

Determinants of Market Volatility in the Indian Stock Exchange: A Case Study of the Bombay Stock Exchange (BSE)

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ABSTRACT:

This study aims to investigate the factors influencing market volatility in the Indian stock market, with a focus on the Bombay Stock Exchange (BSE). The research seeks to identify the key determinants of volatility, such as economic indicators, investor sentiment, geopolitical events, regulatory changes, and global market trends. Using a quantitative approach, the study will analyze historical stock price data, trading volumes, and macroeconomic factors from the BSE over the past five years. Descriptive statistics, along with charts and graphs, will be used to illustrate volatility patterns and trends. The research will also assess the effectiveness of current risk management strategies employed by investors and institutions in mitigating market volatility. The findings will provide valuable insights for investors, policymakers, and regulators to enhance market stability and make informed decisions. By addressing gaps in the literature, the study aims to contribute to the broader understanding of market volatility in the context of an emerging economy like India.

Keywords — Market volatility, Bombay Stock Exchange (BSE), Economic indicators, Risk management.

I. INTRODUCTION

This case study explores the factors influencing market volatility in the Bombay Stock Exchange (BSE), aiming to provide valuable insights for investors, policymakers, and researchers. It addresses how economic indicators, political events, and investor sentiment contribute to fluctuating stock prices, volumes, and returns. Given the importance of the Indian stock market as a major emerging market, understanding these volatility drivers is crucial for investment strategies and financial stability. The study will adopt a quantitative approach, analysing historical data from the BSE. Its findings will offer relevant recommendations for managing risk and optimizing

investment decisions, contributing to the broader discourse on market volatility in India.

STATEMENT OF PROBLEM

The research problem focuses on understanding the key factors driving market volatility in the Indian stock exchange, specifically the Bombay Stock Exchange (BSE). Despite significant growth, the BSE experiences frequent fluctuations influenced by economic indicators, global events, and investor sentiment. There is a need to identify and analyze these determinants to improve risk management strategies and stabilize the market. Existing literature lacks comprehensive studies on the interplay of these factors in the Indian context. This study aims to fill that gap by examining their collective impact on stock price variability.

OBJECTIVES OF STUDY

- i. To identify the key factors that influence market volatility in the Bombay stock exchange.
- ii. To examine the relationship between economic indicators and market volatility.
- iii. To analyse the effect of company-specific factors on market volatility.
- iv. To explore the interplay between domestic and global factors in influencing market volatility.

NEED FOR THE STUDY

This study is essential to better understand the factors driving market volatility in the Indian stock exchange, particularly in the Bombay Stock Exchange. By examining key determinants such as economic indicators and global events, the research aims to offer insights that can help investors and policymakers develop effective strategies for managing risks and stabilizing the market. Understanding these dynamics is crucial for informed decision-making in an increasingly volatile financial environment.

RESEARCH METHODOLOGY

The research methodology focuses on analysing market volatility in the Bombay Stock Exchange (BSE) over the past five years using a descriptive research design. It will utilize historical stock price data, trading volumes, and macroeconomic indicators like the Wholesale Price Index (WPI) and the Bank Rate. Descriptive statistics, along with visual tools such as charts and graphs, will be employed to illustrate volatility trends in the BSE Sensex. Primary data will be gathered through surveys and interviews with market analysts, while secondary data will come from financial databases, stock exchange websites, government reports, and academic journals to provide a comprehensive understanding of market dynamics.

LIMITATIONS OF THE STUDY

- ☐ The study will only consider the Indian stock exchange and may not be generalizable to other emerging markets or developed markets.
- ☐ The study will only analyse the monthly closing prices of the BSE Sensex indices and may not consider other market indices or individual stocks.
- ☐ The study will only consider a 5-year time period and may not capture the impact of long-term trends or events.
- ☐ The study will rely on publicly available data and may be subject to data limitations or biases.

