IMPACT OF ECONOMIC EVENTS' INFORMATION FLOW ON INDIAN STOCK MARKET: AN EMPIRICAL STUDY

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Abstract : The present study proposes to test the impact of information flow and its asymmetric effects on Indian stock market. Daily prices of sample indices were collected for the period of two years and for testing the asymmetric effects, the study used GARCH models. The results of the study showed that daily prices of all the sample indices were volatile during the study period. BSE capital goods and consumer durables indices recorded low volatility and the asymmetric effects were found in majority of the sample indices. Hence the investor may consider allthe information about economic policy while investing their money in Indian stock markets.

IndexTerms- **Stock market, Asymmetric effect and GARCH model.**

I. INTRODUCTION

The Government had introduced a major revolution in the economic environment by demonetizing currency notes of Rs 500 and Rs 1000 denomination, on the 8th November 2016. It was designed to create long term benefits in terms of reduced corruption, greater uses of digitalization in economy, increased flows of financial savings and greater formalization of the economy, finally leading to higher GDP growth, better tax compliance and highest tax revenues. Stock market data reflect the economic development in each sector of the country. Average price represents the value of the sector under consideration. Kumar (2017) studied the impact of the demonetization announcement on analysts' forecasts of Indian firms' earnings per share and found no substantial change in these estimates after the announcement. However, the focus of Kumar (2017) was not on differences in market reactions across sectors. Jain, Shekhar and Deshpande (2017) analyzed market reactions but it was limited to the hospitality industry. In contrast, this article reveals some similarities with recent studies of other "surprise" events elsewhere in the world.

The new Goods and Services Tax (GST) provides several benefits for the economy. However, analysts do not expect much impact on the sale volumes. But this is not going to have a negative impact on various sectors, as they had been paying similar taxes earlier (The Economic Times, May 29, 2017). These pieces of major information may influence the investors of Indian stock markets. Hence the study focused on the impact of economic events on Indian stock market.

II Review of literature

Michael D. Bordo et al,.(2009), examined the exchange rate depreciation and the perceived sovereign risk. When France suspended coinage of silver, the study found the possibility that the treatment group might be different on a number of crucial dimensions, besides the exchange rate regime, from the control group. Ricardo T. Fernholz et al,.(2017), explored the price dynamics when commodity-based money ceased to function as a global unit of account. The study, using parameterization of the model, found that the global monetary standards anchored prices. Using a new high-frequency data set on global commodity prices, John Gibson et al,. (2008), examined the changes in real living standards, during the transition period in Russia, in order to estimate how much the official Russian CPI had overstated consumer inflation. The study used the Engel Curve Methodology and found that the official Russian CPI had overstated the rise in the cost of living and understated the real income growth during the transition period. Adrian E. Tschoegl (2010) examined how decimalization of currency diffused as a consequence of all three forms of isomorphism: normative, coercive, and mimetic. The study found that the diffusion initially followed from normative isomorphism, with decimalization appearing to be scientific and modern. Gang-Jin Wang et al,.(2016), in the paper entitled, "Extreme risk spillover effects in world gold markets and the global financial crisis", investigated the extreme risk spillover effects among four major world gold markets. ARMA-(T) GARCH-GED model and VAR Model were used to reveal that gold market participants were able to monitor and control extreme risk and the spillover effects of risk. Prabhsimran Singh et al (2017), analysed the sentiment effect of demonetization of Indian currency. Twenty Nine States and the national capital of New Delhi were selected for the analysis and the results revealed that only nine States had reported negative sentiment. Wagner, Zeckhauser and Ziegler (2017) analyzed the stock market reactions, around the 2016 US Presidential election, for subgroups of US firms, defined by industry and other characteristics. Davies and Studnicka (2017) analysed market reactions of UK firms towards the same event and to subsequent relevant events. They found that UK firms, with stronger supply chain linkages in Europe, experienced more negative market reactions. The concept of financial depth measures the size of the formal financial sector relative to the size of the economy. Rashi Gupta (2017) explored the benefits and opportunity of goods and services tax and its impact on Indian economy. It found that it would mitigate cascading and double taxation, thus enabling better compliance. It would also lead to transparency in tax system resulting in difficulty of tax evasion. Lourdunathan F and Xavier P (2017) analysed the prospects and challenges of goods and services tax implementation in India. The paper stated that GST provided the opportunity to all for relief from various Indirect

taxes. This paper proposes to find out whether there was significant volatility behaviour in Indian broad market indices, during pre and post demonetization period.

