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Are macroeconomic indicators having impact on the BSE indices of the Indian stock market during the stock market downturn?

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Abstract

To carry out changes in the growth of foreign investments has become the striking measure of economic development and is witnessing the changes in the developed countries. Following the path of developed countries, many developing countries are also permitted to inflow foreign capital into the country. India also is not far behind in this, like other developing countries India also permitted foreign investors to invest in India in 1991 under the Foreign exchange Management Act (FEMA). As a result, the inflow of foreign capital into the country is increased and becomes an important source of finance in India for the development of key economic sectors which is experienced through the stock market. But as we have seen that at the time of a downturn in the stock market, the flow of FII and FDI becomes negative which declines the economic activities and causes huge losses for the domestic investors. So the current study is an attempt to find out the behavior of macroeconomic indicators on the indices of the Indian stock market during the stock market downturn and identify the hedging instrument needed for the domestic investors to protect from the losses from the stock returns.

Key Word: - Foreign Exchange Management, Foreign Investment, Sources of Finance etc.

Introduction

Identifying and verifying the existing link between macroeconomic factors and stock markets throughout the world has been a professional and insurmountable task for scholars, stock market practitioners, investors, and other investment organisations. The problem is that no one can predict when macroeconomic variables will affect a country's stock market share prices. The macroeconomic factors are the hidden tools in an empty magic box that have the potential to impact the values of stocks and other securities.This notion was initially raised in Fema's head in his research in 1981. Chen et al. (1986), Pearce &Roley (1988), Fema (1991), Poon and Taylor

(1992), and others have investigated and confirmed the existence of a causal relationship between asset prices and real economic activities such as production rate, productivity, GNP growth rate, yield multiplication, unemployment rate, inflation rate, interest rate, and dividend yields, among others.Many academics believe that an efficient stock market is one that serves as the foundation for all economic and political actions, with securities values changed based on the most up-to-date information available. The tools provided for up-to-date information in the Indian stock market may assist one in making rapid guesses about market development and share indicator movements. The stock indicators are extremely sensitive to macroeconomic factors of both local and international socio-economic and political practices inside the country, and they are mobilized quickly by them.Budgetary, monetary, and fiscal statements by the government, as well as statements by nations across the world, can be used to gauge the stock market's sensitivity. Thus, one can readily grasp who is the key to all economic indicators and how they may be responded with the performance of business sectors, corporate activities, and corporate profits in the country using economic theory. If stock prices are properly correlated with the underlying functions, then the stock price, not the other way around, should be considered the key indication of the country's economic progress.

Literature Review

Abakah et. al. (2020) investigated the persistence of volatility in 12 major crypto currencies and found a reduction in the degree of persistence in the crypto currency market after accounting for structural breaks. Using the quantile correlations between Bitcoin and the S&P 500 and the VIX Index,

Kristoufek, (2020), discovered that the Bitcoin haven tale is false, and gold is a far superior haven during a pandemic.

Cheema and Kenneth R. Szulczyk (2020) investigated the function of Indian stock market indexes, gold, T-bill, T-bond, US dollar, and stable coins as safe havens from both the stock market and the role of cryptocurrency. The results demonstrate that gold moves in the cycle with all stock market indices, but BTC loses its position as a haven from the market. However, the T-bill index was found to be a strong haven for the SSE, NIKKEI225, and BSE, and a weak haven for the SP500, DAX, and BTC; whereas, during the pandemic

Das, A. R. (2019) attempted to study the relationship and influence of FDI and FII on the Indian stock market (Sensex and Nifty).the study is based on the data from 2008 to 2018 collected on a daily basis. By using Pearson’s correlation and multiple regressions the concluding evidence showed that FDI has a significant relationship with the Indian stock market and FII is regarded as ‘fair weather friends’ i.e. favorable condition of the market.

Aggarwal and Soloman (2017) made a study on the flow of foreign capital like FDI and FII and its impact on Sensex.The concluding evidence states that FDI has a significant correlation with Sensex but both FDI and FII fail to identify the trends of stock movements of Sensex.

Prasad and Vishali (2017) observed the shareholding pattern of FII in the National stock exchange (NSE) of India. From this analysis, it has been shown that the Indian stock market emerged as the safe destination for FII during the global recession. It also stated that the finance and banking sector accounted for more FII inflows.