REVIEW OF RELATED LITERATURE

(Kumaraswamy S., 2019): This study examines the relationship between dividend policy and stock price volatility in the Indian market, finding that stable dividend policies reduce volatility, while irregular dividends increase it. The authors recommend consistent dividend practices to enhance market stability.

(Parmeshwari P., 2021): This research explores the impact of VIX futures on spot prices, showing that trading in VIX futures significantly affects spot price volatility. The authors suggest using VIX futures data to improve market risk management.

(Ajao M. G., 2022): This research explores dividend policy determinants in African stock markets, finding that stable dividend policies reduce stock price volatility. The authors suggest adopting consistent policies to enhance market stability.

(Debnath P., 2023): The study compares the risk-return dynamics of green and conventional stocks in India, finding that while green investments entail higher risk, they offer competitive long-term returns. The authors recommend balancing risk with sustainability goals.

(Konstantakis K., 2023): This study analyzes the euro-dollar exchange rate during the COVID-19 pandemic, identifying significant volatility and regime shifts. The authors recommend using regime-switching models to improve forecasting and risk management.

(Kuria S. M., 2024): The research investigates the impact of cash flow volatility on stock market value in Nairobi, finding that higher volatility negatively affects firm value. The authors suggest stabilizing cash flows to mitigate investor concerns.

RESEARCH GAP

The existing literature on market volatility largely focuses on developed markets, with limited exploration of emerging markets like India. There is a lack of comprehensive studies analyzing the combined impact of economic indicators, global events, and investor sentiment on market fluctuations in the Bombay Stock Exchange. This research addresses these gaps, providing insights into volatility drivers specific to the Indian market.

DATA ANALYSIS AND INTERPRETATION

Table 1: BSE SENSEX HISTORICAL DATA (F.Y 2019-2020)

DATE	Price	Open	High	Low	Vol.	Change %
1-Apr-19	39,031.55	38,858.88	39,487.45	38,460.25	322.52M	0.93%
1-May-19	39,714.20	39,036.51	40,124.96	36,956.10	408.67M	1.75%
1-Jun-19	39,394.64	39,806.86	40,312.07	38,870.96	320.97M	-0.80%
1-Jul-19	37,481.12	39,543.73	40,032.41	37,128.26	458.88M	-4.86%
1-Aug-19	37,332.79	37,387.18	37,807.55	36,102.35	564.23M	-0.40%
1-Sep-19	38,667.33	37,181.76	39,441.12	35,987.80	618.94M	3.57%
1-Oct-19	40,129.05	38,813.48	40,392.22	37,415.83	858.91M	3.78%
1-Nov-19	40,793.81	40,196.07	41,163.79	40,014.23	711.07M	1.66%
1-Dec-19	41,253.74	41,072.94	41,809.96	40,135.37	538.20M	1.13%
1-Jan-20	40,723.49	41,349.36	42,273.87	40,476.55	208.88M	-1.29%
1-Feb-20	38,297.29	40,753.18	41,709.30	38,219.97	213.43M	-5.96%
1-Mar-20	29,468.49	38,910.95	39,083.17	25,638.90	702.01M	-23.05%

Source: Investing.com ([Website link](#))

