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VOLATILITY IN INDIAN STOCK MARKET - PRE AND POST DEMONETIZATION

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Abstract

The economic progress of any country measures through its capital market and financial system, the major changes in financial policy and monetary circulation create volatility in the stock market. The contemporary scenario of demonetization policy announced by Government of India on 8th November 2016, it fetches the currency liquidity crunch in banking system, the policy on restriction on currency with drawl, money transfers influenced in capital market. In order to ascertain the impact of demonetization present paper a modest attempt to analyze the volatility pre and post demonetization in Indian stock market. The study conducted by using daily closing prices time series on BSE S&P Sensex and NSE Nifty for a period of prior and post three months from 8th August 2016 to 7th February 2017. To examine the volatility statistical tools descriptive analysis, auto correlation models applied.

Key Words: *Volatility, Stock market, Demonetization, SENSEX, NIFTY, BSE ABNK INDEX,*

Jel Classification: *C12, E44, G1, G28,*

1. Introduction

The dynamism of stock prices depends on numerous factors like macro economic, political technological and networking, not only that the rapid phase of information technology sharing the information among

the capital market participants. Meanwhile it is challenging task to understand the market dynamism, which causes uncertainty in stock markets, the uncertainty and risk refers as volatility, the volatility measures to understand and forecasting the stock market movements.

The Indian government policy decision on 8th November 2016 lead on demonetization to curb the block money circulation into the financial system, the demonetization of high denomination currency, which is 85 percent in total money circulation, this policy decision on restriction on deposits and withdrawals create the liquidity crunch into banking and capital markets. hence one need understand the demonetization will brought a change in the system, what are the consequences, how it will hit the capital market? These questions can be answered by finding the volatility in the market before and after implantation of policy decision.

Volatility is a natural consequence of trading, which occurs through the news arrival and the ensuing response of traders. The chain reaction of market participants will force equity prices to reach a post information equilibrium level. Revision of expectations and subsequent actions will be reflected in the liquidity of the particular market and specifically on the amount of stocks traded. If we place the above process in a continuous time of revising expectations, and since the underlying prime mover is common, i.e., flow of information, then it is expected that

information, liquidity, and volatility are related.

Glen (1994) defined volatility as the frequency and magnitude of price movements. According to Batra (2004), it is a measure of how far current price of an asset deviates from its average past prices. A higher volatility means that a security's value can potentially be spread out over a larger range of values. This implies that the price of the security can change dramatically over a short time period in either direction. Investors perceive high volatility as a sign of investor nervousness and low volatility as a sign of confidence (Jain and Dash, 2012).

2. Review of literature

The plethora of studies done on stock market volatility in advanced economies and as well as emerging economies, the few studies related to volatility study presented as following lines.

Nelson (1991) extended the ARCH framework in order to better describe the behavior of return volatilities. Nelson's study is important because of the fact that it extended the ARCH methodology in a new direction, breaking the rigidity of the

G/ARCH specification. The most important contribution was to propose a model (EARCH) to test the hypothesis that the variance of return was influenced differently by positive and negative excess returns. His study found that not only was the statement true, but also that excess returns were negatively related to stock market variance.

Choe et. al., (1998) examined the influence of FIIs on equity returns in Korea before and during the 1997 Asian crisis and they found no evidence of stock prices falling because of a withdrawal of foreign equity investment. Also, it is not necessary that inviting FIIs to the stock market would increase its volatility as argued by (Rene and Stultz, 1997).

Aggarwal et al. (1999) examined the events associated with the sudden shift in volatility of stock market returns. He found that mostly country specific events caused large shift in volatility rather than global events or change in exchange rate regimes. The only global event that affected most of the emerging markets was October 1987 crash.

Raju and Ghosh (2004) made an international comparison of 18 countries by

dividing them into developing and developed economies and found that the returns of markets in India and China were as high as that of United States (US) and United Kingdom (UK) but the volatility of both the markets was higher.

Pal (2005) studied the impact of change in trading behaviour of Foreign Institutional Investors (FIIs) on Indian stock market (BSE Sensex) for the period (March-June) 2004. He identified herd instinct of investors due to FIIs movement responsible for increasing volatility in stock market.

Kumar (2006) in an article entitled "comparative performance of volatility forecasting models in Indian markets" evaluated the comparative ability of different statistical and economic volatility forecasting models in the context of Indian stock and Forex markets.

Banerjee and Sarkar (2006) in an article entitled "long memory property of stock returns; evidence from India" examined the presence of long memory in asset returns in the Indian stock market. They found that although daily returns are largely

uncorrelated, there is strong evidence of long memory in its conditional variance.

