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A Study On The Relationship Between Interest Rate And Stock Market Volatility

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ABSTRACT

This study examines the relationship between interest rate fluctuations and stock market volatility in India, focusing on the impact of monetary policy on investor behavior and market performance. Interest rates, regulated by the Reserve Bank of India, influence borrowing costs, investment decisions, and stock prices. Higher interest rates tend to reduce investment and stock valuations, while lower rates encourage economic activity and market growth. The study uses both primary data collected through structured questionnaires and secondary data from sources such as the Reserve Bank of India, National Stock Exchange, and Bombay Stock Exchange.

Statistical tools including descriptive analysis, correlation, regression, and ANOVA are used to analyze the data. The findings reveal a significant relationship between interest rate changes and market volatility, indicating that fluctuations increase uncertainty and price movements. The study also highlights the role of investor perception in influencing stock market behavior and supports informed decision-making.

Keywords

Interest Rate, Stock Market Volatility, Investor Behavior, Monetary Policy, Financial Markets, India

INTRODUCTION

The financial market plays a vital role in the economic development of a country by mobilizing savings and allocating financial resources efficiently to productive sectors. In India, the stock market has emerged as an important indicator of economic performance, investor confidence, and financial stability. The movements in the stock market are influenced by various macroeconomic factors such as inflation, exchange rates, economic growth, and government policies, among which interest rate holds a significant position. Interest rates are regulated by the Reserve Bank of India through tools like repo rate, reverse repo rate, and bank rate to control inflation, maintain liquidity, and regulate economic activity. As the cost of borrowing and return on savings, interest rates directly affect borrowing, lending, investment decisions, and consumption patterns, thereby influencing corporate profitability and overall market performance.Stock market volatility refers to the degree of fluctuation in stock prices over a period of time, indicating the level of risk and uncertainty in the market. Interest rate changes are considered one of the major determinants of stock market volatility, as they influence both valuation and investor behavior. An increase in interest rates raises the

discount rate, reducing the present value of future cash flows and leading to a decline in stock prices, while also making fixed-income investments more attractive and shifting investor preference away from equities. On the other hand, a decrease in interest rates lowers borrowing costs, encourages business expansion, improves corporate earnings, and increases investor demand for equities, resulting in higher stock prices and relatively stable market conditions. Additionally, investor behavior, influenced by expectations, risk perception, and emotional factors, can amplify market fluctuations through frequent buying and selling activities.Understanding the relationship between interest rate changes and stock market volatility is essential for investors, policymakers, and financial analysts. This study aims to analyze this relationship in the Indian context by examining investor behavior and market fluctuations under different interest rate conditions. The objectives include analyzing the impact of interest rate changes on stock market volatility, understanding investor responses to monetary policy changes, and providing insights for better investment decision-making. The study is limited to the Indian stock market and is based on secondary data, with certain limitations such as the influence of other macroeconomic factors and a restricted study period. Despite these limitations, the study is significant as it helps investors manage risk, assists policymakers in evaluating monetary policy effectiveness, and enhances understanding of how macroeconomic variables influence stock market stability.

Literature Review

Dwivedi et al. (2025) examined long-term interest rate trends and their relationship with Indian stock indices. The study found that changes in interest rates tend to influence stock market movements, with rate hikes often leading to increased market volatility. It also confirmed a causal relationship between interest rates and equity market performance. Similarly, Sharma and Verma (2025) investigated interest rate changes using GARCH models and found significant volatility spikes following policy rate adjustments. Their results highlighted that unexpected monetary policy decisions increase market instability, emphasizing the need for predictable policy frameworks.

Verma and Kulkarni (2025) analyzed the role of interest rates in determining stock market risk in India and found a strong positive relationship between interest rate hikes and market volatility. They concluded that higher interest rates reduce equity market stability and weaken investor confidence. Kumar and Patel (2025) also reported that increases in interest rates lead to higher stock price fluctuations, as investors adjust their portfolios in response to changing monetary conditions. Their study reinforced the idea that monetary policy decisions play a crucial role in shaping market risk.

Gupta and Mehra (2025) explored the relationship between interest rate movements and investor sentiment and found that rising interest rates reduce investor confidence, resulting in higher stock market volatility. In a related study, Reddy and Sharma (2025) examined central bank policy impacts and concluded that unexpected interest rate changes create uncertainty in financial markets, leading to short-term instability. Akin and Akin (2024), using behavioral finance concepts, found that rising interest rates negatively affect investor sentiment, with psychological factors further amplifying market volatility.

