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Currency Demonetisation Announcement and its Reflection on Sectoral Indices of NSE and BSE

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ABSTRACT

Stock markets are important parameter reflecting the financial health and economic growth of a nation. Any significant event occurring in the nation will exert an impact on the stock market spontaneously. Government's demonetisation announcement on November 8, 2017, whereby high value currency of Rs. 500 and Rs. 1000 notes were invalidated, is a serious economic event which has attracted many researchers to assess its impact on stock exchanges. This study has made an attempt to assess the impact of demonetisation announcement on sectoral indices of NSE and BSE during short term, medium term and long term, utilising Event Study Methodology. Results of the study has revealed that demonetisation has resulted in negative abnormal returns in both the BSE and NSE. The study approves the fact that demonetisation has come as a surprise and it has exerted a negative impact on the nation's economy in the short run, though it is matter of time before which the nation might limp back to normalcy.

1. Introduction

Stock exchanges are often referred as economic barometer of any country as any event happening in a nation be it social, political, economic or even behavioural, gets reflected in the stock prices or indices. Any public event which has a reference to policy-making of the country will strongly influence rise or decline of market indices. Stock exchanges can be both a preserver and destroyer of various segments in the economy.

The market efficiency hypothesis states that it is not possible to receive returns above the expected normal threshold returns whatever may be the event occurring in the economy.

Event study methodology can be used to assess changes in stock market due to any social, political or economic event occurring in a nation. However, it is difficult to assess the exact movement of the stock exchange, whether before, after or during the event under study.

Eugene Fama developed the efficient market hypothesis according to which price of stock in market is influenced by many instances and events which occur in the environment and information about such events influence the market sentiments. According to him, a market can exhibit itself as either strong, semi strong or weak. Different techniques are available to test the status of market among these three alternatives. Event study methodology is one such technique which can test the semi-strong form of market.

Using event study methodology to test the efficiency of stock market with an element of being semi-strong, an event is needed to assess the reaction of the market to that event.

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On the 8th of November 2016, Indian Government under the headship of Prime Minister, Narendra Modi, declared that high value currencies of Rs.1000 and Rs. 500 will no longer carry the status of a legal tender. The government claimed to have resorted to the extreme step to curb the menace of corruption, black money and fake currency notes in circulation as well as to take the country towards a digital and cashless economy.

This decision severely reduced money supply in the economy, affecting almost all sectors of the economy as well as the daily life of all citizens.

In the light of this environment, the researcher felt the need to study the impact of demonetisation on the stock market of India by focusing on the sectoral indices of NSE and BSE to assess how the event has resulted in abnormal returns for shareholders investing in these two prime stock exchanges.

2. Significance of the Study

This study is of immense value for an investor as it shall expose the level of efficiency of Indian stock market in responding to major events in the economy and absorbing the information made available in public. Based on results exposing the reaction of investors to surprise events occurring in the economy, strategies of investing can be chalked out using the information made available in public about such events and decide about making fresh investment or withhold or dispose the stock currently held in order to maximise returns. Furthermore, the study can expose whether the Indian stock markets absorb surprise information made available in the economy before investors can take an investment decision or whether investors can avail advantage of such information in the short run before the market settles down to absorb the information.

3. Scope of the Study

This study attempts to assess the impact of 2016 demonetisation on sectoral indices of NSE and BSE. This study restricts itself to assess the abnormal returns accruing to investors due to the demonetisation announcement considering the announcement as the event. The only aim of the study is to derive how efficiently information about demonetisation has got reflected in the sectoral index points.

4. Review of Relevant Literature

Demonetisation is a policy decision of ceasing the validity as a legal tender of a currency note. There can be many reasons behind such a step by the Government, of which addressing the menace of corruption and tapping black money are considered significant. It is noteworthy that Demonetisation of 2016 in India has two major characteristics of high surprise element and variety of objectives attached to a single monetary instrument (Raychaudhuri, 2017). In the same study, the researcher has expressed his apprehension about the effectiveness with which the policy can achieve the desired goals as well as the unfavourable impact it has on the growth of the economy.

Demonetisation has triggered plenty of researches on the topic by academicians and other stake holders. Many researchers have worked on the effect of demonetisation on Indian economy considering a variety of aspects. Demonetisation in India in 2016 was not an isolated incident even though it carried a lot of surprise element. Demonetisation is an active measure initiated in the past by many nations to address several problems of their country such as corruption, inflation, Black money, Fake currency, etc. (Shirley, 2017).

India being an emerging economy, demonetisation has helped in building a path for a future cashless and digital economy (Kaur, 2017).