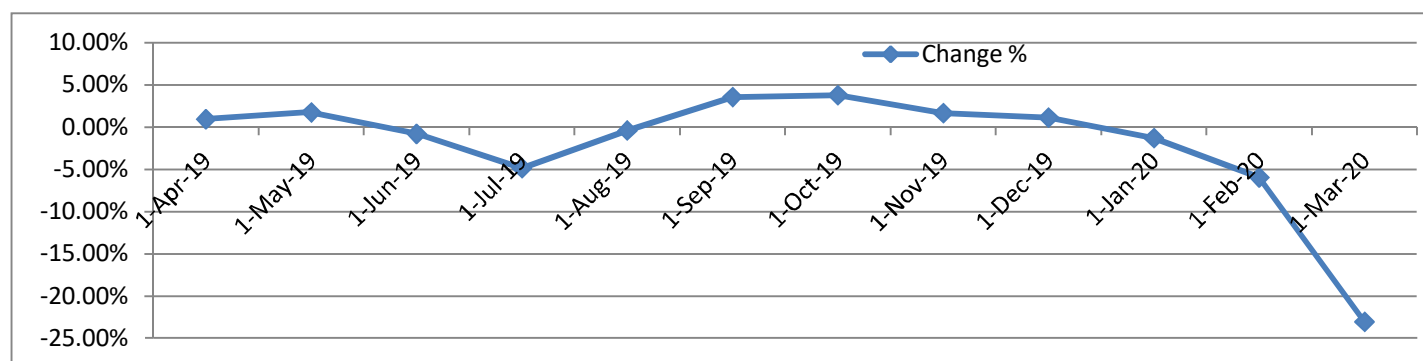


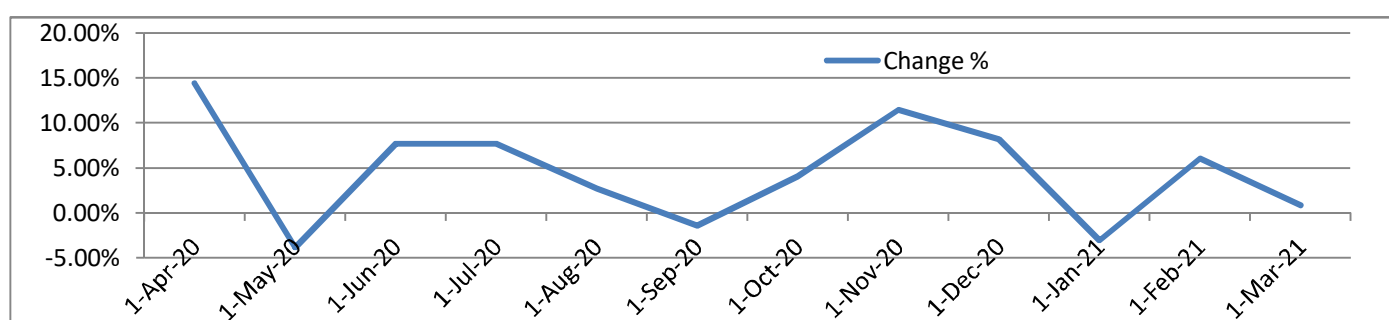
Table 1: Data analysis and interpretation

The BSE SENSEX saw mixed performance in FY 2019-2020. It rose in the first half due to optimism around elections, economic reforms, and corporate tax cuts. However, it faced declines in July and August due to trade tensions and budget concerns.

COVID-19 fears emerged in January 2020, leading to a steep drop in February and a dramatic 23.05% fall in March as the pandemic triggered global lockdowns and economic turmoil. Overall, the year was marked by external shocks and policy responses.

Table 2: BSE SENSEX HISTORICAL DATA (F.Y 2020-2021)

Date	Price	Open	High	Low	Vol.	Change %
1-Apr-20	33,717.62	29,505.33	33,887.25	27,500.79	346.46M	14.42%
1-May-20	32,424.10	32,748.14	32,845.48	29,968.45	544.07M	-3.84%
1-Jun-20	34,915.80	32,906.05	35,706.55	32,348.10	541.98M	7.68%
1-Jul-20	37,606.89	35,009.59	38,617.03	34,927.20	442.93M	7.71%
1-Aug-20	38,628.29	37,595.73	40,010.17	36,911.23	381.93M	2.72%
1-Sep-20	38,067.93	38,754.00	39,359.51	36,495.98	309.87M	-1.45%
1-Oct-20	39,614.07	38,410.20	41,048.05	38,410.20	323.06M	4.06%
1-Nov-20	44,149.72	39,880.38	44,825.37	39,334.92	410.33M	11.45%
1-Dec-20	47,751.33	44,435.83	47,896.97	44,118.10	390.45M	8.16%
1-Jan-21	46,285.77	47,785.28	50,184.01	46,160.46	349.72M	-3.07%
1-Feb-21	49,099.99	46,617.95	52,516.76	46,433.65	439.70M	6.08%
1-Mar-21	49,509.15	49,747.71	51,821.84	48,236.35	293.12M	0.83%