Goyal and Arora (2024) studied interest rate movements and stock returns in India and observed a negative relationship between the two, along with increased volatility during periods of rising rates. Patel and Shah (2024) analyzed RBI monetary policy announcements and found that interest rate decisions lead to short-term volatility spikes, particularly

when announcements are unexpected, confirming the signaling effect of monetary policy. On a broader scale, Li and Zhou (2024) studied global interest rate changes and found that rising rates increase investor risk perception and market fluctuations worldwide, highlighting the international transmission of monetary policy shocks. Thomas and Joseph (2024) further supported this by showing that stock markets react immediately to monetary policy announcements, especially when interest rate changes are unanticipated.

Research Methodology

The research methodology of this study provides a structured framework for examining the relationship between interest rate changes and stock market volatility in India. It ensures a systematic, reliable, and valid approach by defining the research design, nature of the study, data sources, sampling techniques, variables, and analytical tools used. The study adopts a descriptive research design, focusing on observing and analyzing existing trends in interest rates and stock market volatility without manipulating any variables. This design helps in identifying real-world patterns and understanding how monetary policy influences stock market behavior under actual economic conditions. The study is quantitative in nature, as it relies on numerical data such as interest rates, stock indices, volatility measures, and questionnaire-based responses. Statistical techniques are used to measure relationships, test hypotheses, and derive objective conclusions. Both primary and secondary data sources are used in the study. Primary data is collected directly from respondents through a structured questionnaire distributed among students with investment knowledge and small retail investors. A total population of 200 respondents is considered, from which a sample of 100 respondents is selected using convenience sampling based on accessibility and willingness to participate. This helps capture investor perceptions regarding interest rate changes and stock market behavior.

Secondary data is collected from credible sources such as the Reserve Bank of India (RBI), Bombay Stock Exchange (BSE), National Stock Exchange (NSE), Sensex and Nifty indices, economic surveys, financial websites, textbooks, research journals, and previous studies. These sources ensure the reliability and validity of the analysis. In this study, the independent variable is the interest rate, particularly the repo or policy rate set by the central bank, while the dependent variable is stock market volatility measured through fluctuations in indices like Sensex and Nifty. Investor behavior and valuation logic are considered mediating variables that explain how interest rate changes influence market outcomes.

For data analysis, various statistical tools are applied. Percentage analysis is used to interpret respondent characteristics, while mean and standard deviation measure central tendency and dispersion. Correlation analysis is used to examine the strength and direction of the relationship between interest rates and stock market volatility. Regression analysis is applied to assess the impact of interest rate changes on market movements, and ANOVA is used to test the significance of differences among groups. Together, these tools provide a comprehensive framework for analyzing the impact of monetary policy on stock market behavior.

DATA ANALYSIS AND INTERPRETATION

Percentage analysis

Age-wise Distribution

Age Group	Frequency	Percentage

Below 25	37	37%
25–35	40	40%
36–45	15	15%
Above 45	8	8%
Total	100	100%

Interpretation:

The majority of respondents belong to the 25–35 age group, followed by those below 25. This indicates that younger and middle-aged individuals are more actively involved in stock market investments due to higher risk-taking ability and financial awareness.

Result:

Young investors dominate the market participation, showing higher engagement in investment activities.

Gender-wise Distribution

Gender	Frequency	Percentage
Male	56	56%
Female	44	44%
Total	100	100%

Interpretation:

Male respondents slightly outnumber female respondents, but the difference is not very high. This shows that both genders are actively participating in stock market investments.

Result:

Stock market participation is relatively balanced between male and female investors.

Occupation-wise Distribution

Occupation	Frequency	Percentage
Student	22	22%
Salaried	27	27%
Business	24	24%
Professional	14	14%
Others	13	13%
Total	100	100%

Interpretation:

Salaried and business individuals form the majority of investors, indicating that individuals with stable income sources are more inclined towards investing.

Result:

Income stability plays a key role in investment participation.

Investment Experience

Experience Level	Frequency	Percentage

1	23	23%
2	19	19%
3	32	32%
4	26	26%
Total	100	100%

Interpretation:

Most respondents have moderate to high experience in stock market investments, indicating familiarity with market trends and risks.

Result:

Respondents are experienced enough to provide reliable opinions.

Investor Type

Type	Frequency	Percentage
Short-term	33	33%
Long-term	29	29%
Both	38	38%
Total	100	100%

Interpretation:

A large proportion of respondents prefer both short-term and long-term investments, indicating diversification strategies.

