Volume - 5, Issue- 10,October 2017 IC Value : 56.46 e-ISSN : 2347 - 9671| p- ISSN : 2349 - 0187
EPRA International Journal of Economic and Business Review SJIF Impact Factor(2016) : 6.484
ISI Impact Factor (2013): 1.259(Dubai)

Research Paper

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DEMONETIZATION ANNOUNCEMENT EFFECT – A CASE STUDY OF INDIAN STOCK MARKET

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ABSTRACT

This study examines the impact of demonetization announcement effect on the returns of stock market & quantum of Investment through traded value in India for a very short period of time. The study examines the daily data of closing prices of S&P CNX Nifty Index and its traded value during pre and post demonetization periods. This is a new aspect that has been experimented by the existing government to eradicate black money, counter tax-evasion and destroy counterfeit currency from the Indian economy. The paper is basically concentrating on the effect of this government strategy on the capital market returns & its turnover. There is a mixed reaction on demonetization announcement among the different stakeholders of the economy. The present study is an attempt to understand the reaction of Indian capital market after demonetization. A standard event study methodology has been adopted to examine the pattern of changes that has taken place surrounding 50 days of the announcement date.

KEYWORDS: *S&P CNX Nifty Returns, Traded value, Demonetization, Event Study, Announcement date.*

1.0 INTRODUCTION

Investment in Stock Market is one of the most important modes of development in the developing countries. Some initiatives taken by the current government such as Make in India, Stand Up India, Land acquisition measures, GST and labor reforms has surged the investments in India by making it an attractive destination but the withdrawal of high denominations notes ranks amongst the most significant economic measures taken by the government. The audacious move has been experimented by the government to eradicate black money, counter tax-evasion and destroy counterfeit currency from the Indian economy. It is also being lauded for its potential to convert India into a cashless economy.

1.1 Demonetization

In this paper, we are trying to find impact of this historic move on capital market and its effect on the return of the stock market. Before talking further, let us try to understand the concept of demonetization and its impact on the economy. Demonetization is the mechanism by which the government states to withdraw the money which is current legal tender. The effect of this announcement is that the currency notes in circulation will now cease to be valid tender and can only be exchanged at the banks. Demonetization is a one step to unearth black money from the economy. Black money refers to illegal money earned from illegal sources which has not been disclosed to the government. In short, it uses all the resources of the economy but does not pay the costs. There are various researches done by National Institute of Public finance and policy & Ministry of Finance on black money. The estimates of black money, including from other sources, vary from 15% to 45% of the total economy. The strategies which have been found out through various researches are establishing identity of persons operating in the country (through PAN card, Aadhar Card, etc); Reform the avenues of cashless transactions through various e-payment modes (e-wallet, paytm, NEFT etc.); Reform tax system so that cost of compliance is lower than cost of tax evasion (Saral forms, e-filing, etc.) ; Harsh regulations for black money hoarders (prevention of Corruption Act) ; Control of holding of cash and physical money including Indian and foreign money (FEMA, Demonetization, etc.)

So, out of all the above mentioned approaches, the government has tried almost all the approaches to remove black money from the Indian economy but here we will discuss the approach of demonetization and its impact on return on Investment in stock market.

It is not the first time that demonetization has taken place in India rather it is the third time. The first demonetization took place in 1946 and Rs. 1000 and Rs. 10,000 notes were demonetized. Later in 1978, Rs. 1000, Rs. 5000 and Rs. 10,000 were demonetized.

1.2 An overview of Investment in Indian Capital Market

There are Individual Indian Investors who invest money in stock market through equity and debt and mutual fund investments. Foreign portfolio Investment (FPI) is investment by non-residents in Indian securities including shares, government bonds, corporate bonds, convertible securities, infrastructure securities etc. The classes of investors who make investment in these securities are known as foreign portfolio investors. The FPI in a stock market refers to the net investment- that is gross purchase minus gross sales. In fiscal 2015, 2016, the Indian government took several measures to boost foreign investments. The government's endeavors included attempts to clarify the tax treatment of gain in securities market transactions as well as the retrospective tax treatment. Fiscal 2013 was the lowest in terms of market capitalization in the past five years. However, the foreign portfolio witnessed impressive growth of about 80% in fiscal 2013 over the previous year. In fiscal 2014, the FPI fell sharply- about 69% over the previous year. It rose again by 284% in fiscal 2015. The data for the last five years show that the net FPI investment has been more in equity rather than in debt except some months.

