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## AN EMPIRICAL STUDY ON IMPACT OF INFLATION RATE ON STOCK MARKET PERFORMANCE IN INDIA

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### Abstract

BSE index SENSEX and BSE index NIFTY are the major indexes in India which is a measuring indicator of the economic development of India. The Inflation rate is one of the macroeconomic factors which influence the stock market directly or indirectly. Any country tries to make an economic policy to stabilize the inflation rate of their economy. The relationship between the stock market and the Inflation of a country has been a captivating concept for any policy maker and the researcher. The present study made an attempt to understand the relationship between inflation and stock market returns in India. The data from 2010 to 2022 is taken for the analysis.

**Key words.** SENSEX, BSE, NIFTY, Inflation

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### Introduction

The stock market has a significant impact on a country's economic development or decline. The fluctuation of stock market values is closely monitored by the government, industry, and even central banks of a nation since it has a significant impact on the country's economy. With the assistance of the World Bank, several developing nations take initiatives to reinvigorate their stock markets. Every economy's financial sector largely relies on stock markets. By stabilizing the financial sector, an effective capital market fosters economic growth. Stock prices quickly adapt to an effective capital market in response to new information. The stock prices reflect all facts about the stocks as well as the Market future predictions. As a result, if stock prices replicate these assumptions in real, it should be used as a major sign of economic changes (Ray, 2012). Hence the relationship between economic factors and the stock market performance should hold the academic interest and policy

inference. The impact and the relationship between macroeconomic factors and the stock prices are very significant in any stock market in the world. The stock market performance plays the role of measuring the yardstick of the economic growth of a country. It is one of the best approaches to utilize unproductive funds for productive funds. The study could observe that the inflation impacts positively on the cyclical stocks and commodity stocks. Cyclical stocks are the stocks that have a positive relationship with the economy. It is also observed that the stocks which

### **Purpose of this study.**

This Study is to know the influence of Inflation and on stock market returns in India from 2010 to 2022. Multiple Correlation and linear multiple regression methods were used to investigate the relationship between Inflation and the exchange rate as independent factors and the price return of the NSE NIFTY and BSE SENSEX as dependent variables.

### **Review of Literature:**

Martin Feldstein (1983): This study demonstrates a critical source of share price rises over a decade of significant Inflation from 1967 to 1976, which was researched to understand the structural relationship between Inflation and share prices. An explicit portfolio model might generate asset demand equations from anticipated utility maximization and identify indirect strategies for individuals to keep assets in a tax-favoured manner.

Fama (1981): The study demonstrated a substantial positive association between stock returns and real economic activity like industrial production, capital expenditures, and Gross National Product (GNP), but a negative relationship between equity returns and Inflation in the US market. Chen et al. (1986), following Fama (1981), found that macroeconomic variables such as industrial production, risk premium increases, and yield curve variations were major determinants in explaining stock returns.

Chen et al. (1986)The study investigated whether changes in macroeconomic indicators are considered risks that are rewarded in the stock market. According to financial theory, the difference between long and short interest rates, expected and unexpected Inflation, industrial production, and the spread between high- and low-grade bonds should all have a systematic impact on stock market returns. According to the study, these sources of risk are considerably priced. Furthermore, neither the market portfolio nor aggregate consumptions are independently valued. They also discover that the stock market does not reward oil price risk individually.

Kaul (1987)This research investigates whether the relationship between stock returns and Inflation is driven by the monetary sector's equilibrium process. More significantly, these relationships change in a systematic way throughout time as a result of the effect of money demand and supply variables. Evidence from the US, Canada, the UK, and Germany after WWII suggests that negative stock return-inflation relationships are generated by money demand and counter-cyclical money supply effects.

Naka et al. (1998): The study looked at the links between several macroeconomic indicators and the Indian stock market. The Analysis discovers three long-term equilibrium connections

between these variables using a vector error correction model. According to the findings, domestic Inflation is the most serious impediment to Indian stock market performance, while domestic production growth is the primary driving engine. Even after accounting for macroeconomic considerations, the Indian Market looks to be being dragged down by a persistently bearish trend.

**Pethe and Karnik (2000):** Attempts to determine how stock price indices in India are impacted by and affected by other critical macroeconomic variables using data from April 1992 to December 1997. The research, of course, asserts that in the absence of co-integration, it is not permissible to test for causality between two variables, and it does so in light of the significance placed on the relationship between the status of the economy and stock markets. The study investigates weak causation caused by IIP to share price index (Sensex and Nifty) but not the other way around.

Bhattacharya and Mukherjee(2002) The nature of the causal link between the BSE Sensitive Index and the five macroeconomic aggregates in India (i.e., IIP, money supply, national income, interest rate, and inflation rate) was researched using monthly data from 1992-1993 to 2000. Toda and Yamamoto (1995) used unit–root tests, co-integration, and the long-run Granger non–causality test to find that there was no causal link between stock prices and money supply, national income, and interest rate, while IIP led the stock price, and there was two-way causation between stock price and inflation rate.

### **Research Gap**

The stock market and the economic variable have unstable characters. They are influenced by each other. Hence it is needed. It is observed from the existing review of literature that the outcome of the various studies is shown in a different way. Different findings from different researchers may be because of a different research approach, different set of macroeconomic variables used in the study, and different time periods taken for the study.

