

AN EMPIRICAL STUDY ON IMPACT OF DEMONETIZATION ON SELECTED SECTORS THROUGH VARIOUS INDICES

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Abstract

At the stroke of 8 pm, on 8th November 2016, PM Narendra Modi made a historical move by announcing the scrapping out of two highest denomination currency notes in India i.e. Rs. 500 and Rs. 1000 as legal tender by central government. This financial surgical by the PM, also called demonetization, became one of the most sensational and bold move by any government to curb the menace of black money, counterfeit notes, parallel economy and terror funding. This will also have a major impact on the common man in terms of leading towards a cashless economy, which will enhance transparency and accountability in the economy. It would be too early and inappropriate to comment on the exact impact this move will have on our economy in a long run, but then we can try finding out the impact on various sectors. The paper analyses the impact of demonetization on Indian stock market as represented by Sensex index of Bombay Stock Exchange. Also, the paper further analyses the impact of the decision on various sectors of Indian Economy represented by various sectorial indices of service and manufacturing industry of Bombay Stock Exchange through paired t test considering a time frame of a month pre and post demonetization decision.

Keywords: Demonetization, Indian Stock Market, Black Money, BSE, Sensex.

Introduction

Demonetization is a well-established, though less renowned strategy in practicing the monetary control in an economy. The historic announcement made by P.M. Narendra Modi on 8th march, 2016 was a major blow targeting the counterfeit currency and black economy. From the very moment when the announcement was made, 500 and 1000 rupees note ceased to be a legal tender in the Indian economy. Against this, new Rs. 500 and Rs. 2000 notes have been published by the government of India to balance the monetary circulation in the economy. But the step to towards fighting the parallel economy and black money started way back when Aadhar card was made mandatory and linked with the bank accounts. Also to add to it, No frill accounts were opened under the flagship of Prime minister, Mr. Narendra Modi. Some major blow was expected to come as time was provided to declare the unreported income. But demonetization came as a real shock to everyone, within the country as well as globally. The move has not only impacted the common man but to the various sections of the society. From the perspective of the nation, our economy too would have bearings of this masterstroke in coming time.

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Demonetization has been implemented in various other nations prior to India taking this major step and was a major failure in almost all of them. Britain in 1971 stopped circulation of the older currency, replacing them with newer 5 and 10 coins; the only country to have a success ratio for this strategy. With a thought to remove corruption and black money, Myanmar in 1987 too went for demonetization, only to be leading to a political dispute. In 1984, the president of Nigeria had to lose his position for applying the same strategy there. Other examples of Ghana (1982), Soviet Union (1991), North Korea (2010), Zimbabwe (2015), etc., tried to remove black money, corruption and bring stability in the economy by implementing demonetization, but failed miserably. (quora, 2016)

Literature Review

Demonetization is yet to be deeply explored and studied by the researchers in terms of its impact on the economy. This led to really scarce literature available on the same. Thus I have tried studying the literature available and also the impact of the same decision in various other countries, where demonetization has been priory implemented.

Sunita (2014), tried understanding the reasons behind the steps taken by the government on the demonetization move by them. The paper studied the impact of rupee depreciation on Indian economy. After the research it was concluded that demonetization and depreciation of rupee would have more of disadvantages than advantages in long run. Central bank's intervention and its role in controlling the situation were also taken under the consideration.

Chatterjee and Banerji (2016), in their paper discussed the generalized impact of demonetization on Indian economy and specific impact on varied sectors in the economy. They pointed towards having immediate and significant impact of demonetization on the economy. Now due to compulsion of depositing older notes in the bank, deposit levels have shot up and hence increased the bank's liquidity. Financial savings would be enhanced and liquidity status of banks being improved would provide better lending position to them. It is real estate sector that would be hit the maximum as cash transactions would now be hampered. Apart from that even Auto sector is seen to have bearings of demonetization predominantly in two wheeler industry.

Rao Kavita and Mukherjee Sacchidananda, (2016) in their working paper, tried to evaluate the impact of demonetization on economy in short run as well as medium term. In their opinion, the impact would be in correspondence with the level of demonetization government decides to go for. The paper showed the impact on various factors like credit availability, activity level, spending by the government and their finances. In short run they are of the opinion that the masterstroke has created a major blow and shock in the economy and in medium term the impact will depend on how much quantity of money is replacing the extinguished one. They pointed out to develop banking system and telecommunication infrastructure for enhancing digital transactions and helping the economy to go cashless.