So, the present study attempts to empirically examine the impact on stock market return due to demonetization announcement & variations that has taken place in terms of turnovers.

The rest of the paper is organized as follows: Section 2 examines the literature review. Section 3 presents the objective and hypotheses of the study. Section 4 discusses the variables, data sources, research design & methodology. Section 5 presents the data analysis & discussion and Section 6 summarizes and concludes.

2.0 LITERATURE REVIEW

There have been large number empirical and theoretical studies in the recent years on capital inflows and their impact on macroeconomic variables.

Kohli (2003) examines capital flows on macroeconomic variables such as exchange rates, interest rates of foreign exchange reserves, domestic monetary condition and financial system in India during the period 1986 to 2001. She concludes an inflow of foreign capital has a significant impact on domestic money supply , stock market growth, liquidity, and volatility . Correlation between domestic and foreign financial market highlights India's vulnerability to external financial shocks.

Sethi and Patnaik (2007) examine the impact of international capital flows on India's financial markets and economic growth. Using monthly time series data from April 1995 to July 2005, they found that Foreign Direct Investment (FDI) positively affects the economic growth, while foreign Institutional Investment (FII) negatively affects the economic growth in India.

Prasanna (2008) has examined the contribution of foreign institutional investment particularly among companies including Sensex of Bombay Stock Exchange. It examined the relationship between foreign institutional investment and firm specific characteristics in terms of owner structure, financial performance and stock performance. It is observed that foreign investors invested more in companies with a higher volume of shares owned by the general public. The promoters' holdings and the foreign investments are inversely related. The financial performance variables which influenced the financial decisions of FII include share returns and earnings per share.

Bansal and Pasricha (2009) studied the after impact of opening market to FIIs on Indian stock market behavior. They empirically analyze the change of market return and volatility after the entry of FIIs to Indian capital market and found that there is no significant change in the Indian stock market average returns. The volatility got significantly reduced after India unlocked its stock market to foreign investors.

Sultana & Pardhasaradhi (2012) investigate the impact of flow of FDI & FII on Indian Stock Market over a period 2001 to 2011. They have found strong positive correlation between FDI & Sensex and FDI & Nifty and moderate positive correlation between FII & Sensex. Using multi regression model they have found out the impact of FDI& FII on Indian stock market which is significant.

Dua & Garg (2013) analyses the determinants of portfolio flows to India for the period October 1995 to October 2011. The results from the econometric analysis indicate that the common factors that drive both FII and ADR/GDR flows are domestic stock market performance, exchange rate, and domestic output growth rate. They found that the results of aggregate portfolio flows are similar to FII flows.

Mali, V. (2016) through his paper "Demonetization: A step towards modified India" concluded that demonetization though it has created some positive and some negative impacts on different sectors but in long run it definitely will have positive impact in controlling black money and fake money.

Rani, G. (2016) in her paper Effects of Demonetization on Retail Outlets concluded that initially the demonetization effects on market were painful but this also instigate the shopkeepers and consumers to adopt cashless means such as paytm, debit card use, internet banking to buy goods. Demonetization effect will be positive in coming time for Indian Economy. By adopting the cashless means certainly there will be a check on black money.

Dash, A. (2017) investigated Socio Economic Effect of Demonetization in India and concluded that the impact of demonetization was felt more in the social sector and the worst affected was also the poor and the common people. It is clearly evident that India is moving towards cash less economy. This will curb the black money to a great extent but educating the masses on the mobile based money transaction is a huge challenge.