Arora, R.K. (2016) tries to infer the behavior of FII and DII in the Indian stock market. The result shows that high logged stock returns result in increased FII investment. It also finds weak evidence in the relation between FII and future stock returns.

Himachalpathy(2016) analysed to find out the determinants of India's FII inflow. His research is focused on secondary data and uses Pearson's Correlations on exchange rates, Inflation, Industrial Development, foreign Exchange Reserve and BSE Sensex returns. The findings suggested that IIP, REER and FER were the determinants of inflows from FII, and Inflation and BSE returns are the negligible determinants.

Ansuman, V.R., Acharya, V.V. & Kumar, K.K. (2014) tries to explore the relationship between FII, DII on stock market return in the pre and post lockdown period using a statistical technique like ADF, Correlation analysis, Granger causality Test and regression analysis to infer the results. The result conformed to FII influences in the pre lockdown period DII influences in during the post lockdown period in the market. The researchers conclude that foreign investors tend to indulge in sporadic buying and selling hence FII should not be treated as of going concerned but of momentum and speculative trading.

Loomba, J. (2012) attempted to study the impact of FII on Indian stock market volatility. Using the ARCH-GARCH process the data was measured for a period of 10 years i.e. from 2004 to 2014. The result revealed that FII contributed significantly to the Indian stock market volatility.

Jayachandran and Seilan (2010) worked on the "Relationship between Trade, FDI and FII and economic growth in India" the result of this Granger causality Test shows that the direction of the causality relationship goes from FDI to the Growth rate and not from the growth rate to FDIs. The studies were carried out from the period 1970 to 2007 and used a multi regression model.

Ahmed (2008) investigated the relationship between stock price and the macroeconomic variables using quarterly data from March, 1995 to March, 2007 by employing Johansen's co- integration test and Toda-Yamamoto Granger causality test. The result shows that there exists a long-run relationship between the stock price and the FDI, Money supply and Index of Industrial production.

Basabi(2006) examined the nature of the causal relationship between the stock returns, FII and exchange rate in India and finds bidirectional causality exists between the FII and stock return and unidirectional causality runs from the exchange rate to stock returns at a 10% level of significance and no causal relation is exist between the FII and the exchange rate.

Johan Andreas (2004) in his work "The effect of FDI inflow on host country economic growth"argued that the inflow of FDI should have a positive impact on economic growth as a result of technology slipovers and physical capital inflows. A cross-section and panel data analysis on a data set covering 90 countries during the period 1980 to 2002, founds that the FDI Inflows are the key to economic growth in developing countries only but not in developed countries, this work also argued that the direction of causality also goes from inflow of FDI to economic growth of developing countries which increase the market size for seeking more FDI from the Market.

Garden and Gupta (2003) investigated causation running from the inflow of FII and the returns in BSE. They observed that investing in FII makes a profit for the investor when the price is low and by selling when the price is high. Hence there are contradictory findings by various researchers regarding the causal relationship; therefore there is a need to investigate whether the FIIs are the cause or effect of stock market fluctuations in India.

Bhanumurthy and Rai (2003) explored a study on the determinants of FII in India during the period 1994-2002 and the data collected on a monthly basis. Here they found that equity return is the main driving force for FII investment which is regarded as significant at all levels.

Marion (2000) examined the influence of the French model of shareholding and management of FII. Here they stated that France has undergone a rapid change from a financial network market economy to a financial market economy. This new pattern has changed the traditional pattern system of cross-holding and facilitated the arrival of FII who brings with them new techniques and demands efficient corporate management.

Research Gap

From the literature review it has been revealed that a considerable number of researches have been done to identify the extent of relationship between the macroeconomic Indicators and the stock market returns. The present study is one of its kinds which will check out the significance of macroeconomic Indicators selected form the sectors of macroeconomics which are necessary to understand to protect investors from the losses of stock market returns with the occurrence of downturn in the stock market due to the existence of the unforeseen crisis. This study also involved in investigating and identifying the new avenue (Safe paradise) that can protect the investors from the impact of the decisions of government and Government agencies that change the stability in the stock market performance.