Though demonetisation has offered many positives, it does have other side also. Difficulties faced by the ordinary citizens due to the decision can be considered an important adverse effect of demonetisation which in turn paved an obstacle to the prospering financial inclusion drive for the nation (Mahajan & Singla, 2017).

From stock market point of view, demonetisation has resulted in negative abnormal returns in NSE which reflects the negative sentiments attached to the information (Chellasamy & K.M, 2017). An in-depth analysis revealed the prevalence of significant difference in abnormal returns across all the sectors in NSE during pre and post announcement period (PERVEZ & KHAN, 2017). Similar condition was revealed in the case of BSE also. Event study methodology applied in the case of demonetisation announcement revealed the accrual of negative abnormal return (Chauhan & Kaushik, 2016). Cash-based and consumption-oriented sectors were negatively affected while financial sector were the biggest beneficiary because of demonetisation.

Even though there are studies concentrating on impact of demonetisation in Indian stock markets, there is dearth of study covering sectoral index points. The individual stock returns may have behaved differently because of demonetisation when compared to the sectoral index points. Hence, this study tries to assess the fluctuations in returns of all the sectoral indices of NSE and BSE and to draw meaningful insights for the investors.

5. Objectives of the Study

- a. To examine the reflection of currency demonetisation announcement on Sectoral indices of NSE and BSE;
- b. To assess prevalence of significant abnormal returns due to demonetisation in NSE and BSE Sectoral indices;
- c. To examine whether there is any similarity in abnormal returns in NSE Sectoral indices and BSE Sectoral indices due to demonetisation.

6. Data Description and Research Methodology

The study is empirical in nature. The effect of demonetisation announcement on the index points is studied with the help of quantitative data. 25 sectoral indices of NSE and 23 sectoral indices of BSE are considered for this study. Necessary data were collected from ProwessIQ database of

CMIE (Centre for Monitoring Indian Economy). The indices considered and the average return for one year period before the announcement of demonetisation are presented in Table 1.

Table-1: Average Return of Sectoral Indices

NSE Sectoral Indices	Average return	BSE Sectoral Indices	Average return
Nifty 50 Shariah	0.033	S & P B S E Auto Index	0.1029
Nifty 50 Value 20	0.0226	S & P B S E Bankex	0.05
Nifty 500 Shariah	0.04	S & P B S E Capital Goods Index	-0.004
Nifty Auto	0.1092	S & P B S E Carbonex	0.0396
Nifty Bank	0.0491	S & P B S E Consumer Durables Index	0.0684
Nifty C P S E	0.0626	S & P B S E Cpse Index	0.0746
Nifty Commodities	0.1297	S & P B S E Energy	0.1028
Nifty Dividend Opportunities 50	0.0563	S & P B S E Fast Moving Consumer Goods	0.0377
Nifty Energy	0.1116	S & P B S E Finance	0.061
Nifty Financial Services	0.0492	S & P B S E Greenex	0.0435
Nifty Fmcg	0.0323	S & P B S E Healthcare	-0.041
Nifty Growth Sectors 15	0.0044	S & P B S E India Infrastructure Index	0.0698
Nifty India Consumption	0.0446	S & P B S E Industrials	0.0514
Nifty Infrastructure	-0.002	S & P B S E Information Technology	-0.047
Nifty It	-0.056	S & P B S E Ipo Index	0.077
Nifty Media	0.0794	S & P B S E Metal Index	0.1643
Nifty Metal	0.1958	S & P B S E Oil & Gas Index	0.1368
Nifty Mnc	0.0318	S & P B S E Power Index	0.0376
Nifty Pharma	-0.054	S & P B S E Psu Index	0.0598
Nifty Private Bank Index	0.0577	S & P B S E Realty Index	0.0539
Nifty Pse	0.0781	S & P B S E Teck Index	-0.045
Nifty Psu Bank	0.0258	S & P B S E Telecom	-0.058
Nifty Realty	0.0733	S & P B S E Utilities	0.0907
Nifty Services Sector	0.0151		
Nifty Shariah 25	0.0172		

It can be inferred from Table 1 that mean returns is highest in the case of Metal industry in both BSE and NSE (0.1643 and 0.1958 respectively). Lowest mean return in the case of NSE happens to be that of IT industry (-0.056) while it is the Telecom industry in the case of BSE (-0.058).

Mean adjusted return model of event study methodology has been used in this study with an estimation window of 254 days prior to the event window for arriving at the average returns to facilitate the assessment of abnormal returns arising out of announcement.

6.1 Mean Adjusted Return Model

This model does not consider the effect of underlying market or the variance in market return for the calculation of abnormal return of the Index. It takes mean return of particular index for a period of one year before the event as expected return. (Chauhan & Kaushik, 2016).