3.0 OBJECTIVES & HYPOTHESIS OF THE STUDY

3.1 Objectives of the Study

The stock market returns has been a major area of concern during policy changes in economy among researchers, market makers and regulatory bodies in recent times when the markets have been integrated across the globe. The aim of present study is to highlight the impact of demonetization on the stock market returns and its turnover.

The primary objective of the current research is to assess the effect of demonetization announcement on the return of the stock market.

The secondary objective is to examine the changes that have taken place in terms of quantum of Investment.

3.2 Null Hypotheses of the Study

NH_{01}: There is no relationship between turnover and return of the stock market.

NH_{02}: There is no effect of demonetization announcement on return of the stock market.

NH_{03}: There is no effect of demonetization on quantum of Investment.

4.0RESEARCH DESIGN & METHODOLOGY

4.1 Data Collection

The data for present study has been collected from National Stock Exchange**.** In order to estimate the impact of the demonetization on the return of stock market, daily closing prices of S&P CNX Nifty Index and traded value is collected for 50 days pre and post demonetization and. NSE accounts for about 99.5% of the total trading volume in the derivatives segment; therefore we use the S&P CNX Nifty Index as a proxy to study the return behavior of the market. The CNX Nifty Index represents about 65% of the free float market capitalization of the stocks listed on NSE on March 31, 2016. Hence the present study analyses the effect of demonetization on returns of the Indian stock market by dividing the time periods into:

1. Pre-demonetization period (19-09-2016 to 7-11-2016)
2. Post- demonetization period (09-11-2016 to 28-12-2016)

The study calculated daily returns using the equation $R_t = \ln (P_t / P_{t-1}) * 100$ where R_t is the daily returns , P_t is the closing price of the stock at time t, P_{t-1} is the closing price at t-1 and similarly calculated for the change in traded value.

4.2 Analytical Tools & Techniques

In order to analyze the collected data the statistical tools such as Graph, Descriptive statistics which are used to evaluate the mean, standard deviation, median, skewness and probability of the variables that are under consideration in the research. Alongside the variance of data, these values show the distribution of error terms, Correlation & Multi regression OLS model is used. Correlation coefficient is a statistical measure that determines the degree to which two variable's movements are associated. Correlation coefficient value ranges from -1 to +1. Negative value of correlation indicates: if one variable increases in its value, the other variable decreases in its value and positive value indicates: if one variable increases in its value, the other variable also increases in its value. In the current study, to know the linear relationship between variables such as Market turnover and nifty, correlation is applied. The multiple regression analysis is a statistical technique used to evaluate the effects of two or more independent variables on a single dependent variable. In the current paper attempt is made to study the impact of demonetization on market return. We are considering traded value (Rs. Crore) as the independent variable and nifty returns as the dependent variable.

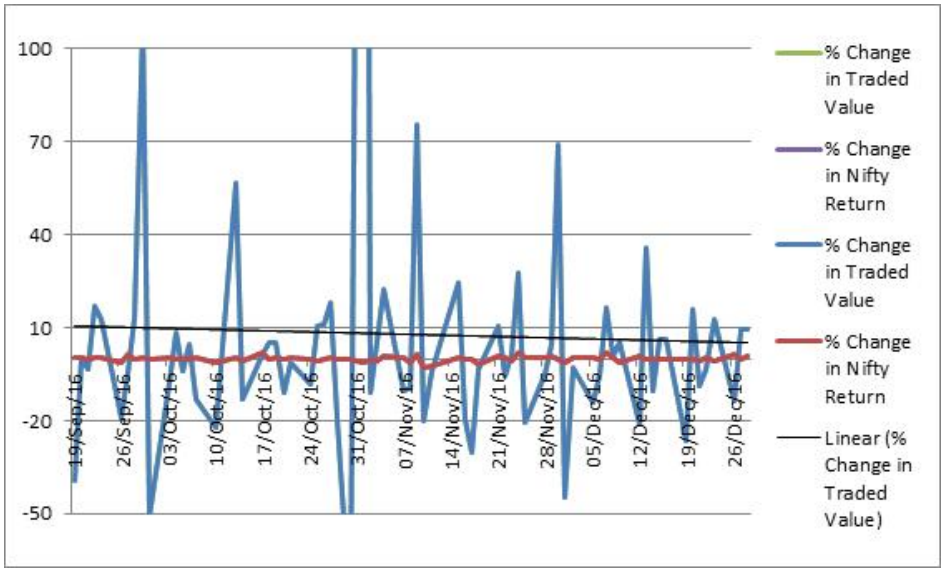
In this study we have used "Event study method" to analyze the impact of demonetization on market returns. According to McWilliams and Siegel, 'Event study is a statistical method to assess the impact of an event on the value of firm'. Here instead of value of firm we are using market return and this method is gaining popularity in analyzing many situations. For example, the announcement of merger, a takeover, issue of dividend payment etc to analyze their effect on company's share prices. There are nine steps to follow for performing a **short-term event study.** These steps are

