

A study of cause and effect relationship between Inflation and Bombay Stock Exchange (Sensex)

Mr. Naresh Kedia, Prof. (Dr.) Anil Vashisht,

*Amity University Madhya Pradesh
Amity University Madhya Pradesh*

Abstract: Indian stock market is the barometer of the Indian economy. The stock promote is impacted by various economic factors and Inflation is one of them. The study established the cause and effect relationship of the Inflation i.e. Consumer Price Index and the Bombay Stock Exchange index Sensex. The month wise data for the research has been taken from January 2017 to December 2019 for CPI (Consumer Price Index) and the Sensex returns. Unit root test outcome stated that the data is stationary, and the cause and effect relationship was found by the Granger Causality experiment. The outcome of the test states that there does not exist a cause and effect connection among the inflation & the Sensex proceeds.

1. Introduction:

Indian economy has grown by leaps and bounds in the last three decades after the policy changes in 1991 and introduction of Liberalization, Privatization and Globalization. Capital market has grown matured from foreign investments. With the stock market growing, the volatility of the market also started growing. Academicians and analyst started doing research on what are the causes of the stock market being so volatile. The different factors of economy were studied in relation with the stock market. The Bombay Stock Exchange being the oldest store replace in India has the 10th highest market capitalization in the world's ranking of the stock market. The Sensex, index of BSE has grown from its base value 100 to so much more. Therefore, it is important to study what impacts the stock market and how we can be rational in terms of investing. This research paper examines the impact of inflation (CPI) on the Sensex returns by using the Granger Causality test.

2. Review of Literature:

Mukherjee and Bhattacharya (2002) studied the relationship between the variables of economy with the BSE Sensex. The variables considered were IIP, Money supply, National Income, interest rate as well as increase. The data period of the study was from 1992 to 2000. Monthly data were taken for the same. Cointegration test and the granger causality test were applied for the study. The outcomes stated that that there was fundamental relation among the Sensex moreover the change supply, national income and the

interest rates. IIP has unidirectional effect on Sensex and inflation had bidirectional cause and effect relationship with Sensex.

Tripathy (2011) Investigated the relationship between the selected variables of Indian economy with the Indian stock market. The variables included interest rate, replace rate and inflation. The statistical tools worn for the study included Ljung-Box Q test, Breusch-Godfrey LM test, Unit Root test and Granger Causality test. The BSE volume and International stock market were also taken as variables in the study. The outcomes demonstrated that the variables BSE volume and the international stock market have unidirectional causal relation with the Indian stock market. The interest rate, inflation & exchange rate have bidirectional cause and effect on the stock market.

Dasgupta (2012) studied the long-term & short-term relation among the BSE Sensex and the different macro connections of the economy. The variables taken for the study were Inflation (Wholesale price index) IIP, Exchange rate also call money rate. Granger causality test and the co-integration test were used for the study. The outcome of the study showed that there is at least one co-integration between the BSE Sensex and the IIP and call money rate. The granger causality test revealed that there is no causal connection among the variables also the stock market.

Hypothesis:

H0: There is no causal relation among the inflation & the Sensex Returns

H1: There is causal relation connecting the inflation and the Sensex Returns

Period of Study: January 2017 to December 2019

Data had been collected from the websites of federal reserve and the Bombay stock exchange.

3. Results and Discussion:

The analysis started with checking of stationarity of the variables of the study. Amproved Dickey Fuller test was employed for the same.

In the next step of the analysis, Granger causality test has be used to locate out the cause and effect relation amongst the different variables of the study.

The cause and effect analysis will represent whether there is any relation between the inflation and Sensex or not.

Null Hypothesis: INF has a unit root
 Exogenous: Constant
 Lag Length: 0 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	0.473100	0.9833
Test critical values:		
1% level	-3.632900	
5% level	-2.948404	
10% level	-2.612874	

Unit Root Test on Inflation (Result 1)

Since the probability value is more than 0.05, we will accept the null hypothesis, which involves that the inflation has unit root & is not stationary. Therefore, we will check the stationarity of data at 1st level to check the unit root.

Null Hypothesis: D(INF) has a unit root
 Exogenous: Constant
 Lag Length: 0 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-6.399663	0.0000
Test critical values:		
1% level	-3.639407	
5% level	-2.951125	
10% level	-2.614300	

*MacKinnon (1996) one-sided p-values.

Unit Root Test at 1st level of different (Result 2)

The Result 2 says that the inflation is stationary at 1st level of different as the probability value is less than 0.05. We decline the null hypothesis. The unit root is not present at the 1st level of difference in inflation and the results of further analysis will not be spurious. Therefore, we can conclude that the variable inflation used in the analysis full fills the precondition of time series analysis and is stationary.

Null Hypothesis: SR has a unit root
 Exogenous: Constant
 Lag Length: 1 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-5.906348	0.0000
Test critical values:		
1% level	-3.639407	
5% level	-2.951125	
10% level	-2.614300	

Unit Root Test of Stock Returns (Result 3)

The unit root test of stock return showed that the probability worth is less than 0.05 and so the null hypothesis is discarded, also stock returns are stationary.

Sample: 2017M01 2019M12

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
SR does not Granger Cause INF	34	0.15652	0.8558
INF does not Granger Cause SR		0.35892	0.7015

Granger Causality Test (Result 4)

The consequences of granger causality are the Result 4 showed that the probability value for cause and effect for both the variables is grater then 0.05 and we will accept the null hypothesis.

This implies that the inflation and the Sensex does not have cause and effect relationship amongst each other. This also confirms that efficient market theory is in existence.

4. Conclusion:

The research paper concludes that there is no cause and effect relation amongst the inflation variable of the economy with the index of Bombay Stock Exchange (BSE)

This also give us a conclusion that efficient market hypothesis forms are present in the stock market with informational efficiency.

The paper will help investors, stockbrokers to understand the stock market in a better way.

5. References:

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