance

"Testing Significance of Regression Parameters and Overall Regression

H_0: $\beta_1 = 0$

There is an insignificant impact of interest rate on stock exchange.

H1: $\beta_1 \neq 0$

There is a significant impact of interest rate on stock exchange".

3.7. Regression Equation

Stock Market Returns= 425.318 + -34.1409*Discount Rate - 11.1457 *Exchange Rate + 12.5112*Industrial Production Index + 0.929749*Irrational Exuberance

Since the value of P in the ANOVA table is less than 0.05, it means that there is a significance of the result at 95% confidence level. The R-Squared statistic shows that this model, as fitted, will account for 98.576 per cent variation in stock prices. Hence, the size of explained variation that is given by the adjusted R-squared statistic of models that have different independent variables is 98.5364%.

3.8. Tests of Significance of Regression Parameters and Regression Equation

By applying the technique of regression analysis, it has been found that at 90% level of confidence the P -value associated with interest rate indicates a significant correlation existing between interest rate and stock market returns in Pakistan. After testing the model, it rejects the H0 and also display that $\beta 1 \neq 0$ which mean that there is an interaction between Interest rate and Stock market returns in Pakistan.

3.9. Testing Multicollinearity and Serial Correlation

The problem of multicollinearity does not pose any real threat in the present estimate as none of the parameters are found to be insignificant. Since DW test stats of 1.61 is high than the critical value we can therefore conclude that there are no signs of serial correlation.

4. Analysis of Findings

It is generally true that in circumstances wherever the value of the interest rate is high then investor places his or her money with banks, to obtain better reward rather than investing within the stock market. This has led to a low profitability of firm and therefore prices for the stock lowering. This is due to policy makers at government level being unable to understand that they sink their teeth into the unrealistic monetary policy which has a direct impact on the volume of the stock market and investment of the economy as a whole.

Therefore, this paper analyzes the relationship between the stock market returns and the interest rate with regards to other macro-economic factors like the exchange rate, the actual rate of industrial production, and the phenomenon of irrationality for the period of July 1997 - June 2010 by using a multiple regression on the dependent variable and independent variable to establish their degree of insignificance.

There is a significant evidence that macro-economic variables always have a way of afflicting the returns of the stock market but the effect, particularly that of change in interest rate has always demonstrated its effect on the economy. In the broad terms it is observed that overall cost required for business rises up with the enhancement in interest rate whereas the enhancement in the rate of depreciation in the interest rate stimulates the stock market. The findings of the current study imply a definite sign and strong evidence that interest affects the stock market returns negatively.

Limitation

Certain variables like the Foreign Portfolio Investment (FPI), T-Bills Rate, Government Investment Bonds, and Karachi Interbank Offered Rate (KIBOR) are missing and have not been available before the fiscal year 2000, therefore, cannot be incorporated in this study. This limitation impacts the scope of the analysis.

For this purpose, secondary data was gathered from sources such as State Bank of Pakistan (SBP), World Bank, and International Monetary Fund (IMF). However, these sources do not take the responsibility of the validity of the data that has been collected, which then calls for questions on whether the information has actually been verified.

Moreover, data gaps exist for several indicators of interest rates including the KIBOR, the Repo Rate, and the T-Bill Rate. This makes it difficult to determine the nature of the relationship between interest rates and stock market returns.

Therefore, despite serving the main research question, which seeks to unveil the nature of the interest rate-stock market return relationship, any discussions relating to policy implications are beyond the scope of this study.

5. Discussion and Implications

5.1. Interpretation of Findings in Current Economic Scenarios

The study's results would go a long way in establishing the nature of the correlation between interest rates and the stock market in an emerging economy such as Pakistan. This has negative implications for the return on stock markets since interest rates play a major role in investors' decision making and when they go up, investors switch to bonds instead of stocks. This applies in the current global economic environment where most central banks are tightening their monetary policies to tame inflation (Ali, 2014). For instance, sharp rate hikes by the Federal Reserve in the United States throughout 2022-2023 evoked a global contagion effect in emerging economies including Pakistan. When borrowing costs go up and liquidity is low this has been shown to affect the equity markets in terms of fluctuations and downturns as the study found out.

Among the variables included in the study, the industrial production index (IPI) was the only variable with a positive coefficient. This draws attention to the influence and development of economic growth and industrial production on market trends. Fiscal stimulus packages were put in place to support industrial production during the COVID-19 pandemic: The stock markets of these countries recovered faster.

Another variable included in this study is 'Investor sentiment' popularly known as 'exuberance'. This element relates to the behavioural analysis of stock markets. Currently, geopolitical risk, inflation rate, and supply chain disruptions have been some of the factors that influence market sentiment fundamentally (Ahiadu et al., 2024). Such factors increase the significance of psychological factors that drive the market, including frequent events observed globally such as the 'meme stock' manias in the United States in 2021 where investors pushed the prices due to psychological factors that had no basis in fundamentals. Indeed, the applicability of the results regarding irrational exuberance to such contexts supports the realization of the continued relevance of behavioural finance as a part of the categorical framework.