Source: Investing.com ([Website link](#))

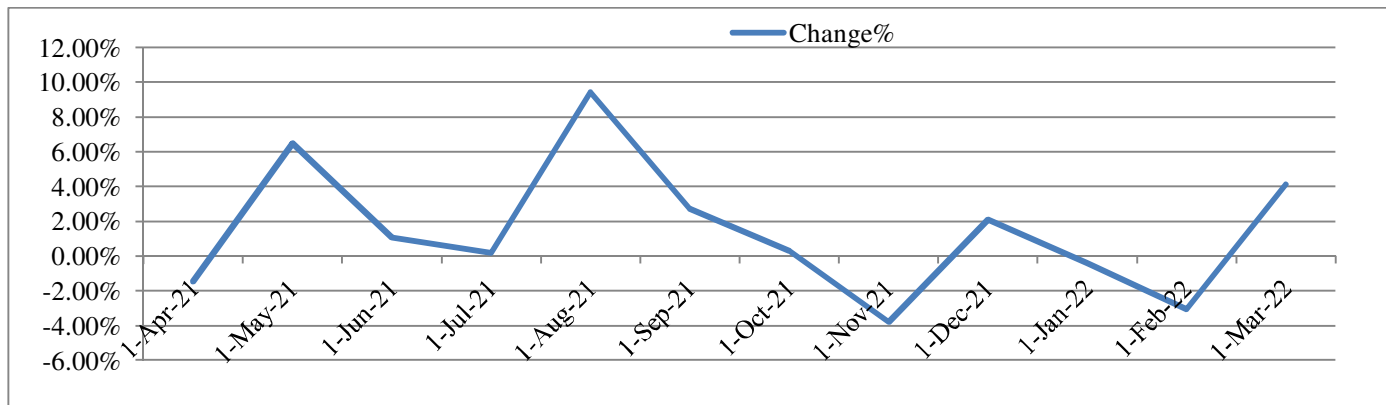
Table 2: Data analysis and interpretation

The BSE SENSEX for FY 2020-2021 was marked by a volatile start, with a sharp decline in April and May due to the COVID-19 pandemic and economic lockdowns. From June to December 2020, it saw a strong recovery driven by economic reopening, RBI

interest rate cuts, and government stimulus measures. November and December witnessed significant surges due to the effects of ongoing stimulus efforts. January 2021 saw a slight decline amid concerns over the pandemic's lingering impact, but the market rebounded in February and March due to reforms and steady monetary policy.

Table 3: BSE SENSEX HISTORICAL DATA (F.Y 2021-2022)

Date	Price	Open	High	Low	Vol.	Change%
1-Apr-21	48,782.36	49,868.53	50,375.77	47,204.50	249.49M	-1.47%
1-May-21	51,937.44	48,356.01	52,013.22	48,028.07	276.68M	6.47%
1-Jun-21	52,482.71	52,067.51	53,126.73	51,450.58	260.15M	1.05%
1-Jul-21	52,586.84	52,638.50	53,290.81	51,802.73	210.72M	0.20%
1-Aug-21	57,552.39	52,901.28	57,625.26	52,804.08	191.72M	9.44%
1-Sep-21	59,126.36	57,763.53	60,412.32	57,263.90	255.74M	2.73%
1-Oct-21	59,306.93	58,889.77	62,245.43	58,551.14	250.63M	0.31%
1-Nov-21	57,064.87	59,577.48	61,036.56	56,382.93	161.76M	-3.78%
1-Dec-21	58,253.82	57,365.85	59,203.37	55,132.68	177.40M	2.08%
1-Jan-22	58,014.17	58,310.09	61,475.15	56,409.63	175.12M	-0.41%
1-Feb-22	56,247.28	58,672.86	59,618.51	54,383.20	177.59M	-3.05%
1-Mar-22	58,568.51	55,629.30	58,890.92	52,260.82	242.11M	4.13%