Objectives

To understand the movement of Indian stock market in the context of selectedMacroeconomic indicators in the country

To find out the short run and Long-run relationship between the Macroeconomic Indicators and BSE Indices of Indian Stock Market

To find out the causality that exists between Macroeconomic Indicators and BSE Indices of Indian Stock Market

Hypotheses of the Study:

- H_0: The macroeconomic Indicators have significant impact on the stock indices of Indian stock market.
- H_0: The macroeconomic Indicators have both Short run and Long run impact on the Indices of Indian stock market.

Research Methodology

Data Source: The secondary data was gathered from the Handbooks of statistics of Indian economy and website of .investing.com (https://in.investing.com).

Sample Size: A total number of 63 monthly time-series observations are collected for this research by applying convenient random sampling method.
Periodicity: The data used in the study are collected from 2015 April to June 2021.

Tools and Techniques Used: The consistency of the data is determined using descriptive statistics, and the relationship between macroeconomic Indicators and stock indices is examined using the Regression model, i.e. *Ordinary Least Squared (OLS)*model.The *Unit Root Test Model* (ADF) is performed in this studyto ensure the steadiness of the data. The test revealed that the data is non-stationary at the level in question.Another improvement approach is *Johansen's Co Integration Model* which is used in this study to trace out the co-integrating vector in the data series at its 0.05 significance level. Johansen's Co integration test is a broad strategy for avoiding difficulties that happen while selecting a dependent variable as well as errors that occur when transitioning from one step of the analysis to the next.Once the data series is co-integrated and the variables in the series is non-stationary at its level, then *Vector Error Correction Model (VECM)* is very effective to find out the result of Co-efficient with more efficiently to get correct decisions in the long run.

Data Analysis& Interpretation

The data was examined in this study utilising the Python environment. The study's variables were computed and given in the form of the mean, minimum, and maximum, standard deviation as well as skewness and Kurtosiss form.

Table1: Descriptive Statistics

	Mean	Std	Min	Max	Skewness	Kurtosiss	25%	50%	75%	count
BSEENERGY	3735.12	916013	2338.38	5280.38	-0.089	-1.347	2808.68	3940.25	4445.60	63
BSEBM	2570.33	549.34	1513.95	3552.56	-0.221	-0.898	2138.30	2651.52	2936.55	63
BSEFMCG	9940.45	1594.71	7114.45	12771.69	-0.240	-1.420	8293.13	10290.14	11329.73	63
BSEIND	3064.85	425.00	1867.17	3955.02	-0.367	0.687	2851.98	3073.04	3318.75	63
BSEFIN	5167.00	1047.30	3144.10	6996.14	-0.095	-1.271	4167.25	5449.05	5965.77	63
BSEINFRA	189.72	31.30	115.75	252.45	-0.103	-0.339	169.97	186.70	213.14	63
BSEHC	14815.29	1406.81	12148.57	18066.44	0.359	-0.500	13821.00	14726.58	15839.74	

FII	2360.79	13379.21	-47571.00	40576.00	-0.418	3.013	-5213.00	2976.00	10619.50	63
FDI	3638.77	1346.24	1210.00	8004.00	0.810	0.950	2711.50	3346.00	4635.00	63
GFD	61950.59	81235.08	-206132.00	279512.00	-0.296	-1.781	23266.00	63211.00	97525.50	63
ER	67.96	3.33	62.75	76.23	0.648	-0.239	65.06	67.25	70.73	63
FER	398145.96	40767.61	348418.00	505702.00	0.789	-0.032	363001.00	397822.00	421415.50	63
BTC	4568.95	3896.68	230.05	14156.40	0.356	-1.198	617.20	4017.27	8037.15	63
GOLD	1381.69	241.51	1060.30	1967.60	1.131	0.140	1234.05	1300.00	1488.50	63

BSE sectoral Indices like BSE Energy, BSE Basic Metal BSE First Moving Consumer Goods, BSE Industrial, BSE Finance, BSE Infrastructure, and BSE Health Care with Foreign Institutional Investment, Foreign Direct Investment, Gross Fiscal Deficit, Exchange Rate, Foreign Exchange Reserve, Bit Coin and Gold Priceetc the Indicators of the macroeconomic sectors aretaken for this analysis to observe the extent of relationship exist between them. It includes 63-time series data points for all variables from 2015 April to 2021 June, i.e. on a monthly basis. Table-1 shows the results of the various descriptive statistics. Like the average, Standard Deviations, Minimum and its maximum Form in order to understand the data at its different range. The table also demonstrated the results of the variables in its median form, result at its 25%, at 75% and as well as its skewness and Kurtosiss form to know the strength of the variables in different angles in order to understand the existing cross sectional relationship between them.

