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Impact of Macroeconomic Variables on Indian Stock Market

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Abstract: *This study provides significant understanding of how macroeconomic factors influence the Indian stock market. It highlights the necessity of monitoring these variables to make intelligent investing choices and to better understand the economic trends shaping the stock market.*

Keywords: macroeconomic factors

I. INTRODUCTION

The Indian stock market is an essential indicator of the nation's economic health and is fundamental to its overall growth. It offers a venue for companies to raise capital and for investors to take portion in the expansion and well-being of the economy. The stock market's performance is influenced by a amount of macroeconomic variables that also disturb the total economy. This study aims to investigate how exchange rate, GDP & inflation rate—three significant macroeconomic variables—affect the Indian stock market from 2019 to 2023. These specific factors were elected due to they serve as significant gauges of the overall health and performance of the economy.

OBJECTIVES

- To examine the connection among the India’s stock market and GDP between 2019 and 2023.
- To assess the effect of the inflation rate in India on stock market between 2019 and 2023.
- To determine the significances of exchange rate variations on the unpredictability of Indian market from 2019 to 2023.
- To assess how the India’s stock market and these macroeconomic variables interact, both with regard to kind and intensity.

II. LITERATURE REVIEW

In 2020, Misra and colleagues carried out the comparative analysis on the Indian stock market's performance during three critical periods: COVID-19 pandemic, the rollout of GST & demonetization. Their discoveries shown that the pandemic caused the most severe downturn in stock returns. Despite negative returns in the pre-lockdown phase, investor sentiment improved during the lockdown, resulting in a stock market rebound and eventual positive returns.

From January 1998 to January 2014, Ramadan, Elgazzar, and Hanafy (2016) investigated the connection between macroeconomic variables and stock markets in Egypt and Tunisia. They found a significant relationship in Egypt between the stock market index and the CPI, interest rate, money supply, and exchange rate. In a similar vein, the exchange rate, money supply, and interest rate all influenced Tunisia's stock market; however, the CPI was unrelated. Additionally, the study discovered that there was a co-integration between these four macroeconomic variables and the stock markets in both nations.

IV. RESEARCH METHODOLOGY

Descriptive research was employed, and secondary data is used.

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SECONDARY DATA

This data taken from net sources such as Yahoo Finance and the RBI database are used in this study. These pre-existing datasets provide the foundation for this research and allow it to take benefit of previously acquired data to meet its goals.

STATISTICAL TOOLS

Descriptive Statistics: Descriptive statistics summarize data by providing key measures such as the mean, standard deviation, and frequencies.

Regression Analysis: A arithmetical method accustomed to consider the connection among two variables: one dependent & one or more independent is regression analysis.

Correlation Analysis: A statistical technique for determining the direction and degree of a relationship between two or further elements is correlation analysis.

DESCRIPTIVE STATISTICS:

Descriptive analysis on NSE Nifty

Statistics	Mean	Median	Std. Dev.	Min	Max	Range
2019	11475.975	11558.15	478.048	10792.5	12222.40	1429.9
2020	11208.80	11402.23	1366.78	8991.70	13749.25	4757.55
2021	15996.45	15822.8	1255.27	14347.25	17749.70	3402.45
2022	18187.57	18133.83	426.56	17658.55	19107.10	1448.55
2023	19319.96	19498.65	1195.54	17799.95	21801.45	4001.5

Descriptive analysis on Inflation Rate

Statistics	Mean	Median	Std. Dev.	Min	Max	Range
2019	3.61	3.16	1.24	2.05	6.20	4.15
2020	6.46	6.63	0.87	4.59	7.61	3.02
2021	5.09	5.16	0.78	4.06	6.30	2.24
2022	5.97	5.95	0.46	5.24	6.69	1.45
2023	5.58	5.60	0.93	4.31	7.44	3.13