Source: Investing.com ([Website link](#))

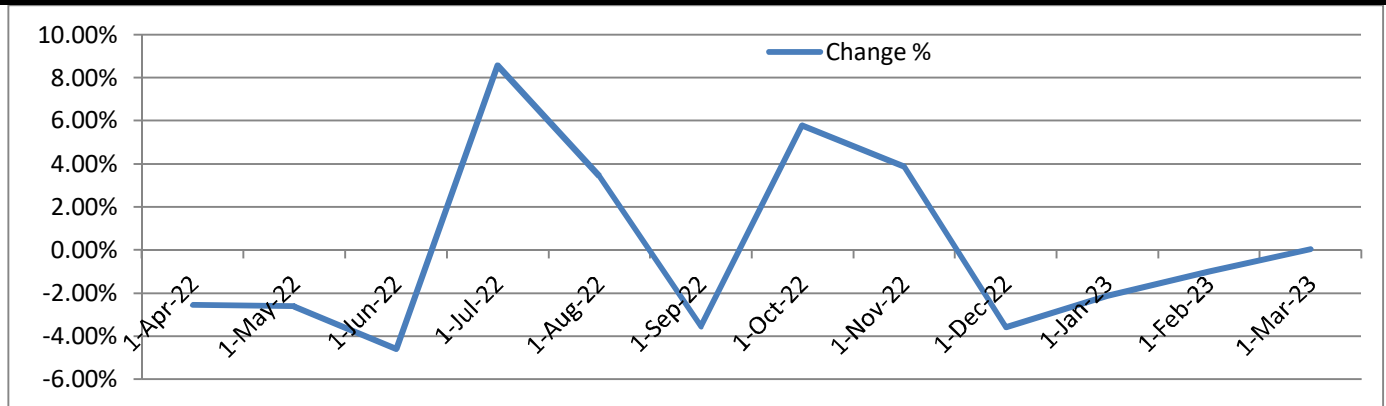
Table 3: Data analysis and interpretation

The BSE SENSEX in FY 2021-2022 reflected a volatile recovery amid pandemic challenges and global uncertainties. It fell in April due to the second COVID-19 wave but rebounded in May and June as restrictions eased and vaccinations accelerated. A strong upward trend continued through August, driven by economic recovery,

corporate earnings, and government initiatives. However, rising inflation, oil prices, and global tensions, including the Russia-Ukraine conflict, led to declines in November, January, and February. The year closed on a positive note in March, supported by improved economic conditions and policies.

Table 4: BSE SENSEX HISTORICAL DATA (F.Y 2022-2023)

Date	Price	Open	High	Low	Vol.	Change %
1-Apr-22	57,060.87	58,530.73	60,845.10	56,009.07	163.75M	-2.57%
1-May-22	55,566.41	56,429.45	57,184.21	52,632.48	197.91M	-2.62%
1-Jun-22	53,018.94	55,588.27	56,432.65	50,921.22	131.73M	-4.58%
1-Jul-22	57,570.25	52,863.34	57,619.27	52,094.25	215.34M	8.58%
1-Aug-22	59,537.07	57,823.10	60,411.20	57,367.47	271.81M	3.42%
1-Sep-22	57,426.92	58,710.53	60,676.12	56,147.23	341.50M	-3.54%
1-Oct-22	60,746.59	57,403.92	60,786.70	56,683.40	250.30M	5.78%
1-Nov-22	63,099.65	61,065.58	63,303.01	60,425.47	285.96M	3.87%
1-Dec-22	60,840.74	63,357.99	63,583.07	59,754.10	182.58M	-3.58%
1-Jan-23	59,549.90	60,871.24	61,343.96	58,699.20	182.73M	-2.12%
1-Feb-23	58,962.12	60,001.17	61,682.25	58,795.97	172.52M	-0.99%
1-Mar-23	58,991.52	59,136.48	60,498.48	57,084.91	133.08M	0.05%