The principle objective of an event study is to detect whether the performance of security is statistically different from what is expected. Abnormal return for the firm i and on the event date t is given by,

$$AR_{it} = Rit - E(Rit)$$

where,

AR_{it} = abnormal return for Index i for day t

Rit = actual return for Index i for day t

$E(Rit)$ = expected return for Index i for day t which is the one year mean return

The day on which the JV was announced is considered the event date (i.e. day 0 or $t = 0$). The trading days prior to the announcement are day -1, day -2, and so on. The days following the announcement are referred to as day +1, day +2, and so on. Like this the study includes three event windows of 31 day, 15 day and 3 day for capturing long term, Medium term and short term effects.

The study used One sample t-test to bring out the announcement effect on the index and also Independent sample t-test to bring out differences across the sample.

7. Results and Discussion

7.1 Test for Prevalence of Abnormal Return

In the first instance, the existence of Abnormal Returns due to the announcement of demonetisation during the short,

medium and long terms have been unearthed using T-Test and the results have been displayed in Table 2.

Table-2: Test for Prevalence of Abnormal Return

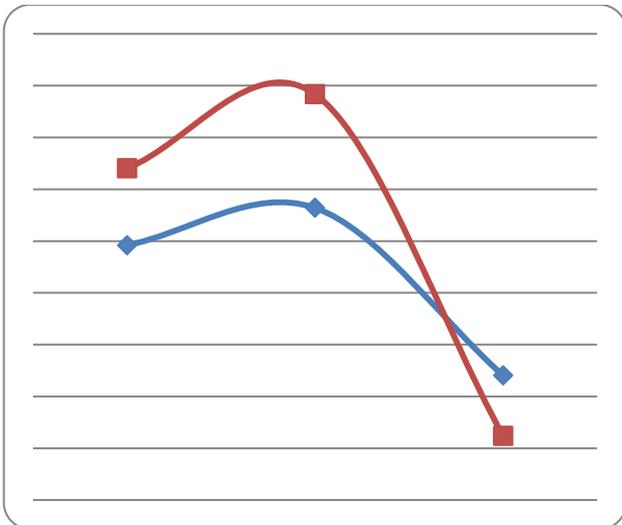
Event window	CAAR	t value
NSE (- 1 to +1)	-.2981	-.536
NSE (- 7 to +7)	-6.8040	-6.264***
NSE (- 15 to +15)	-3.6791	-3.786***
BSE(- 1 to +1)	-.5828	-1.132
BSE (- 7 to +7)	-7.5778	-7.353***
BSE (- 15 to +15)	-5.3885	-4.947***

It can be observed from Table 2 that no abnormal returns has been witnessed in sectoral indices of both BSE and NSE during the short term period (one day before and after the announcement of demonetisation). However, significant abnormal returns seem to accrue during longer period. Cumulative Average abnormal return (CAAR) reduced to the lowest of -6.8040 for NSE and -7.5778 for BSE during medium term with high significance at 1% level. The results were coinciding with the earlier studies in this regard taking the individual stocks into consideration like (Chellasamy & K.M, 2017), (PERVEZ & KHAN, 2017), (Chauhan & Kaushik, 2016), etc. This confirms to the earlier studies which advocated that Indian stock markets display semi-strong efficiency (Kutchu, 2012).

The CAAR showed a slight increase in the longer duration of 31 days including the event day which could be considered as a sign of the normal setting off effect in the market. This can be understood in daily terms from the following figures.

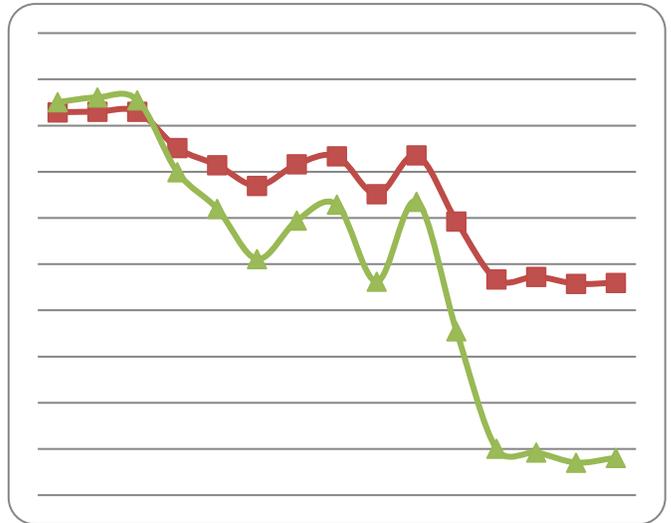
Even though there was a sudden decline in the Average abnormal return (AAR) of the sectoral indices as seen in Figure 1, during short term, it was not statistically significant.