Descriptive analysis on Exchange Rate

Statistics	Mean	Median	Std. Dev.	Min	Max	Range
2019	70.47	70.95	0.97	68.90	71.54	2.64
2020	74.06	74.84	1.72	71.23	76.01	4.78
2021	73.75	73.74	0.82	72.51	75.07	2.56
2022	75.84	75.99	0.74	74.51	76.69	2.18
2023	82.17	82.25	1.32	78.31	83.3	4.99

Descriptive analysis on GDP Growth Rate

Statistics	Mean	Median	Std. Dev.	Min	Max	Range
2019	282.36	282.08	12.17	262.04	300.68	38.64
2020	231.13	231.36	46.24	153.63	293.94	140.31
2021	301.78	294.99	25.45	273.68	350.05	76.37
2022	352.96	353.77	17.30	325.11	383.56	58.45
2023	411.29	407.43	27.70	372.48	453.84	81.36

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HYPOTHESIS

- **Null Hypothesis: H0:** The India's stock market performance from 2019 to 2023 does not exhibit a substantial correlation with exchange rate, GDP & inflation rate.
- **Alternative Hypothesis : H1:** The India's stock market performance from 2019 to 2023 does exhibit a substantial correlation with exchange rate, GDP & inflation rate.

Correlation matrix:

Correlation Matrix	NSE Nifty	Inflation Rate	Exchange Rate	GDP
NSE Nifty	1	0.155	0.545	0.894
Inflation Rate	0.155	1	-0.156	-0.058
Exchange Rate	0.545	-0.156	1	0.714
GDP	0.894	-0.058	0.714	1

Regression :

Coefficients[a.]				
Constant.	**Unstandardized Coefficients.**	**Standardized Coefficients(Beta)**	**t-value**	**p-value**
Inflation rate	245.008	175.277	1.397	0.199
Exchange Rate	-134.054	177.311	-0.756	0.471
GDP	43.661	8.352	5.227	0.0007
a. Dependent Variable: NSE				

V. DISCUSSION AND RESULTS

FINDINGS

Between 2019 and 2023, NSE Nifty's median, standard deviation mean and minimum & maximum values changed, reflecting moves in the volatility and market performance with time.

NSE Nifty & GDP showed a strong positive association, the inflation rate and exchange rate showed a weak adverse link, and NSE Nifty showed a moderate positive correlation with both.

Regression analysis confirms a significant association among the selected macroeconomic variables (inflation rate, exchange rate & GDP) & NSE Nifty, providing strong evidence to reject the null hypothesis and accept the alternative hypothesis.

SUGGESTIONS

- Investors and analysts can use NSE Nifty index statistics to help them make well-informed decisions about investments and risk management.
- By using the study's findings, policymakers can improve their decision-making processes by having a better understanding of how the economy and the stock market interact.
- The research ought to be revised on a regular basis to account for shifts in the stock market and economy, guaranteeing that decision-makers and investors have access to the most recent data.

VI. CONCLUSION

To sum up, the inspection of the consequences of macroeconomic factors on the Indian stock market between 2019 and 2023 has provided important new understandings into how the economy and the stock market interact. Analyzing the NSE Nifty index data showed fluctuations in market performance and volatility, highlighting the importance of taking political developments, economic conditions, and effects from international markets into account. The study found a significant correlation among the chosen macroeconomic variables (GDP, exchange rate and inflation rate) and NSE Nifty. In particular, it was discovered that GDP had a solid and statistically important influence on the NSE Nifty index, whereas the inflation rate and exchange rate had a lesser consequence but still noteworthy influence.

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LIMITATIONS

The opportunity of the investigation is limited to the years 2019 to 2023, It might not be a true representation the continuous link between the specified macroeconomic factors & stock market or encompass long-term trends.

The research makes use of secondary data from the RBI database and Yahoo Finance, among other sources. Although these citations are generally reliable, the information gathered by other parties could contain errors or discrepancies.

The examination does not consider any outside variables that might have an influence on stock market, such as changes in investor attitude, geopolitical developments, or worldwide economic circumstances.

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