Source: Investing.com ([Website link](#))

Table 4: Data analysis and interpretation

The BSE SENSEX in FY 2022-2023 experienced significant fluctuations due to a mix of global economic uncertainty, inflation, and central bank actions. The index declined in the first quarter (April to June) amid rising inflation, geopolitical tensions, and successive RBI interest rate hikes. It rebounded in July and August, driven by easing

inflation concerns, stronger corporate earnings, and improved global sentiment. However, September and December saw declines, influenced by renewed RBI rate hikes and global economic uncertainty. Despite ongoing inflation and economic challenges, the year ended with a modest recovery in March, aided by improved earnings and a pause in rate hikes.

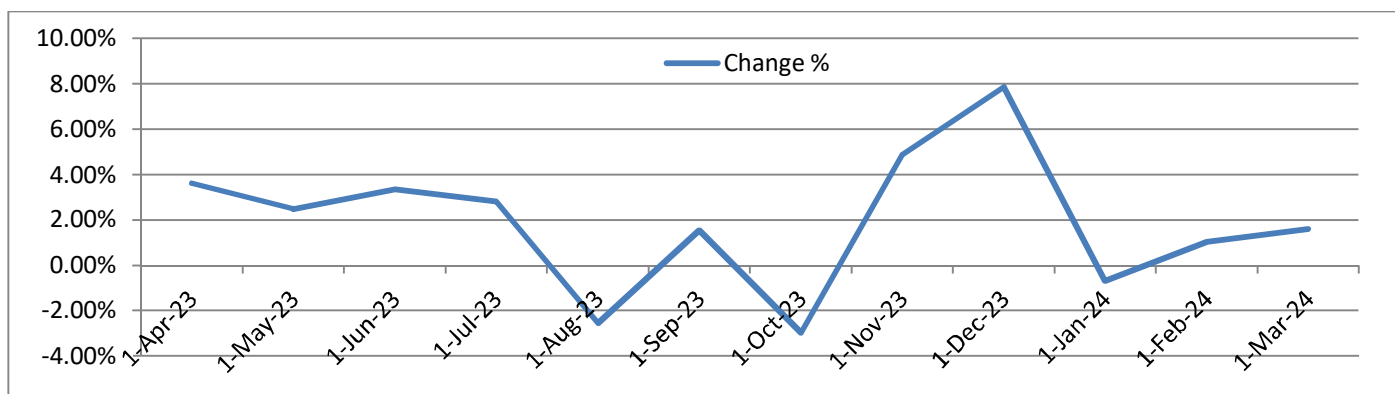
Table 5: BSE SENSEX HISTORICAL DATA (F.Y 2023-2024)

Date	Price	Open	High	Low	Vol.	Change %
1-Apr-23	61,112.44	59,131.16	61,209.46	58,793.08	117.36M	3.60%
1-May-23	62,622.24	61,301.61	63,036.12	61,002.17	155.08M	2.47%
1-Jun-23	64,718.56	62,736.47	64,768.58	62,359.14	199.21M	3.35%
1-Jul-23	66,527.67	64,836.16	67,619.17	64,836.16	203.81M	2.80%
1-Aug-23	64,831.41	66,532.98	66,658.12	64,723.63	316.72M	-2.55%
1-Sep-23	65,828.41	64,855.51	67,927.23	64,818.37	180.12M	1.54%
1-Oct-23	63,874.93	65,813.42	66,592.16	63,092.98	192.02M	-2.97%
1-Nov-23	66,988.44	63,829.87	67,069.89	63,550.46	172.55M	4.87%
1-Dec-23	72,240.26	67,181.15	72,484.34	67,149.07	283.94M	7.84%
1-Jan-24	71,752.11	72,218.39	73,427.59	70,001.60	295.21M	-0.68%
1-Feb-24	72,500.30	71,998.78	73,413.93	70,809.84	252.20M	1.04%
1-Mar-24	73,651.35	72,606.31	74,245.17	71,674.42	743.66M	1.59%