Regression analysis

For calculating the coefficient of each variable and identifying cross-sectional problem exist between the variables, OLS is the most significant model. It also described how to evaluate the critical reverse causality established between observed variables in the data collected. In this part, OLS is calculated to see whether the connections between share price indices and macroeconomic indicators are dependable or not. Again is the hedging instrument taken for the study provides Safe Avenue for the domestic investors to protect from the losses due to stock market downturn?For This Purpose the data for the analysis was gathered and evaluated on a monthly basis from April 2015 to June 2021, with a total of 63 observations.

Table-2: OLS Regression Results, Dependent variable BSE Sectoral indices

	Independent Variable						
Dependent Variable	FII	FDI	GFD	ER	FER	BTC	GOLD
BSEENGY	0.0131 (0.004) 0.003	0.0221 (0.040) 0.595	0.0001 (0.001) 0.180	17.9483 (16.862) 0.292	0.0022 (0.003) 0.535	0.1447 (0.025) 0.000	0.6230 (0.379) 0.101
BSEBM	0.0104 (0.004) 0.011	0.0728 (0.038) 0.061	-0.0004 (0.001) 0.507	17.8846 (15.973) 0.268	0.0074 (0.003) 0.029	0.0826 (0.024) 0.001	-1.6166 (0.359) 0.000
BSEFMCG	0.0199 (0.009) 0.028	0.0790 (0.085) 0.358	-0.0003 (0.001) 0.829	112.0375 (35.714) 0.003	0.0027 (0.007) 0.715	0.2691 (0.053) 0.000	-0.2135 (0.802) 0.791
BSEIND	0.0123 (0.004) 0.004	0.0825 (0.040) 0.045	-0.0002 (0.001) 0.817	39.4900 (16.818) 0.022	0.0071 (0.003) 0.044	0.0295 (0.025) 0.240	-2.1215 (0.378) 0.000
BSEFIN	0.0204 (0.006) 0.002	0.1600 (0.062) 0.013	-0.0005 (0.001) 0.661	33.5533 (26.070) 0.203	0.0029 (0.005) 0.592	0.1575 (0.039) 0.000	0.2920 (0.585) 0.620
BSEINFRA	0.0008 (0.000) 0.005	0.0065 (0.003) 0.021	-2.642e-05 (4.63e-05) 0.570	2.5667 (1.151) 0.030	0.0004 (0.000) 0.073	0.0031 (0.002) 0.071	-0.1422 (0.026) 0.000
BSEHC	0.0156 (0.011) 0.165	-0.0161 (0.108) 0.882	0.0017 (0.002) 0.361	252.7839 (45.260) 0.000	0.0161 (0.009) 0.091	-0.2516 (0.067) 0.000	-5.5763 (1.016) 0.000

The result of the coefficient, its standard error value placed in the brace bracket, and the P-value of the variables below the standard error indicates to us the level of significance of independent variables upon the dependent variables in the study. From the regression table it has been confirmed that For BSE Energy, Foreign Institutional investment (FII) and the hedging instrument Bitcoin (BTC) carries significance during the period of study. As in the case of BSE Basic Metal (BSEBM) the Foreign Institutional investment (FII), Bitcoin (BTC) and Gold Price is significant than other variables taken into the study. Whereas In case of BSE First Moving Consumer Goods (BSEFMCG) the Macro economic indicator Foreign Institutional investment (FII), Gross Fiscal deficit (GFD), and Foreign Exchange reserves (FER) are significant and the hedging Instrument Bitcoin (BTC) and Gold Price are proved to be weak significant for safe destiny. Same in the case of BSE Industrials (BSEIND) Foreign Institutional investment (FII), Foreign Direct investment (FDI), Exchange Rate (ER) carries significance and