III Statement of the Problem

Investment plays a vital role in developing the economics of any country. Normally, the information about the economic policy changes or any other event, related to economy affected the Indian capital market. In the last two years, the information of economic events, especially the information about the Demonetization and Goods and Services Tax waswidelyspreadamong the Indian people. On the basis of the information, many people felt that these two economic events may influence our economic development. forthese reasons, many of them were not interested in investing their surplus money in financial instruments. Hence the present study proposes to test the impact of information flow of last two years on Indian stock market.

3.1 Objectives of the Study

The present study aims to investigate the information flow of economic events on Indian stock market, during the period April 2016 to March 2018.

3.2 Hypotheses of the study

NH01: There is no volatility in daily return of sample Indian indices, during the period April 2016 to march 2018.

NH02: The information flow in theIndian economy does not influence the sample indices, during the period April 2016 to march 2018.

3.3 Methodology

The study proposes to analyse the information flow of major economic events onIndian stock market and for this purpose, the study selected fifteen indices from BSE and NSE India, which included broad market index, thematic index, sectoral index and benchmark index. The list of sample indices is showed in the Table – 1. The study was mainly based on secondary data and the daily returns of sample indices were collected from the official website of NSE and BSE. For testing the hypotheses, the study used following statistical tools.

Descriptive Statistics: It was used for analyzing the normality and nature of the daily returns of sample indices

ADF Test: This test was used for analyzing the stationarity of the daily returns of sample indices.GARCH (1, 1) Model: This model was used for testing the volatility of the daily returns ofsample indices.

IV Results and Discussions

Table – 1 List of Sample Indices

	Mean	Std. Dev.	Skewness	Kurtosis	Jarque-Bera
BSE 100	0.000572	0.00727	-0.42922	4.310801	50.4324
BSE 500	0.000637	0.007367	-0.67885	4.765203	101.8721
BSE AUTO	0.000548	0.010341	-0.54883	5.992516	208.7037
BSE CAPITAL GOODS	0.000652	0.010729	0.700956	9.692245	960.3539
BSE CONSUMER DURABLES	0.001262	0.011456	0.632062	8.878286	742.6276
BSE METAL	0.001067	0.014167	-0.15537	3.909767	18.98523
BSE MID CAP	0.000782	0.009025	-1.0654	5.893245	265.2167
BSE SENSEX	0.000515	0.007023	-0.21215	3.97969	23.41382
BSE SMAL CAP	0.000903	0.009686	-1.35296	6.955507	471.8018
NIFTY 100	-0.00088	0.012633	1.218089	6.447809	366.1008
NIFTY 50	-0.00058	0.007113	0.203076	4.07425	27.09388
NIFTY 500	-0.00069	0.007409	0.571055	4.476536	71.57898
NIFTY MIDCAP 50	-0.00094	0.01131	0.883285	5.062194	151.4623
NIFTY SMALLCAP 50	-0.00088	0.012633	1.218089	6.447809	366.1008
NSE AUTO	0.000549	0.010635	-0.53612	5.799914	184.6531
NSE ENERGY	0.000888	0.009279	-0.14562	3.298948	3.578113
NSE METAL	0.00114	0.014483	-0.18501	4.007292	23.65482

Table – 2 Results of Descriptive Statistics for Sample Indices

Source: Data collected from official website of BSE and NSE, computed in E Views

The results of descriptive statistics, for daily returns of sample indices are displayed in the Table – 2. The mean values of the sample indices indicated that BSE Consumer durable index (0.001262)recorded the highest mean return, with the standard deviation value of 0.011456, during the period April 2016 to March 2018. The skewness values of BSE SMAL CAP (-1.35296),BSE MID CAP(-1.065398), BSE500 (-0.678849), BSE AUTO (0.548831), NSE AUTO(-0.536116),BSE 100(-0.429223),BSE SENSEX(-0.212149), NSE METAL(-0.185011),BSE METAL(-0.155366),NSE ENERGY(-0.145618) were negatively skewed and other indices namely, NIFTY 50, NIFTY 500, BSE CONSUMER DURABLES,BSE CAPITAL GOODS,NIFTY MIDCAP 50,NIFTY 100,NIFTY SMALLCAP 50 were positively skewed. The kurtosis values for all the sample indices were greater than three, which indicated that leptokurtic bias in the daily returns of sample indices. The values of JarqueBera, for the daily returns of all the sample indices, indicated that sample data were normally distributed, during the study period.