Elsewhere, **Li and Wu (2006)** find that by controlling for the effect of informed trading, return volatility is negatively correlated with volume. This is consistent with the contention that liquidity increases market depth and reduces price volatility.

Joshi and Panday (2007) examined the nature of the volatility in the Indian stock markets using closing prices of S&P CNX Nifty and BSE Sensex stock prices and concluded that both the stock markets exhibited volatility clustering and volatility persistence.

Kumar (2007) tried to measure the quantum and spread of volatility of daily and monthly return with respect to economic growth and concluded that volatility was higher when economic growth declined as compared to the growth periods.

Behera (2010) studied the effects of FIIs investment on equity return and volatility using ordinarily least squares GARCH model. The study found that FIIs

investments have a positive impact on both liquidity and returns and GARCH estimates suggest FIIs investments increase volatility in Indian stock market.

Mukherjee (2011) examined whether the volatility of stock returns in India is significantly influenced by the stock market volatility of developed and emerging markets. The results revealed that Republic of Korea and United States positively influence the Indian stock market returns while Hong Kong and China negatively influence the Indian stock market returns.

Mamta etal (2012) examined the impact of foreign institutional investment on stock market using statistical tool of Karl Pearson's coefficient of correlation. The study attempted to examine the pattern of FII s and its effect on volatility of BSE Sensex. It was observed that there is highly positive correlation between FIIs investment and Sensex.

Anubha (2013) in his research studied the influence of FIIs investment on Indian stock market by utilizing daily FIIs investment data and daily reruns of Sensex and Nifty for the period from 2001 to 2010. The study

used correlation and regression techniques and observed that FIIs investment have significant positive impact on stock market and on major stock indices. The findings also show that the degree of impact of FIIs varies among various sectors of the economy.

3. Objectives of the study

- To study the impact of demonetization on stock market
- To analyze the volatility pre and post demonetization in Indian stock market

4. Data collection and methodology

Period and sample of Study

The study spans the period 8th August 2016 through 2nd February 2017, this period considered as pre demonetization and post demonetization by using the log returns has calculated from the daily closing prices of BSE S&P SENSEX, BSE BANK INDEX and NSE NIFTY. It is, therefore, important to study the nature of stock market volatility during these days.

The daily stock price data on Sensex, Bank Index and Nifty have been taken from RBI

and by the Centre for Monitoring of Indian Economy (CMIE) and respective stock exchange official websites.

Methodology of the study

The statistical tools to find the volatility pre and post demonetization by using the log returns mean standard deviation, skewness, kurtosis, paired correlation and t test applied

If I_t be the closing level of Sensex on date t and I_{t-1} be the same for its previous business day, i.e., omitting intervening weekend or stock exchange holidays, then the one day return on the market portfolio is calculated

$$\text{as: } r_t = \ln(I_t/I_{t-1}) \times 100$$

Hypothesis of the Study

H₀₁: there is no significant change of volatility in BSE SENSEX, BSE BANK INDEX and NSE NIFTY pre and post demonetization

H₀₂: there is no significant impact pre and post demonetization on BSE SENSEX, BSE BANK INDEX and NSE NIFTY

5. Analysis of the study

The descriptive analysis presented through
table 1.

Table - 1
Descriptive Statistics

	N	Minimum	Maximum	Mean		Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
PRESENSEX	60	-1.658	1.874	-.02955	.094050	.728509	.531	.095	.309	.750	.608
POSTSENSEX	60	-2.572	1.749	.03793	.110412	.855251	.731	-.359	.309	.859	.608
PRENJFTY	60	-1.78	1.83	-.0261	.09621	.74524	.555	-.034	.309	.724	.608
POSTNIFTY	60	-2.728	1.851	.03683	.120086	.930179	.865	-.449	.309	.843	.608
PREBANKRX	60	-2.463	2.921	.05153	.140798	1.090614	1.189	.021	.309	.571	.608
POSTBANKRX	60	-2.937	3.562	.04898	.165208	1.279692	1.638	.171	.309	.410	.608
Valid (listwise)	N 60										

Source: Calculated

The table 1 presented the descriptive analysis of Pre Sensex, Post Sensex, Pre Nifty, Post Nifty, Pre bank index and Post Bank index, the mean value of Pre Sensex and Pre Nifty was negative, Post Sensex and Post Nifty is positive respectively, whereas Bank index was positive at and post demonetization but it was declined from .515 to .489. The Standard Deviation of pre and post demonetization in three indices has been increased, the skewness value of pre

Sensex was .095 changed to -.359 post Sensex, it means the mean value highly volatile, whereas Pre Nifty and post Nifty was negative but found to asymmetrical distribution, on the other hand Bank index pre and post demonetization positively skewed with asymmetric distribution of returns. The kurtosis values nearly one which represents the leptokurtic curve peaked in the distribution of returns

Table - 2

Paired sample statistics of Pre and Post Demonetization in India

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PRESENSEX	-.02955	60	.728509	.094050
	POSTSENSEX	.03793	60	.855251	.110412
Pair 2	PRENIFTY	-.0261	60	.74524	.09621
	POSTNIFTY	.03683	60	.930179	.120086
Pair 3	PREBANKRX	.05153	60	1.090614	.140798
	POSTBANKRX	.04898	60	1.279692	.165208

H01: There is no significant change of volatility in BSE SENSEX, BSE BANK INDEX and NSE NIFTY pre and post demonetization.

