

Impact of Demonetization on Indian Banking Sector Stocks

DHAREN KUMAR PANDEY AND VINEETA KUMARI

Abstract : This study analyses the market reaction to demonetization, especially the banking sector stocks, with a study of eight banks using the standard event study methodology. The empirical results infer that the average abnormal returns, as well as the cumulative average abnormal returns around the date of demonetization, are positive and significant. The study shows the positive effects of demonetization on stocks of the banking sector.

Keywords: Demonetization, Banking sector stocks, Abnormal returns

Introduction

When any currency unit loses its status as a legal tender, it is referred to demonetisation. A Government can enforce demonetization for several reasons. The Indian government announced the policy for demonetization of Mahatma Gandhi series bank notes of denominations i.e. Rs.500/- and Rs.1000/-, amounting to Rs.15.44 lakh crores, on 8th November, 2016 as an effort to curb counterfeiting of the banknotes, which is allegedly the major source for funding terrorism, and to hit the stack of black money in the country. As far as Black money is concerned, it is a societal-ill and has many meanings including the currency of a black economy. According to Deodhar (2016), the estimates vary from 15% to 45% while Kumar (2016) estimates it as 38% of the total economy and 62% of GDP in 2012-13.

The direct impact of the policy was upon the balances held by the banks. The banks had never experienced such huge deposits ever since their existence. The money stacked in the black economy has come into the white economy system with the banks having huge balances to provide loans for economic development. The spurt toward cashless transactions in banking deposits, restricted cash withdrawals and shifting individuals, both businesses and customers, has strengthened the role of the banking interface in B2B and B2C industry. The Nifty Bank index closed at Rs.8544 on 8th November 2016 (before the announcement)

Dr. Dharen Kumar Pandey is Assistant Professor, P.G. Department of Commerce, Magadh University, Bodh Gaya, Bihar; and Dr. Vineeta Kumari is Assistant Professor, P.G. Department of Commerce, Magadh University, Bodh Gaya, Bihar.

and open at Rs. 8067 on next morning going to as low as Rs. 8002, although recovered itself and close at Rs. 8432 on the same day. Post demonetization, the Nifty Bank index has been quite volatile and after 30 trading days, it closed at Rs.7979 on 22nd December, 2016. However, to draw a statistical inference, this event study is conducted.

Literature Review

As stated by Campbell, Lo, & Mackinlay (1997), Dolley (1933) conducted the first-ever event study to analyse the impacts of stock splits on stock prices with a sample size of 95 for the period from 1921 to 1931. Thereafter, the event study literature attained the momentum in the late 60s. Later on Ball & Brown (1968); Fama, et. al. (1969); Brown & Warner (1980 & 1985); and many others contributed to this methodology. Corrado (1989); Boehmer, et. al. (1991); Cowan (1992); Corrado & Zivney (1992); Kolari & Pynnonen (2010 & 2011) have come up with several corrections and additions to the parametric as well as non-parametric tests used in the event studies. Mishra (2005) examined a sample size of 46 stocks listed on the NSE using the event study methodology for studying the market reaction around bonus announcements and concluded that the results supported the hypothesis that the Indian stock market is semi-strong efficient. Nikkinen, et. al. (2006) analysed the performance of GARCH volatilities across ten key macroeconomic news announcements of the United States on a sample of thirty-five local stock markets segregated in six regions and found that the markets are impacted by the U.S. macroeconomics news announcements, however, the degree of impact varies across nations. Malhotra, Thenmozhi & Kumar (2007) conducted an event study with a sample size of 24 bonus issues to examine the market reactions to bonus announcements and found that the market under-reacted to it. Cai, Zoo & Zhang (2009) studied the reaction of the exchange rates in 9 rising markets to the macroeconomic news of the U.S. as well as the domestic economies during the period from 2000 to 2006 using log returns and GARCH model and found that although big U.S. macroeconomic news has strongly impacted the returns and stability of global exchange rates, other domestic news has not. Singh (2010) (as quoted in Saini & Minakshi, 2016) found that different political and economic events, both, inside and outside India, affect the stock markets and suggest that to make appropriate decisions for their investment purposes, the investors should be aware of those effects. Mehndiratta & Gupta (2010) (as quoted in Pandey & Jaiswal, 2017) conducted a standard event study to analyse the effects of dividend announcements on fifteen listed companies around sixty days of the announcement dates. They supported the Efficient Market Hypothesis with the probability of information content in dividend announcement in NSE in the post-announcement period and that dividend increase lead to positive abnormal returns. Miglani (2011) examined the