Table – 3 Results of Augmented Dickey-Fuller Testfor Sample Indices

	Augmented Dickey-Fuller test statistic	Test critical values:			Prob.*
		1% level	5% level	10% level	
BSE 100	-20.22338	-2.569671	-1.94147	-1.61627	0
BSE 500	-19.8875	-2.569671	-1.94147	-1.61627	0
BSE AUTO	-20.58148	-2.569671	-1.94147	-1.61627	0
BSE CAPITAL GOODS	-19.58742	-2.569671	-1.94147	-1.61627	0
BSE CONSUMER DURABLES	-21.24554	-2.569671	-1.94147	-1.61627	0
BSE METAL	-21.51126	-2.569671	-1.94147	-1.61627	0
BSE MID CAP	-19.57741	-2.569671	-1.94147	-1.61627	0
BSE SENSEX	-20.3297	-2.569671	-1.94147	-1.61627	0
BSE SMAL CAP	-19.13952	-2.569671	-1.94147	-1.61627	0
NIFTY 100	-20.07454	-2.569671	-1.94147	-1.61627	0
NIFTY 50	-20.40371	-2.569671	-1.94147	-1.61627	0
NIFTY 500	-19.94046	-2.569671	-1.94147	-1.61627	0
NIFTY MIDCAP 50	-21.61371	-2.569671	-1.94147	-1.61627	0
NIFTY SMALLCAP 50	-20.07454	-2.569671	-1.94147	-1.61627	0
NSE AUTO	-20.68692	-2.569671	-1.94147	-1.61627	0
NSE ENERGY	-20.7729	-2.569671	-1.94147	-1.61627	0
NSE METAL	-21.70217	-2.569671	-1.94147	-1.61627	0

Source: Data collected from official website of BSE and NSE, computed in E Views

Table 3 shows the results of ADF Test, for testing the stationarity, in daily returns of sample indices. the ADF Test values of all the sample indices were less than the test critical value, which indicated that there was stationarity in daily returns of sample indices. the study also proved it from the probability values of all the sample indices, which were less than the significant value of 0.05.

Table – 4 Results of GARCH (1, 1) Modelfor Sample Indices

Column1	α	B	α+β
BSE 100	0.034304	0.933342	0.967646
BSE 500	0.08072	0.773962	0.854682
BSE AUTO	0.134336	0.762214	0.89655
BSE CAPITAL GOODS	0.261366	-0.051063	0.210303
BSE CONSUMER DURABLES	0.060027	0.703818	0.763845
BSE METAL	0.024267	0.858968	0.883235
BSE MID CAP	0.188428	0.625619	0.814047
BSE SENSEX	0.023661	0.953961	0.977622
BSE SMAL CAP	0.24241	0.560324	0.802734
NIFTY 100	0.243505	0.63634	0.879845
NIFTY 50	0.031774	0.953204	0.984978
NIFTY 500	0.077888	0.850553	0.928441
NIFTY MIDCAP 50	0.164831	0.725385	0.890216
NIFTY SMALLCAP 50	0.243505	0.63634	0.879845
NSE AUTO	0.134161	0.758206	0.892367
NSE ENERGY	-0.026007	0.98597	0.959963
NSE METAL	0.024338	0.901344	0.925682

Source: Data collected from official website of BSE and NSE, computed in E Views

The results of GARCH (1, 1) Model, for identifying the volatility of daily returns of sample indices, are presented in the Table – 4. The values of ARCH (1) and GARCH(1), for all the sample indices, were close to one, except BSE Capital Goods, which indicated that all the sample indices were volatile during the study period. At the same time, the daily returns of Indianrepresentative indices like Nifty and Sensex recorded the highest volatilitywhen compared to other indices. Low volatility was observed in BSE capital goods and consumer durables. The results of GARCH (1, 1) Model indicated that investors of Indian stock market should watch the market movements while investing their money in the stock market. because daily returns of Indian indices were highly volatile, during the study period. It also indicated that indian consumer durable and capital goods indices recorded low volatility and hence investors should not consider these indices because normally,Hence securities with the highest volatility, earn the highest return. Hence the study suggests that investors should not consider these two indices for investment.

V CONCLUSION

The present study used GARCH Models for analyzing the volatility and asymmetric effects in Indian stock market. For the purpose of analysis, daily prices of sample indices, namely, BSE 100, BSE 500, BSE AUTO, BSE CAPITAL GOODS, BSE CONSUMER DURABLES, BSE METAL, BSE MID CAP, BSE SENSEX, BSE SMAL CAP, NIFTY 100, NIFTY 50, NIFTY 500, NIFTY MIDCAP 50, NIFTY SMALLCAP 50, NSE AUTO, NSE ENERGY and NSE METAL were collected from the official website of NSE and BSE for a two year period from 1st April 2016 to 31st March 2018. The results of GARCH Model showed that all the sample indices were volatile and asymmetric effects were found in majority of the indices. Hence the present study suggests that investors of Indian stock market may consider the economic events while investing their money in the stock market.

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