1) Identify specific calendar event dates of a company and set it as an event date point.
2) Determine the length of both event period and estimation period.
3) Download the historical files of both share price and stock market index data. The data files should contain the calendar dates of both estimation period and event period.
4) Calculate the daily returns of both individual share price and market index data. Normally, daily returns are used, so the returns shall be daily returns. These are actual returns.
5) Calculate the two parameter estimates Alpha and Beta by using the return generating model to the data from the estimation period.
6) Get back to event period and use the two parameters estimates get from the estimation period to determine the (daily) expected return of the share price in event period.
7) Determine the estimation and event window: The event window is the period of trading days over which you want to calculate abnormal returns. In this study we have chosen the event window of 41trading days symmetrically surrounding the identified event day, [-50, +50].
8) Calculate cumulative (average) abnormal returns or buy-and-hold abnormal returns : The respective CAR is just the sum of the firm's abnormal returns on the day before the event , the event day itself, and the day after the event. The average of each firm's AR and CAR over a certain period of trading days in the event window is called average abnormal return(AAR) (for the event day) and cumulative average abnormal return (CAAR) (for several days in the event window), respectively.
9) Test for statistical significance.

5.1 Graphical representation

The graph is clearly indicates that market return is almost same throughout the study period but there is lot of fluctuation in the traded value after demonetization in the negative side. If we look at the trend line, it is clearly indicating negative impact of demonetization on investors. So, the pattern of turnover after demonetization is sloping downward. Government has to revive the sentiments of foreign investors to increase the turnover in Indian stock market.

Graph 1



5.2 Analysis of Descriptive Statistics

The following table 1 shows that the amount of average traded value has decreased in terms of (Rs. Crore) and Market return (in %) post demonetization with a bracket of 50 days prior & post. The overall investment has decreased to a great extent after demonetization whereas market return is almost same in both periods. There is a significant difference in average investment by foreign investor's between pre and post demonetization period. Fluctuations have also increased in the investment pattern of foreign investors in post demonetization period.

Table 1: Descriptive Statistics

	Pre Demonetization		Post Demonetization	
	Traded Value (Rs. Crores)	**Market Return (in %)**	**Traded Value (Rs. Crores)**	**Market Return**
Mean	21209.10	-0.140	18695.46	-0.141
Standard Dev	5583.33	0.716	5477.21	1.033
Kurtosis	12.53	1.440	1.71	0.348
Skewness	1.45	0.0315	1.54	-0.255
Range	41549.99	3.608	20922.19	4.559
Minimum	3462.37	-1.759	13142.71	-2.691
Maximum	45012.36	1.848	34064.94	1.868

5.3 Correlation Analysis

Correlation is applied to study the statistical relationship of the variables Traded Value & CNX Nifty return. The following **Table 2** presents the output, when correlation is run for to the 100 days daily data considered. Based on the results it can be concluded that the relationship changed after demonetization. The relationship was negative before demonetization but changed into positive after demonetization.

NH_{01}: There is no relationship between turnover and return of the stock market.