Gold Price for them is the safe destiny during the study period. For the BSE Finance (BSEFIN), macro Indicator, Foreign Institutional investment (FII), and Foreign Direct investment (FDI), and the digital Currency Bitcoin (BTC) is very significant and is proved as the Safe Avenue for the investors.BSE Indices BSE Infrastructure (BSEINFRA) conformed that Foreign Institutional investment (FII), Foreign Direct investment (FDI), and Exchange Rate (ER) are carries significant and for the investors Gold Price is regarded as the safe destiny during the study period. Lastly in case of BSE HealthCare (BSEHC) only Exchange Rate is significant but from the investment point both Digital Currency and Gold have significant for investment However in the Regression analysis it has been shown that investors are investing more on digital currency than Gold, This indicates the growing popularity in Digital currency than Gold in India during the downturn situations.

Unit root tests results

The unit root test is important for determining whether data is steady or not, which is required for the model to produce accurate and relevant conclusions. If the data is steady, the regression model can be applied to it; however, the outcome may not be accurate.

Table 3: Unit Root Test Atlevel and at 1st Difference

	T-Statistics	P-Value	T-Statistics	P-Value
BSEENGY	-1.4148	0.5752.	-6.7745	0.0.
BSEBM	-1.3321	0.6144.	-7.3394	0.0.
BSEFMCG	-1.1725	0.6853.	-6.9422	0.0.
BSEIND	-1.812	0.3745.	-4.1792	0.0.
BSEFIN	-09478	0.7718.	-6.2658	0.0
BSEINFRA	-1.2297	0.6607.	-7.3372	0.0.
BSEHC	-1.9122	0.3264.	-5.0033	0.0.
FII	-6.3998	0.0.	-5.6531	0.0.
FDI	-2.4613	0.1252.	-4.9148	0.0
GFD	-1.3366	0.6123.	-7.2654	0.0.
ER	-1.459	0.5537.	-6.1916	0.0.
FER	0.9754	0.994.	-4.5229	0.0.
BTC	-1.548	0.6069.	-7.3673	0.0.
GOLD	0.5486	0.9863.	-6.8257	0.0.

As can be seen from the findings of ADF test in Table 3, all of the data used in this investigation is non-stationary at its level where as in the first difference measurement all the aforementioned data series, taken for the study are discovered stationary at its 0.05 level of significance.

Johansen Co-Integration Test

For the co integration test the selected lag orders are: AIC = 6, BIC= 4, FPE =10, HQIC = 4, and is very convenient and carries significant in the calculation of co integration between the variables taken for the study using the Trace test statistic and the maximum Eigenvalue. Here the Johansen Co-Integration Test is used to trace out the number of co-integrating vectors in the data series at its significance level. Johansen's Cointegration test is regarded as the broad strategy for avoiding difficulties that happen while selecting a dependent variable as well as errors that occur when transitioning from one step of the analysis to the next. Co-integrating relationships between macroeconomic indicators and stock market indices can now be detected by using this method.

Table -4: Johansen Co-Integration Test

r_0	r_1	Using Trace test statistic		Using maximum Eigen value			
		Test Statistics	Critical Value	r_0	r_1	Test Statistics	Critical Value
0	14	712.6	Nan	0	1	132.8	Nan
1	14	579.8	Nan	1	2	116.7	Nan
2	14	463.1	358.7	2	3	94.96	79.99
3	14	368.1	306.9	3	4	75.35	73.94
4	14	292.8	259.0	4	5	62.25	67.90
5	14	230.5	215.1				
6	14	169.0	175.2				

In the trace test the 6th row of the table, shows that the critical value 175.2 is greater than the test statistics value 169.0, as a result, of which the null hypothesis ensures the existence of at most more than one co-integration vector, which in fact the basis for accepting the null hypothesis for at least more than one co-integrating vectors cannot be rejected. Same in the of maximum eigenvalue, it is an alternative measure for determining the number of co-integrating vectors, providing the null hypothesis of at most one co-integrating vector cannot be rejected. Here the row 4 indicates the value of test statistic 62.25 is smaller than the critical value 67.90, which specify the existence of at most more than one co-integrating vectors in the series conforming the acceptance of null hypothesis.