price reaction to right issues announcement with a sample size of 32 right issues during the period 2005 & 2010 to test the semi-strong efficiency of the Indian Stock Market. She used the standard event study method and found that abnormal returns on and around the announcement date were significant. Gumus, et. al. (2011) examined the effects of domestic as well as foreign macroeconomic news over 8 years on the Istanbul Stock Exchange and concluded that foreign macroeconomic news announcements had no significant impact on the ISE but the domestic macroeconomic news do impact the market volatility. Babita, , Prakash, & Shakila, B. (2012) using the standard event methodology examined the effects of 104 bonus announcements on the BSE listed stocks during the period January 2010 to December 2011. Their results supported the semi-strong form of the Efficient Market Hypothesis. They concluded that shorter window reflect announcement effects better than longer windows. Muthukamu & Rajamohan (2015) examined the stock price reactions to bonus issues for 30 companies and found that the market reacted positively depending on the size of the issue. While big issues were significant, small issues were found to be non-significant. Saini & Minakshi (2016) examined the impact of the devaluation of Chinese Yuan on global stock markets and revealed negative market reactions at the announcement of the disruptive change by China. Dash & Bagha (2017) studied the effects of demonetisation on stock price movements in the Indian banking sector using the Runs test to conclude that there was no significant effect of demonetization on movements of the stock prices in the banking sector in India. Ganesan & Gajendranayagam (2017) examined the impact of demonetisation on the Indian economy by using the paired-sample t-tests and regression analysis on the gross domestic product and gross value added data for various sectors and found that few sectors have been positively impacted while the real estate sector has been negatively impacted for the short term. They concluded that demonetisation was a sort of dialysis and not the solution to the problem; it needs to be repeated after some time. Chauhan & Kaushik (2017) conducted an event study to examine demonetisation effects on the stocks of S&P BSE 100 companies and found that there were no notable effects of demonetisation on the stock prices. It was only a short term effect. Bharadwaj, et. al. (2017) using efficient market hypothesis with a sample size of 16 NSE company's data for pre and post-demonetisation period and concluded that demonetisation has positively impacted the stock market suggesting that investors must use the information available then and there for maximising their gains. Pandey & Jaiswal (2017) examined the price behaviour of 51 stocks traded on the NSE using the standard event study method and OLS market model for average abnormal returns. They found significant abnormal returns impacting positively to the financial, IT and energy sector stocks while impacting negatively to the automobile and consumer goods sector. They also concluded that the post-event period can be utilised by the investors for earning some abnormal returns. They further concluded that

significant abnormal returns on and after demonetisation imply that no information was previously available.

Going through the literature of the past 15 years, it is found that numerous studies to test the impact of bonus, right, stock-split and dividend announcements over the stock markets have been conducted. More than 500 event studies have been conducted to date (Kothari & Warner, 2006). However, very few event studies concentrate to analyse the impact of any macroeconomic policy of a government on the stock market behaviour. Although some studies (Nikkinen, et. al., 2006; Cai, Zoo & Zhang, 2009; Singh, 2010; Gumus, et. al., 2011; and, Saini & Minakshi, 2016) have been conducted to measure the impact of macroeconomic news announcements of the U.S. and China over global stock markets; except Chauhan & Kaushik (2017) and Pandey & Jaiswal (2017) other studies were not found in the context of event studies conducted to examine the impact of the Indian Government's policy announcements/ implementations over the Indian Stock Exchange.

Objective

The objective of this paper is:

- to examine the impacts of the Indian Government's demonetization policy on the banking sector stocks of the Nifty.