Table 5: Data analysis and interpretation

The BSE SENSEX in FY 2023-2024 experienced strong overall growth, with significant surges in key months. April to July saw steady increases, driven by positive economic sentiment, strong corporate earnings, easing inflation, and growth in the IT sector. A slight dip occurred in August due to concerns over a global economic slowdown, but

sentiment improved again in September with government stimulus efforts. After a temporary decline in October due to potential US interest rate hikes, the index surged in November and December, supported by strong earnings and government initiatives. The year ended with moderate gains in early 2024, buoyed by sustained market confidence and economic support measures.



Source: Investing.com ([Website link](#))

MAJOR FINDINGS

Impact of Macroeconomic Indicators: The analysis revealed that key macroeconomic indicators like the Wholesale Price Index (WPI) and Bank Rate have a significant influence on market volatility. Periods of high inflation and fluctuating interest rates corresponded with increased stock price variability in the BSE.

Role of Investor Sentiment: Investor sentiment played a crucial role in market movements. Positive news, such as corporate earnings and government reforms, resulted in bullish trends, while global uncertainties, such as the COVID-19 pandemic and geopolitical tensions, led to sharp declines.

Volatility During Global Events: The data analysis indicated that global events, particularly the COVID-19 pandemic, had a pronounced effect on market volatility. The BSE Sensex experienced extreme fluctuations during this period, underscoring the impact of global shocks on emerging markets.

Sector-Specific Volatility: Certain sectors, particularly IT and financial services, showed higher volatility during economic downturns and global uncertainties. The recovery of these sectors post-pandemic also contributed to market rebounds.

Ineffectiveness of Existing Risk Management Strategies: The study found that many investors and institutions were not fully prepared for the level of volatility caused by the pandemic and global market shifts. Existing risk management strategies, such as diversification, did not sufficiently mitigate the impact of sudden market downturns.

SUGGESTIONS

Strengthen Risk Management Strategies: Investors and institutions should adopt more dynamic risk management approaches, such as incorporating hedging strategies and volatility

indices, to better navigate periods of extreme market fluctuations.

Monitor Global Events and Policy Changes: Given the significant impact of global events on market volatility, investors should closely monitor international developments and geopolitical tensions. This includes adapting portfolios in anticipation of such events.

Enhance Market Stability Through Policy Interventions: Policymakers should introduce measures to enhance market stability during periods of economic uncertainty. This may include fiscal and monetary policies to stabilize inflation and interest rates, reducing their impact on stock market volatility.

Improve Financial Literacy for Investors: To better equip retail investors for volatility, financial education programs focusing on risk management and market dynamics should be promoted. This would help investors make more informed decisions during periods of uncertainty.

By addressing these findings and suggestions, investors, policymakers, and financial institutions can better manage market volatility and contribute to the stability and growth of the Indian stock exchange.

CONCLUSION

This study concludes that market volatility in the Bombay Stock Exchange is driven by macroeconomic indicators, investor sentiment, global events, and sector-specific dynamics. The COVID-19 pandemic notably amplified volatility, highlighting the vulnerability of emerging markets to global shocks. Current risk management strategies were found to be insufficient during extreme market conditions, underscoring the need for more adaptive measures. Policymakers are encouraged to implement stabilization policies, while investors should focus on dynamic risk

management approaches. The findings offer valuable insights for improving market stability and guiding informed investment decisions.

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