The table 2 shows that the mean value of Sensex and Nifty were negative at pre demonetization and enhanced to positive value at post demonetization, whereas bank index mean value decreased at post

demonetization. The standard deviation of all three indices Sensex, Bank index and Nifty increased in post demonetization the standard error of mean value indicates the true mean realization. The volatility found increased in post demonetization in the stock market, hence it can be concluded the demonetization policy influenced in channelization of funds in the stock market.

Table - 3

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 1	PRESENSEX & POSTSENSEX	60	.018	.890
Pair 2	PRENIFTY & POSTNIFTY	60	.055	.679
Pair 3	PREBANKRX & POSTBANKRX	60	-.031	.811

Source: Calculated

The table 3 reveals the paired correlation between pre and post demonetization in Sensex and Nifty found low positive value, whereas Bank index shows negative value, it

can be concludes that the banking sector returns highly influenced than other sectors in the stock market.

Table 4

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	PRESENSEX - POSTSENSEX	-.067483	1.113310	.143728	-.355082	.220115	-.470	59	.640
Pair 2	PRENIFTY - POSTNIFTY	-.062933	1.159717	.149719	-.362520	.236653	-.420	59	.676
Pair 3	PREBANKRX - POSTBANKRX	.002550	1.707324	.220415	-.438499	.443599	.012	59	.991

H₀2: there is no significant impact pre and post demonetization on BSE SENSEX, BSE BANK INDEX and NSE NIFTY

The table 4 presents the results test of significance in change volatility, the test calculated value is less than significance value hence the null hypothesis rejected and

found there is significant impact on

volatility after demonetization period.

6. Conclusion

It can be concluded from the analysis that mean value of Pre Sensex and Pre Nifty was negative, Post Sensex and Post Nifty is positive respectively, whereas Bank index was positive at and post demonetization. The volatility (SD) of all three indices Sensex, Bank index and Nifty increased in post demonetization, hence it can be concluded the demonetization policy influenced in channelization of funds in the stock market. It further concludes the banking sector highly influenced than other sectors in the stock market.

References

1. Jatinder Loomba (2012) Do FIIs' impact volatility of Indian stock market? *International Journal of Marketing, Financial Services & Management Research* Vol.1 Issue 7, July 2012, ISSN 2277 3622
2. Harvinder Kaur (2004) Time Varying Volatility in the Indian Stock Market, *vikalpa*, volume 29, no 4, October - December 2004
3. Bashir Ahmad Joo and Zahoor Ahmad Mir(2014) Impact of FIIs Investment on Volatility of Indian Stock Market: An Empirical Investigation *Journal of Business & Economic Policy* ISSN 2375-0766 (Print)2375-0774 (Online) Vol. 1, No. 2; December 2014
4. Battacharya, B., & Mukherjee, J. (2005). An Analysis of Stock Market Efficiency in the Light of Capital Inflows and Exchange Rate Movements: The Indian Context . Retrieved on December 11, 2013
5. Banerjee, A., & Sarkar, S. (2006). Modelling Daily Volatility of the Indian Stock Market Using Intra-day Data. IIM Calcutta, WPS No. 588/March.
6. Anubha, S. (2013). A Study of Influence of FII Flows on Indian Stock Market. *GYANPRATHA – ACCMAN Journal of Management*, 5(1).

7. Pal, P. (2005). Recent Volatility in Stock Market in India and Foreign Institutional Investors. Economic and Political Weekly.
8. Behera, H. K. (2010). An Assessment of Foreign Investment in Indian Capital Market. Retrieved from <http://ssrn.com/abstract=2258352>.
9. Mamta, J., Priyanka, M. L., & Mathur, T. N. (2012). Impact Of Foreign Institutional Investment On Stock Market With Special Reference to BSE A Study of Last One Decade. Asian Journal of Research in Banking and Finance, 2(4).
10. Potharla Srikanth (2014) Modeling Asymmetric Volatility in Indian Stock Market Pacific Business Review International Volume 6, Issue 9, March 2014