Vector Error Correction Model

As and when the data series are not stationary at their level and are stationary at the 1st difference and at its 0.05 significance level, calculation of co-integration, between the variables is essential before applying the VECM Model. Once the data is co integrated then the VECM is said to be more imperative for determining the Co-

efficient result with more efficient manner and the decisions related to error correction to recover from deviation in the equilibrium positions in long run.

Results of loading coefficient (Alpha)

The results of the speed of adjustment (loading Coefficient) from the trends of variables used in the study are shown in the table below. The error correction term ec1, ec2, ec3, ec4, ec5, are defined as the adjustment matrix of a (b) that contains the estimated result of co integrating vectors, as well as their standard errors and p values which are crucial for determining the extent of adjustment in the deviation occurred from the equilibrium relationship between macroeconomic indicators and the Indian stock market and the significant of macroeconomic indicators in the long run. As shown from co integration table, the time series data collected for the study are co integrated at Row 6 of the co integrating table in the trace test and in row 4 in maximum eigenvalue test, Which is the basis for accepting the null hypothesis for at least more than one co-integrating vectors cannot be rejected, indicating the existence of more than one co integrating vectors in the series. So VECM is very important to understand the long run existing relation between the variables in the study and the speed of adjustment from the deviation to reach in the equilibrium position in the long run.

Table-5: Results of loading coefficient (Alpha)

Speeds of adjustment in trends of variables	ec1	ec2	ec3	ec4	ec5
BSEENGY	-0.0302 (0.219) 0.890	-0.3533 (0.329) 0.282	0.2735 (0.133) 0.040	-0.0604 (0.234) 0.796	-0.3860 (0.180) 0.0.032
BSEBM	0.3129 (0.147) 0.033	0.4891 (0.221) 0.027	0.0340 (0.089) 0.704	-0.3259 (0.157) 0.038	-0.1863 (0.121) 0.123
BSEFMCG	-0.0116 (0.355) 0.974	0.8203 (0.535) 0.125	-0.3329 (0.216) 0.124	-0.5740 (0.380) 0.131	0.5569 (0.292) 0.057
BSEIND	0.3201 (0.171) 0.062	0.6465 (0.258) 0.012	0.0495 (0.104) 0.635	-0.4306 (0.183) 0.019	-0.2085 (0.141) 0.139
BSEFIN	0.4424 (0.360) 0.218	-0.0544 (0.541) 0.920	0.3518 (0.219) 0.108	0.1112 (0.384) 0.772	-0.6937 (0.296) 0.019
BSEINFRA	0.0104 (0.010) 0.300	0.0338 (0.015) 0.025	0.0020 (0.006) 0.740	-0.0207 (0.011) 0.054	-0.0077 (0.008) 0.351
BSEHC	1.3126	-0.0145	-0.1677	0.3423	-0.0883

	(0.567) 0.021	(0.853) 0.986	(0.345) 0.627	(0.606) 0.572	(0.467) 0.850
FII	28.3937 (10.997) 0.010	-12.0751 (16.541) 0.465	0.3980 (6.694) 0.953	4.4466 (11.753) 0.705	-5.9845 (9.048) 0.508
FDI	-2.8065 (0.957) 0.003	-2.4313 (1.440) 0.091	0.4418 (0.583) 0.448	3.8982 (1.023) 0.000	1.1663 (0.788) 0.139
GFD	-74.0157 (0.71.922) 0.303	149.3702 (108.183) 0.167	62.5560 (43.779) 0.153	-310.3049 (76.861) 0.000	-76.1967 (0.59.177) 0.198
ER	-0.0002 (0.001) 0.736	-8.564e-05 (0.001) 0.937	-1.061e-05 (0.000) 0.981	0.0004 (0.001) 0.623	-0.0001 (0.001) 0.863
FER	6.1485 (3.537) 0.082	-2.7366 (5.320) 0.607	4.8834 (2.153) 0.023	-0.4209 (3.780) 0.911	-7.8390 (2.910) 0.007
BTC	3.2809 (1.204) 0.006	3.3771 (1.811) 0.062	-1.1749 (0.733) 0.109	0.9193 (1.287) 0.475	0.3106 (0.991) 0.754
GOLD	0.0439 (0.046) 0.340	-0.0692 (0.069) 0.318	-0.0499 (0.028) 0.075	0.0407 (0.049) 0.409	0.0620 (0.038) 0.102