The first Null hypothesis is rejected because $t_{cal} > t_{critical}$. Thus the relationship is weak but significant at 5% level of significance

Table 2: Correlation Coefficients

		% change in Traded Value	*% change in Nifty Return*
Pre-demonetization Period	*% Change in Traded Value*	1	
	% change in Nifty Return	-0.235	1
Post-demonetization Period	*% Change in Traded Value*	1	
	% change in Nifty Return	0.282	1

5.4 Event Study Analysis

The tests involved estimating and examining abnormal returns for Value traded (Turnover) & Market return before and after demonetization for 50 days before and after event date. Each announcement date in the sample was labeled time zero ;points in time after the announcements were labeled +1,+2,+3,…..,+6.At each point in event time , the market abnormal returns and the average abnormal returns across market return was calculated. The average abnormal returns were cumulatively summed up over the event time and presented on a graph.

Table 3 : Summary Output

Regression Statistics	
Multiple R	0.0576
R Square	0.0033
Adjusted R Square	-0.0113
Standard Error	0.8912
Observations	70

The table 3 is the model summary reports the strength of the relationship between the model and the dependent variable R, the multiple correlation coefficients, is the linear correlation between the observed and model predicted values of the dependent variable. The value of R^2 is 0.0033; it shows that turnover explains only 0.3% of the variation in market return.

Table 4: ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.1804	0.1804	0.2271	0.635
Residual	68	54.018	0.7943		
Total	69	54.199			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-0.0878	0.1072	-0.8193	0.4154
% change in Traded Value	-0.00077	0.0016	-0.4765	0.6351

The ANOVA table 4, tests the acceptability of the model from a statistical perspective. However, F-statistic is not found significant , since the p-value is very much greater than 0.05.

NH_{03}: There is no effect of demonetization on quantum of Investment.

So, the third null hypothesis is accepted, so the impact of turnover on variation of market return in pre & post demonetization period is nil,

α = -0.0878 , β = -0.00077

$E(R_i) = \alpha + \beta Rm$

Abnormal return = Actual return – Estimated return

Results reported in this paper are obtained in terms of the event study methodology wherein the abnormal return of every day is calculated through Sharpe model with a view to study the informational efficiency of the market. In order to investigate the difference between Pre and Post demonetization period, Average Abnormal Return (AAR) and Cumulative Average Abnormal Returns (CAAR) related to the demonetization announcement date were obtained for the study period. The abnormal returns were condensed for 101 days event window comprising 50 days prior and 50 days post to the announcement of demonetization. Table 5 presents statistical significance of the difference between CAARs of the market return for Pre and Post demonetization period.

Table 5 : T-test of CAARs of the market return for Pre and post demonetization period

	Pre-demonetization Period	*Post- demonetization Period*
Mean	-730.916	-1179.750
Variance	675306.584	643563.728
Observations	42	36
Hypothesized Mean Diff	0	
df	75	
t Stat	2.435	
P(T<=t) one-tail	0.008	
t Critical one-tail	1.665	
P(T<=t) two-tail	0.017	
t Critical two-tail	1.992	

NH_{02}: There is no effect of demonetization announcement on return of the stock market.

The p-value related to demonetization is shown in table 5, is lesser than 0.05 so null hypotheses is rejected. Hence it is concluded that demonetization has significant effect on return of the stock market.

It is clear from above analysis that the investment sentiments have been significantly affected due to demonetization which is need to be revived but the market return is almost same in both the short term periods as suggested by their t-values and p-values.

6.0 CONCLUSION

By using graph, descriptive statistics, correlation coefficients and event study methodology it is found that the demonetization has affected the return in Indian stock market in both equity and debt segment. The total investment has

decreased significantly post demonetization. The average turnover has decreased post-demonetization. The graph has clearly captured the variation that has taken place in pattern of investment through trend line. The correlation analysis has proved that nature of relationship between turnover & return has changed, though it is weak but significant. The regression analysis has clearly accepted the third null hypothesis and proved that the market turnover has nil impact on the return of Indian stock market whereas the graph and short term event study has rejected the second null hypothesis and proved that the demonetization has significant effect on return of the stock market.

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