Undale Swapnil and Gaggad Krishnakumar (2016), in their paper on people's take on demonetization after a month of the announcement, discussed the public views on the

demonetization decision. A general conclusion was drawn out as public being in support of the decision; claimed researchers based on their survey in Pune. A pervasive approach was found while trying to study the views as there is however an overall discontent with regards to the implementation of the decision. Hence a strong recommendation of improving implementation strategies was concluded.

Rationale for Study

When the historical move was announced on the night of 8th November by PM Narendra Modi, about seizure of Rs. 500 and Rs 1000 as legal tender, the whole nation was taken to spree of thoughts. These high denomination currency which were scrapped out, almost consisted of 86% of currency in circulation in economy. This decision is being projected as one of the major move against black money, counterfeit currency notes, terror funding and parallel economy running on cash which is not accounted in books of accounts of government either due to tax evasion or some other means. This decision is expected to have a large amount of impact on the economy as whole as well as individually to various sectors in every time frame observed. Although it is not possible to study or comment on the impact this decision will have in long run, but for short run the studies could be definitely carried out. This paper aims at studying the short term effect of the demonetization decision by government on Indian stock market and some of particular sectors of Indian economy selected under the purview of the study, by considering a time frame of one month prior to the decision and one month post the decision was announced. The paper analyses the impact of demonetization on Indian stock market as represented by Sensex index of Bombay Stock Exchange. Also, the paper further analyses the impact of the decision on various sectors of Indian Economy represented by various sectorial indices of Bombay Stock Exchange. The selected sectors for the study include Automobile sector, Banking sector, Consumer Durables, finance sector, FMCG sector, Information Technology sector, Public sector units and Real Estate sector.

Objectives of the Study

- To study the short term impact of Demonetization on Indian Economy.
- To analyze the impact of Demonetization on BSE SENSEX index.
- To analyze the impact of Demonetization on other sectorial indices on BSE SENSEX.
- To compare the change in index value and volatility over a period of one month prior and post to demonetization decision.

Methodology

This paper examines the impact of demonetization decision in short run on Sensex and various sectorial indices over the period of one month before and after the announcement of demonetization decision. The study of impact of demonetization on Sensex and various indices is done by comparing the closing prices data of these indices for 30 days before i.e. from 26th September 2016 to 7th November 2016 and from 9th November 2016 to 21st December 2016, i.e. 30 days after the demonetization decision. Apart from studying the deviation in average closing price in this time frame, even the impact on volatility of various indices has been compared with respect to demonetization decision. For statistical significance of the study, Paired t test is used. Paired t test is used to compare two

related samples having a very small number of n i.e. sample size. Here it is not necessary that their variances must be equal but the basic assumption of populations being normal must hold true. To denote it symbolically,

$$t = \frac{\bar{D} - 0}{\sigma_{diff}/\sqrt{n}} \text{ with } (n-1) \text{ degree of freedom}$$

The data of closing prices of various indices under study has been obtained from the website of Bombay stock exchange.

Hypothesis

The hypotheses framed for the study are tested using paired t-test. The following hypothesis is framed.

H₀: There is no significant difference between average closing price of index for 30 days prior to and 30 days after the demonetization decision announced.

H₁: There is a significant difference between average closing price of index for 30 days before and 30 days after the demonetization decision. (Two tailed)

Empirical Findings and Analysis

Under this section of paper, empirical findings and its analysis are covered for the topic chosen for study. Demonetization was one of its kind move by the government which had vigorous and serious implications on the economy as well as the stock market. The findings shows how market too responded to this move significantly.

Table 1: Demonetization's Impact on Various Indices Under Study

Indices	Change in Index Level				Change in Volatility		
	Average before 30 days	Average after 30 days	% Change in average of before after 30 days	% Change from Nov 9 to Dec 21	standard deviation before 30 days	standard deviation after 30 days	% change in volatility
Sensex	27959.06	26429.39	-5.4711	-3.70663	313.7074	362.4113	15.52528
Auto	22330.01	20017.76	-10.3549	-8.01264	310.1185	548.423	76.84303
Bank	22246.36	21318.94	-4.16886	-7.51951	299.2912	589.0003	96.79837
Consumer Durables	12672.67	11069.85	-12.6478	7.816908	145.7052	287.3499	97.21319
Finance	4464.85	4160.06	-6.82643	-8.01271	54.66889	98.39022	79.97479
FMCG	8514.6	7988.77	-6.17563	-7.39267	76.37344	161.3302	111.2386
IT	10137.15	9665.396	-4.65369	5.505661	175.9627	280.8206	59.59101
PSU	7718.079	7785.07	0.867975	-0.14562	150.8724	106.6234	-29.3288
Real	1536.93	1266.93	-17.5675	-2.54312	32.6671	34.20576	4.710134