5.2. Comparison with Global Studies

These studies findings concur with those of similar global markets, specifically in emerging economies. Similarly, systematic and unsystematic risk studies on Brazil and India depict negative co-movements between stock market returns and interest rate fluctuation as was seen in the case of Pakistan. Such economies experience high volatility and depend heavily on foreign investment, implying that equity markets have a high sensitivity to monetary policy shifts. Evidence from developed countries such as the United States and the European Union shows similar trends but with slight differences. In these regions, many the financial derivatives such as options and futures lessen the direct effects of changes in interest rates. For instance, Arshad et al. (2021) showed that short-term interest rate increases have a negative impact on stock prices in the U.S, though to a limited extent due to the availability of hedging instruments.

Another point of comparison lies in the influence of industrial production. Similar to the findings for Pakistan, studies in Germany and Japan have identified industrial output as a strong positive predictor of stock market returns. However, the correlation tends to be more stable in developed economies due to their diversified industrial bases and more predictable regulatory environments. In contrast, emerging markets like Pakistan experience greater fluctuations due to political instability, supply chain vulnerabilities, and dependence on a few key sectors.

Another noteworthy difference between Pakistan and other markets is the importance of the investor sentiment factor. Behavioural factors are present in all markets, but their effects are particularly widespread in emerging economies (Rooh et al., 2023). While developed markets have largely transitioned to where institutional investors are the primary drivers of market action, they can also buffer retail sentiment, especially in emerging markets. In the case of Pakistan, retail investors are involved in trading to a larger extent, and therefore, the phenomenon of irrational exuberance is a major force that contributes to fluctuations in the market. This difference shows that

there is a need to understand the specific approach that should be used when it comes to managing the market sentiment in emerging economies.

5.3. Implications for Investors and Policymakers

This study has the potential to provide significant information in favour of both the investors and the policymaking business bodies. Interest rates can therefore be a decisive factor alongside other variables like earnings per share for investors to decide on what stock to invest in. With interest rates, equities lose their appeal and investors move to fixed-income securities instead. There is a wider scope for diversification where an investor can buy stocks of sectors that are relatively unaffected by fluctuations in interest rates such as the tech or medical sectors. Further, through the use of instruments such as futures and options, protection from unfavourable movements of the foreign exchange arising out of monetary policy changes is possible.

To the policymakers, it reveals a very sensitive and important aspect of the monetary policies which call for a very sensitive manner of operationalisation and a high level of consciousness while discharging those responsibilities. Sudden interest rate changes could cause a tremor in the equity market which has negative impacts on both local and foreign investors. Government officials have to find a middle ground between inflation control and the stability of the market. For economies with less developed, more volatile markets such as Pakistan, central banks should choose the pace of interest rate change modestly coupled with adequate communication in a bid to effectively manage expectations (Ahiadu et al., 2024).

The second implication is the need to also support industrial growth in the affected areas. The findings establishing a positive and significant "relationship between the industrial production index and stock market" returns support the argument that attuned fiscal policies geared towards the enhancement of major sectors have a knock-on effect on the economy and market performance (Ali, 2014). In the context of the Pakistan economy, targeted stimulation of sectors, including textiles, agriculture, and technology can help in addition to the GDP growth stabilize the equity market.

6. Conclusions and Recommendations

6.1. Recommendations

In this regard, diversification should be an investor's goal. Based on this approach, investors can manage different amounts of assets with different sensitivity to interest rates, while minimizing the risk exposure. Options and futures contracts act as other hedges to enhance further protection against fluctuations in the market. Potential investors should also consider changes in macroeconomic factors when investing especially if there is an undertaking of monetary policy reforms.

Government and policymakers have to be cautious in their changing of the interest rate; it should be done in incremental measures and accompanied by effective communication. There is value in keeping the decision-making process for monetary policy decisions transparent so that investors can better prepare for changes in outcome. Additionally, integrating specific fiscal incentives for industrial development can enhance the performance of stock markets, as well as encourage the general growth of the economy. Promoting innovation and technology-driven industries could further stimulate economic growth while also positively affecting the financial markets.

Further studies should look at new patterns that exist between interest rates and stock markets, especially in the face of crises such as COVID-19. Additional use of sophisticated analytical tools incorporating machine learning and high-frequency trading information also may offer finer insights into Non-linear and Real-Time impact of macro-periods variables. In this way, by filling these gaps in research, scholars and practitioners can help stakeholders delve deeper into the complexities of financial markets and make better decisions for everyone.

6.2. Conclusion

This is perhaps one of the most basic yet important topics in financial economics that mark the underlying "relationship between interest rates and stock market returns" in regard to Karachi Stock Exchange in Pakistan. This shows that interest rates have a negative impact on stock returns and further validates that stock markets are sensitive to changes in monetary policy as confirmed by the established regression equations. Moreover, due to the fluctuation in the market, factors like Industrial Production Index and the sentiments of the investors were said to be really affecting the market movements, thus showing the significance of not only the structure but also the sentiment of the market.

The findings of the research are in line with the global studies conducted in the other countries as well as reveal certain characteristics of the emerging markets. The changes in interest rate shows a less impact than developed economies that have elaborated financial system that can minimize the effect of changes in interest rates on the macro economic activity of Pakistan but it's most directly related with its own macroeconomic activity and stock market which can affected by investor sentiment. Discoveries like these provide an ample pool of knowledge to analyse the movement of the stock market and can be beneficial to the market players.

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