### **Objectives of the study:**

1. To understand the relationship between Inflation and the Indian stock market
2. To analyze the impact of Inflation on stock market performance.

### **Hypothesis of the Study :**

1H0: There is no relationship between Inflation and the stock market

2H0: There is no significant impact of inflation rate movements and the stock market performance.

### **Research Methodology:**

The present study adopted an empirical method by reviewing the previous research work in the same field to analyze the impact of Inflation rate on the stock market returns. The study explores the causal relationship between Inflation and Stock market return over a long period.

Some variables like Inflation will change over a period of time. Hence the time series data is non-stationarity in most cases. Hence it is very important to make the non-stationarity data into stationarity. Many of the statistical tools like regression analysis and, factor analysis, granger ratio analysis assume that the time series data is stationarity.

The present study applied the dickey fuller test and unit root. UNIT ROOT IS basically when future observations of the variables are dependent on the past realization with the coefficient of 1 or very close to 1. Therefore, one can test that kind of relationship by differencing time series calculating from one observation to another. Further the observations regress with lagged levels of selected time series. If the coefficient obtains equal to or greater than zero, it is understood that the unit root exists and vice versa. In order to explore the causal relationship between Inflation and S & P 500 and the Nifty, the Correlation and Granger Causality Test has been applied.

### **Collection of Data.**

The S & P 500, Nifty daily closing prices of the Indian stock market for the period 2010-2022 and Inflation rate for the same period has been taken to explore the impact of Inflation on stock market returns. The data is collected from NSE and BSE official websites, and the inflation data is collected from the Indian statistical organization Indian economy handbooks, RBI official website. The statistical tools applied for the study are the Unit root test, Correlation, and Regression analysis in excel.

### **Empirical Analysis.**

Correlation between time series data and lagged data of the same for two times has done to analyze the impact of Inflation on the security market. The present study tries to extend the existing research by exploring the relationship between Inflation and stock market returns. The data employed in the study are fundamentally time series, which necessitates unfolding for the observation of data properties. The unit root test is applied for the same.

### **Unit Root Test.**

The data was analysed, selecting the optimal lag length and also with drift and without drift to test the unit root existence. The results are presented in the following table. The analysis shows there is a unit root with optimal lag. Hence the data has stationarity at all the levels of the lagged data.

Augmented test	Co-efficient	-0.87349	0.002769	-0.03303	0.046451	0.292674
	St. error	0.13514	0.001524	0.085875	0.111347	0.127505
	t-stat	-6.46359331				

### Correlation:

Correlation between the Sensex returns and the Inflation rate:

	<i>Inflation</i>	<i>Sensex price</i>
<i>Inflation</i>	1	0.176348
<i>Sensex price</i>	0.176348	1

The correlation between Sensex returns and the inflation rate in India is observed from April 2010 to March 2022. The study shows that there is a very less significant relationship between these two variables. The correlation percentage between these 2 variables is 17.63%. Hence it is understood that the Inflation rate influences the market performance positively with a very less significant level.

Correlation between the Nifty returns and the Inflation rate:

	<i>Inflation</i>	<i>Nifty Price</i>
<i>Inflation</i>	1	0.172794779
<i>Nifty Price</i>	0.172794779	1

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**Multiple Regression Analysis.**

The multiple regression tool is used to test the significant relationship between the inflation and S&P 500, Inflation and Nifty returns from April 2010 to March 2022. The study made a hypothesis as there is no relationship between selected variables. The study observed that there is positive correlation between Inflation and S&P 500 and also inflation and Nifty returns. Hence the null hypothesis is rejected and the alternative hypothesis i.e. the inflation influences the stock market returns in case of S&P and the null hypothesis is accepted in case of nifty returns. The following table shows that inflation influences the S&P 500 market returns to negligible significance level, whereas the Nifty returns were negatively correlated. Some of the studies proven that the top performing companies market price returns negatively correlated with the inflation. The following output also supports the same.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \epsilon$$

**Summary of out put**

<i>Regression Statistics</i>			
Multiple R			0.193951242
R Square			0.037617084
Adjusted R Square			0.023966263
Standard Error			0.701777264
Observations			144

  

	<i>Coefficients</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	0.28393133	1.6119096	0.10922
S&P Sensex price	0.00013143	1.0662029	0.28815
Nifty Price	-0.00040654	-0.977259	0.33011

### **Conclusion:**

The present paper made an attempt to explore the relationship between Inflation (Independent variable) and Nifty, S&P 500 market returns for the period April 2010 to March 2022. The data used for the study is monthly indexes of NSE and BSE and Inflation rates. The study is based on the null hypothesis, which says there is no relationship between selected dependent and independent variables. ADF test, Correlation, and Multiple regression analysis were used to test the same. Root test was checked with 2 level lag length, and casual relationship was tested using Correlation; regression analysis was also applied to test the significant relationship among the selected variables. Many researchers proved that there is a close relationship between various macroeconomic variables and the stock market, but the present study shows ambiguous results that the inflation rate is not much influencing economic factors to predict the future market returns. As the results show, the relationship between selected variables is not so significant. The study supports the Fama Proxy hypothesis. It also supports the existing empirical theory, which says that the relationship between the selected variable is very negligible or sometimes it is also negative. It is difficult to plot the exact relationship between Inflation and the stock market returns.

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