Source: BSE Website

The above table (Table 1) summarizes comparative empirical findings on the impact of demonetization on SENSEX (Representing Indian Stock Market) and various other indices of the sectors selected for study. The impact is tried to be understood by comparing the average of closing prices 30 days prior to the announcement of demonetization and 30 days after it. Also the volatility for SENSEX and all other indices is

measured for the two periods. As can be seen in the Table 1, Real estate sector has maximum negative deviation of 17.57% in its closing price when compared to a month prior's average with one month post demonetization average. Consumer durables and auto sector trail the real estate sector by having negative impact of 12% and 10%, respectively. Public sector units (PSUs) are the only sector which has negligible but positive impact of 0.87% in the two month run.

Chart 1

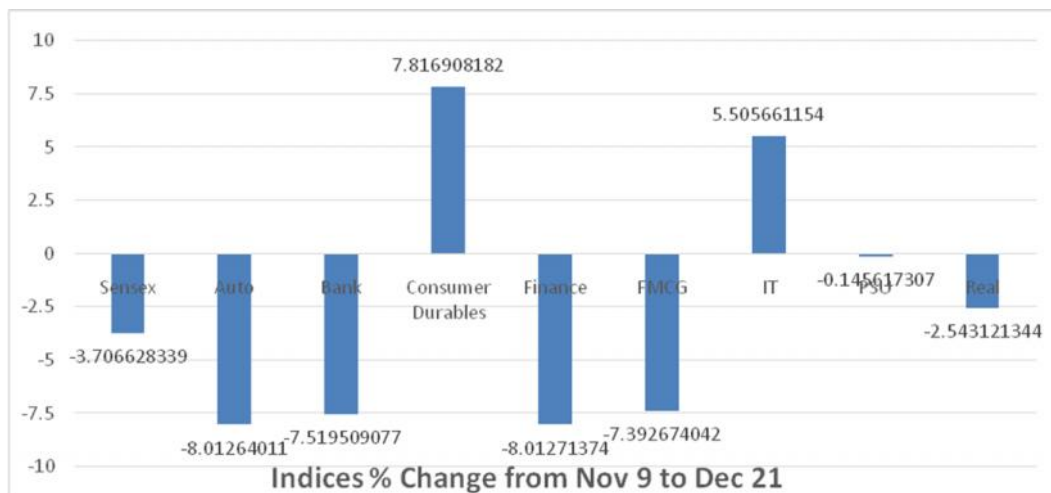


Chart 1 portrays the absolute percentage change in closing prices of Sensex and various sectorial indices after 30 days from the date of announcement of demonetization decision. Consumer durables and IT sector have the highest percentage Change of 7.8% and 5.5% respectively in the sectorial indices values post demonetization decision was announced and implemented. Auto and Finance sector showed the maximum negative change of approximately 8% individually, followed by Bank and Finance sector at 7.5 and & 7.39 respectively. Again it was PSUs that hardly showed any difference post demonetization decision.