From the result of VECM analysis the estimated error correction term at ec3 confirmed that BSE Energy carries its significant in adjustment from the deviations to reach the equilibrium positions and it has been adjusted each month by 27.35%. BSE Basic Metal is significant at ec2 and rate of speed of adjustment is 48.91% to reach into the equilibrium point. At ec5 the significant level is weak for BSE First moving consumer Goods but the rate of speed of adjustment is 55.69%.The significant level for BSE Industrials is strong at ec2 and here the adjustment speed is 64.65%. same in the case of BSE Finance the level of significance is at ec5 and at that time the adjustment speed towards equilibrium is 69.37%. For BSE Infrastructure the significance is at ec2 where the rate of adjustment is 3.38%. The level of significance for BSE Health Care is at ec1 and the rate of speed of adjustment is 131.26%to establish the long run significance with the macroeconomic Indicators. In case of Macroeconomic indicators like Foreign Institutional Investment and Foreign Direct Investment the significant level is at ec1 and the speed of adjustment is 2839.37% and -280.65. Gross Fiscal Deficit is significant at ec4 and the rate of adjustment is 31030.49% again for Exchange Rate, the level of significance is measured as very weak to understand its long run relationship with the sectoral indices of BSE. Foreign Exchange reserves of significant

level is ec3 and it adjusted with the deviation 488.34% to reach at equilibrium positions in the BSE market. For the hedging instrument Bitcoin and Gold Price is proved as insignificant but for the investors Bitcoin is weaker than the Demand for the Gold in the long run.

Findings

The current study gives important for the investors to consider before putting together well-defined, diversifications before designing portfolio for investment.On the one hand the able investors will gain more knowledge about the argumentative behavior of stock market during the unforeseen cause of downturn of stock market.On other hand they have faced with many difficulties in taking investment decisions in the crisis period due to changes inSocio economic decisions like change in Budget, change of government policies, exchange rate crisis, demonetizations also, as it is more or less regular for them. So the investor must kept their eye on behavior of the stock market and have infuse patience before taking any irrepressible decisions before the unforeseen crisis that might be caused sever losses for them.The government and other regulatory authorities must examine the relevance of therules and regulations and should make the necessary revisions on that are critical for investors to recoverthe returns and investments safely before they have consequences. The implementing agency will be able to search and develop new instrument and mechanism before drafting and implementing any monetary or fiscal policies in the country as the investors are the key sources of capital and that are regarded as vital for the economic growth of the country.

Conclusion

From the empirical evidence, it was also discovered macroeconomic Indicators have major influences on the sectoral indices of the Indian stock market and caused market volatility as assessed through regression analysis. The presence of degree of strength between macroeconomic Indicators and stock indices on the Indian capital market has been verified during the period of study. From the result of VECM analysis the estimated error correction term ec4 conformed significance and the speed of adjustment between the BSE sectoral Indices and the macroeconomic Indicators to measure the relationship and understand the level of significant of each macroeconomic indicators with the BSE indices in the long run. This concludes that the relationship between the macroeconomic indicators is significant with the sectoral indices of the Indian stock market in the long run except Exchange Rate only. For the hedging instrument Bitcoin and Gold Price is proved as insignificant but for the investors Bitcoin is weaker than the Demand for the Gold in the long run. On the other hand the regression analysis has proved the Bit Coins growing popularity and their acceptance as the safer destiny for investors than Gold in the short run.

Implications

This study is equipped with well defined econometrics that is very significant in forecasting the performance of the stock market in different situations. So it will be a funnel with useful information for making timely investment and investment diversification decisions. Furthermore, this research suggests that other Macro economic variables like Bank Rate Repo Reverse Repo etc should be examined to recognize the role of the banking sector to instill confidence among investors further more. Essentially, the investor should focus more on liquidity assets and their ability to provide market-moving results. Apart from the aforementioned variables, it is clear that other crypto currency and precious metals have an impact on the performance of market indices and cannot be ignored. On the other hand there are still certain known and unknown elements, such as socio-economic decisions and political reactions of the relevant department/agency of society that transfer their influence and affect the stock market performance must be considered.

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