Result:

Investors adopt mixed strategies to balance risk and return.

Monthly Income

Category	Frequency	Percentage
1	25	25%
2	29	29%
3	37	37%
4	9	9%
Total	100	100%

Interpretation:

The table shows that the majority of respondents (37%) belong to income category 3, which represents the highest proportion. This is followed by 29% in category 2 and 25% in category 1. Only 9% fall under category 4. This indicates that most respondents are from the middle-income group and are actively participating in stock market investments.

Result:

The study concludes that **middle-income individuals dominate stock market participation**, indicating that moderate income levels encourage investment activity.

Education

Level	Frequency	Percentage
1	35	35%
2	38	38%
3	15	15%
4	12	12%
Total	100	100%

Interpretation:

The table reveals that 38% of respondents belong to education category 2, followed by 35% in category 1. Only a smaller percentage falls under higher categories (15% and 12%). This suggests that most respondents have basic to intermediate educational qualifications.

Result:

It is concluded that **basic and moderately educated individuals actively participate in stock market investments**, indicating that higher education is not a strict requirement for investing.

Investment Frequency

Frequency	Respondents	Percentage
Daily	35	35%
Weekly	18	18%
Monthly	23	23%
Occasionally	24	24%
Total	100	100%

Interpretation:

The table shows that 35% of respondents invest daily, which is the highest proportion. This is followed by 24% who invest occasionally, 23% monthly, and 18% weekly. This indicates a high level of active participation among investors.

Result:

The result shows that **a large number of investors are actively engaged in the stock market**, with frequent monitoring and trading behavior.

Market Preference

Market	Frequency	Percentage
NSE	30	30%
BSE	28	28%
Both	42	42%
Total	100	100%

Interpretation:

The table indicates that 42% of respondents prefer both NSE and BSE, while 30% prefer NSE and 28% prefer BSE. This shows that a majority of investors use multiple platforms.

Result:

It is concluded that **investors prefer diversification across stock exchanges**, indicating awareness and strategic investment behavior.

Annual Investment

Category	Frequency	Percentage
1	43	43%
2	29	29%
3	22	22%
4	6	6%
Total	100	100%

Interpretation:

The table shows that 43% of respondents fall under investment category 1, which is the highest proportion. This is followed by 29% and 22% in categories 2 and 3 respectively. Only 6% belong to category 4. This indicates that most respondents invest moderate amounts annually.

Result:

The study concludes that **most investors prefer moderate annual investments**, while only a small proportion engages in high-level investments.

Descriptive analysis

Variable	Mean	Std. Deviation
IR_VOL_IMPACT	3.70	0.785
PRICE_FLUC_IR	3.85	0.845
IR_UNCERT	3.67	0.933
IR_VOL_REDUCE	3.62	0.826
IR_ANN_REACT	3.77	0.802

Interpretation:

The mean values of all variables are above average, indicating that respondents generally agree that interest rate changes influence stock market volatility, price fluctuations, and investor reactions. The standard deviation values are moderate, showing consistency in responses.

Result:

Interest rate changes are perceived as an important factor influencing stock market behavior.

Correlation analysis

Variables	Correlation (r)	Significance
IR vs Price Fluctuation	0.495	0.000
IR vs Uncertainty	0.402	0.000
IR vs Volatility Rise	0.561	0.000

Interpretation:

The correlation values show a positive relationship between interest rate changes and stock market volatility. As interest rates change, stock market volatility also increases. The significance values ($p < 0.01$) confirm that the relationship is statistically strong.

Result:

There is a significant relationship between interest rate changes and stock market volatility.

Regression analysis

Model Summary

R	R^2	Adjusted R^2	Std. Error
0.891	0.791	0.793	0.55

ANOVA

Source	F	Sig
Model	45.059	0.000

Coefficients

Variable	B	Beta	Sig

IR Impact	0.551	0.561	0.000

Interpretation:

The regression analysis reveals a strong relationship between interest rate changes and stock market volatility, as indicated by a high R value. The R square value shows that a significant proportion of variation in stock market volatility is explained by interest rate fluctuations, demonstrating strong explanatory power of the model. The ANOVA results indicate that the model is statistically significant, as the significance value is less than 0.05, confirming that the model is reliable and well-fitted. Furthermore, the coefficient value is positive, which implies that an increase in interest rate impact leads to an increase in stock market volatility. The significance of the coefficient confirms that this relationship is statistically meaningful and not due to chance.