Chart 2

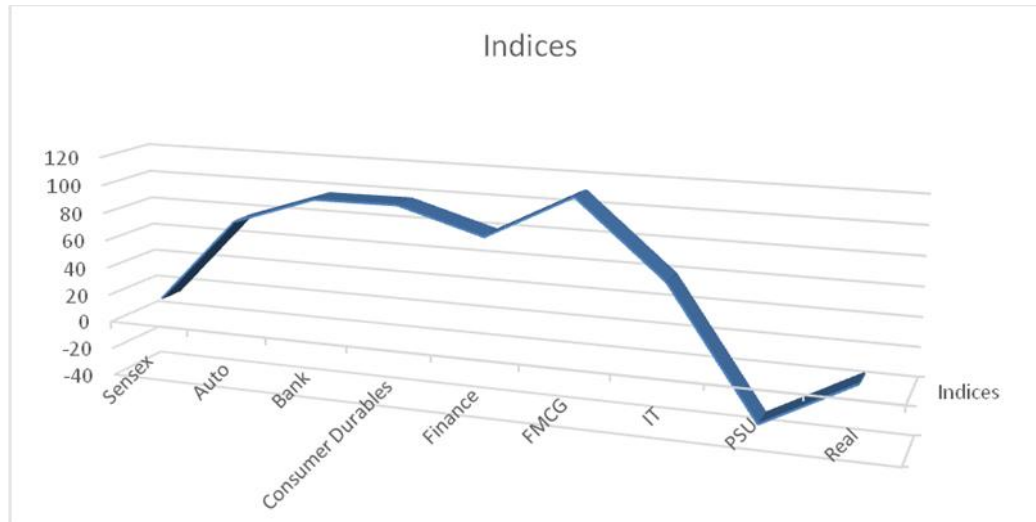


Chart 2 represents the comparative change in volatility in various common size indices over the period of 30 days before and 30 days after the demonetization decision. The Chart represents the data of volatility tabulated in table 1, showing that FMCG sector had the highest percentage change in terms of volatility of the sector index at 111.23% whereas real estate was hardly volatile at 4.7% in the 2 months run of post and prior demonetization. On an average the Sensex has 15% volatility considering the top 30 companies based on their market capitalization.

Table 2: Result of Paired t-Test

Indices	Calculated value	Tabulated value	P- value	Result
Sensex	18.98542	2.04523	0.00	Null Failed to be accepted
Auto	17.94388	2.04523	0.00	Null Failed to be accepted
Bank	8.631341	2.04523	0.00	Null Failed to be accepted
Consumer Durables	28.26994	2.04523	0.00	Null Failed to be accepted
Finance	16.35649	2.04523	0.00	Null Failed to be accepted
FMCG	19.33816	2.04523	0.00	Null Failed to be accepted
IT	6.070969	2.04523	0.00	Null Failed to be accepted
PSU	-2.23396	2.04523	0.00	Null Failed to be accepted
Real	28.81938	2.04523	0.00	Null Failed to be accepted

In order to study the statistical significance of the demonetization's impact on various indices, paired t-test is conducted. Table 2 depicts the result of paired t-test. As can be observed in the table, all the calculated value at 5% significance level falls outside the range of tabulated values and hence the null hypothesis is failed to be accepted. So it can be statistically concluded that demonetization does have a significant impact on the various sectors. The impact varies from being positive to negative depending on the various sectors undertaken but then impact is visibly seen.

Conclusion

Demonetization as a means to curb black money and parallel economy, was announced by the P.M. Mr. Narendra Modi as a masterstroke to eliminate corruption. The decision will have a large impact on the economy and through its long run impact cannot be well predicted precisely, its short run impact on the Indian economy is attempted to be studied in this paper. Statistical analysis indicate significant impact of demonetization on all the indices under the study. If we consider the absolute percentage change in closing price of indices within 30 days of demonetization decision, demonetization has an overall negative impact on all the indices except IT index and consumer durables. Average closing price of SENSEX for 30 days after the demonetization is 5.47% lower than the average closing prices for 30 days before the demonetization. The absolute fall in SENSEX after one month of demonetization is 3.7%. Among the sectorial indices that major impact in terms of volatility is on FMCG sector followed by consumer durables whereas the lowest impact is on PSUs. In a nutshell, the demonetization decision has affected almost all the runs of society impacting almost every sector in the economy.

Limitations and Further Scope of Study

Due to time constraint it was not possible to include more sectors and analyze the impact on every sector in the economy. This study is based on the data collected from BSE website for only one month prior and post demonetization; the time frame could be increased to gauge the impact in medium run. Thus the study may not be able to generalize its impact due to limited sector and time frame under consideration and can be a point of consideration for study in future. A future study could also include more literatures too as demonetization would have finally started showing its impact by then to improve the reliability and generalizability of the study.

References

- ✧ Chatterjee and Banerji (2016), The Impact of Demonetization in India, Squire Patton Boggs
- ✧ Rao Kavita and Mukherjee Sacchidananda (2016), Demonetisation: Impact on the Economy, NIPFP Working paper series, No. 182, 14-Nov-2016, New Delhi.
- ✧ Sunita (2014), Demonetization of Indian rupee against us \$: A historical perspective, Discovery, 2014, 23(78), 108-112
- ✧ Quora. (2016, November 30). Retrieved from quora.com:
- ✧ Undale Swapnil and Gaggad Krishna (December 2016), One month after Demonetization: What people Say..?, GE-International Journal of Management Research.
- ✧ <https://www.quora.com/Has-any-country-other-than-India-ever-had-Demonetization-of-their-currency-notes-1>