Figure-1: AAR for 3 Day Event Window



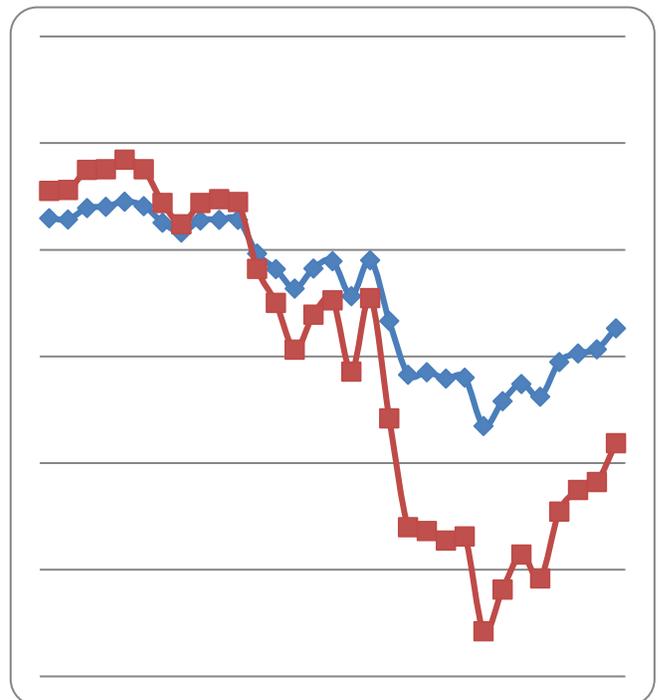
There is quite an observable change in the AAR since the second day of announcement (Figure 2).

Figure-2: AAR for 15 Day Event Window



Since 9th day of the announcement, the crashed market has started displaying signs of recovery as the AAR shows a gradual increase (Figure 3).

Figure-3: AAR for 31 Day Event Window



7.2 Test for difference in CAAR of NSE and BSE sectoral indices

The study used Independent sample t test for finding out the difference between NSE and BSE sectoral indices in leading to abnormal returns from the announcement of demonetisation. The test results are shown in Table 3.

Table-3: Test for Difference in CAAR of NSE and BSE Sectoral Indices

Independent Samples Test						
		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
CAAR 31 Days	Equal variances assumed	.081	.777	1.175	46	.246
	Equal variances not assumed			1.171	44.890	.248
CAAR 15 Days	Equal variances assumed	.039	.844	.515	46	.609
	Equal variances not assumed			.517	45.996	.608
CAAR 3 Days	Equal variances assumed	.034	.855	.374	46	.710
	Equal variances not assumed			.376	45.950	.709

It can be inferred from Table 3 that there is no significant difference in the scores for CAAR of NSE ($M=-3.679135$, $SD=4.8588950$) and CAAR of BSE ($M=-5.388576$, $SD=5.2240246$) during the 31 day window period since $t(46) = 1.175$, is insignificant ($p = .246$). Similarly the results showed no difference in the scores for CAAR of NSE ($M=-6.804063$, $SD=5.4309560$) and CAAR of BSE ($M=-7.577836$, $SD=4.9425375$) during the 15 day window period with $t(46) = .515$, which is less than limit of 1.96 and also insignificant ($p = .609$). The results were similar for short term also with CAAR of NSE ($M=-.298104$, $SD=2.7787519$) and CAAR of BSE ($M=-.582879$, $SD=2.4685482$) and $t(46) = .374$, is insignificant ($p = .710$).

These results suggest that the sectoral Indices under study showed statistically significant abnormal returns irrespective of the underlying stock exchange in which they operate. In other words there was no difference between NSE and BSE sectoral indices in terms of Average abnormal returns accruing to shareholders due to the said event of currency demonetisation announcement in all three different event window periods considered.

8. Conclusion

It is evident from all these observations that the sectoral indices of two major stock exchange in India i.e., NSE and BSE have witnessed negative abnormal returns during the short run due to demonetisation announcement by the Government. It implies that information about demonetisation did not lead to significant impact on Indian major stock markets in the short run. However, the returns witnessed a significant decline in the medium term while the indices display signs of recovery during the long term. However, the demonetisation announcement had enough fuel to make stock markets turn negative and shareholders suffer abnormal losses. Both BSE and NSE display identical trend in this issue.

To conclude, the study has drawn evidences to the fact that Currency demonetisation was plenty of a surprise and it took time for the country to cope up with it. Findings of this study could be of greater utility to players in the Indian stock market to equip themselves through suitable training to successfully counter such surprise policy announcements in the future. Future studies can concentrate on each sectoral indices.

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