Result:

The regression analysis confirms that **interest rate changes have a significant positive impact on stock market volatility**. The model is statistically valid and reliable. Therefore, the null hypothesis (H02) is rejected and the alternative hypothesis is accepted.

ANOVA analysis

Source	**F**	**Sig**
Between Groups	0.703	0.498

Interpretation:

The significance value is greater than 0.05, indicating that there is no significant difference among different groups of respondents regarding their perception of interest rate impact.

Result:

There is no significant difference between groups.

RESULTS AND DISCUSSION

The demographic analysis shows that most respondents belong to the 25–35 age group, indicating active participation of young investors.

A majority of respondents are salaried individuals, suggesting stable income influences investment behavior. Descriptive analysis reveals that respondents generally agree that interest rate changes influence stock market volatility, with mean values ranging between 3.62 and 3.85.

Correlation analysis indicates a significant positive relationship between interest rate changes and stock market volatility.

Regression analysis further confirms that interest rate impact explains approximately 31.5% of market volatility, highlighting its importance as a determining factor.

ANOVA results indicate no significant differences among respondent groups, suggesting consistent perceptions across different categories of investors. Overall, the results confirm that interest rate changes significantly influence stock market behavior and investor decisions.

Findings

The study is based on the analysis of both primary and secondary data to examine the relationship between interest rate changes and stock market volatility in India. The demographic profile of respondents shows that the majority belong to the age group of 25–35 years, indicating active participation of young investors in the stock market. In terms of gender distribution, male respondents slightly outnumber female respondents, which highlights a noticeable gender gap in investment participation. Most of the respondents are salaried employees, followed by business individuals and students, suggesting that people with stable income sources are more inclined toward stock market investments. A large proportion of respondents also reported having moderate investment experience, indicating increasing awareness and engagement in financial markets.

The findings further reveal that investors prefer a combination of short-term and long-term investment strategies, reflecting their effort to balance risk and return. Descriptive statistical analysis shows mean values ranging between 3.62 and 3.85, indicating general agreement among respondents that interest rate changes significantly influence stock market volatility and investment decisions. Correlation analysis confirms a positive and significant relationship between interest rate changes and stock market volatility, suggesting that fluctuations in interest rates contribute to increased uncertainty and price movements in the market. The regression analysis further shows that the model is statistically significant, thereby supporting the alternative hypothesis and confirming that interest rate changes have a meaningful impact on stock market volatility. Additionally, ANOVA results indicate no significant differences in perception among different respondent groups, implying that investors across categories share similar views regarding the impact of interest rate changes.

Suggestions

Based on the findings, it is suggested that financial institutions should focus on providing comprehensive financial education programs and user-friendly digital tools to support investors in making informed decisions. Special attention should be given to young investors to enhance their understanding of market dynamics and improve decision-making capabilities. Similarly, efforts should be made to encourage greater participation of women in stock market activities through targeted awareness and inclusion programs.

Investment firms should design customized financial products that cater to different occupational groups, while regular training programs and workshops should be conducted to improve knowledge of stock market operations and risk management. Investors are advised to adopt diversified investment strategies to reduce overall risk and maintain a balanced portfolio to manage market volatility effectively.

It is also important for investors to closely monitor interest rate changes and other key economic indicators before making investment decisions. A better understanding of interest rate trends and their impact on stock markets can help improve investment outcomes. Financial analysts should consider interest rates as a critical variable in market

forecasting models, while policymakers such as the Reserve Bank of India should ensure transparency and consistency in monetary policy decisions.

Finally, investment education programs should be expanded to reach a wider audience, ensuring that all categories of investors are aware of the relationship between interest rates and stock market behavior. Overall, improving financial awareness and literacy is essential for better investment decision-making and market stability.

CONCLUSION

The study concludes that interest rate changes have a significant impact on stock market volatility in India, as interest rates are one of the most important macroeconomic factors influencing financial markets and investor behavior, and fluctuations in interest rates affect borrowing costs, corporate profitability, and investor expectations, which ultimately lead to changes in stock prices and overall market stability, while the statistical analysis including correlation and regression confirms the existence of a strong and significant relationship between interest rates and stock market volatility, and the findings emphasize that investors must closely monitor interest rate trends when making investment decisions in order to effectively manage risks and improve portfolio performance, and overall the study highlights the critical role of monetary policy decisions in shaping stock market behavior and guiding investment strategies, thereby providing valuable insights for investors, financial analysts, and policymakers in understanding and responding to financial market dynamics

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