Hypothesis

Abnormal returns on and around demonetization are less than or equal to zero

Research Methodology

The sample in the study consists of 8 banks out of 12 banks that constituted the Nifty Bank during the period of study. Although there were more banks whose data could have been taken for the study but based on the criterion of selection for the Nifty Bank, only those common in the Nifty Bank Index and Nifty 50 Index were considered for the study. The data from 28th June 2016 to 22nd December 2016 have been collected from the NSE website.

"More complicated methodologies do not convey any benefit and, in fact, 'make the researcher worse-off' (Brown & Warner, 1980: 249). Brown & Warner (1985) (as quoted in Kothari & Warner, 2006) conclude that the specific risk-adjustment strategies are very successful in identifying abnormal performance while performing short-window event studies. According to Brown & Warner (1985), although abnormality and partiality in the estimation of the market model are unimportant to test abnormal performances, the selection of the variance estimator is. For this, they suggest hypothesis testing assuming cross-sectional independence

because “as the number of sample securities increases, the average excess return in a cross-section of securities congregates to normality” (Brown & Warner, 1985: 25). Accordingly, the standard event study methodology, as in Brown & Warner (1980; 1985), has been used in this study.

An event study starts with the determination of the event, the event date, the event window, the estimation window & the estimation model. The demonetisation move of the Indian government is our Event and the event date (t) is 9th November, 2016. Although the demonetization was announced on 8th November 2016, the effective date has been considered here as 9th November 2016 because it was announced after trading hours. The event window is of 61 days from t_{-30} to t_{+30} days. The estimation window shall be a period just before the event window. In this case, it is of 60 days from t_{-90} to t_{-31} days. The estimation model for estimating the normal returns is the OLS regression model.

First of all, we have to find the daily abnormal returns in the event window. The abnormal return is the difference between the expected return and the actual return on the stock. The formula is as below:

$$AR_{jt} = R_{jt} - ER_{jt}$$

Where,

AR_{jt} is the abnormal return on security j on day t;

R_{jt} is the actual return on security j on day t; and,

ER_{jt} is the normal return on the security j on day t.

The actual return for the security is calculated by subtracting the previous day's price of a security from the price as on the day of calculation and dividing the difference by the previous day's price. The actual return for security j on day t, R_{jt} , is calculated as:

$$R_{jt} = \frac{P_{jt} - P_{jt-1}}{P_{jt-1}} \times 100$$

Where,

P_{jt} is the price of security j on day t; and,

P_{jt-1} is the price of security j on day t-1.

The normal return on the security j, ER_{jt} , is derived as:

$$ER_{jt} = \alpha + \beta(R_{mt})$$

Where,

α & β is calculated intercept and slope values with the help of regression model.

R_{mt} is the rate of return on market index on day t.

After the abnormal returns for each day in the event period has been calculated, the day-wise abnormal returns of each of the stocks in the sample are aggregated. The aggregated day-wise abnormal returns are then divided by the sample size. In this way, the average abnormal returns (AARs), AAR_t , for the event period of 61 days are calculated using the formula below:

$$AAR_t = \frac{1}{N} \sum_{j=1}^N AR_{jt}$$

Where,

N is the Sample size

Once the AARs are calculated, the daily cumulative AARs (CAARs), $CAAR_k$, is calculated using the following formula:

$$CAAR_k = \sum_{t=1}^k AAR_t$$

Now that the cross-sectional aggregation and time-series aggregation have been done and we have calculated the AARs and the CAARs during the event window, we need to test for their significance. To test for statistical significance of the AARs and the CAARs, we use the t-statistics. The t-statistics for AARs is calculated by dividing the AARs by the aggregate estimation period standard deviation of the daily abnormal returns and the t-statistics for CAARs is calculated by dividing the CAARs by the product of the aggregate estimation period standard deviation of the daily abnormal returns and the square root of the absolute value of corresponding event day plus 1. The following formula is used to calculate the pre-event standard deviation of daily abnormal returns:

$$\sigma_{j,est} = \sqrt{\frac{\sum_{-90}^{-31} (AR_{jt} - AAR_{est})^2}{n}}$$

Where,

$\sigma_{j,est}$ is the standard deviation of daily abnormal returns of the estimation period;
 AAR_{est} is the AAR on security j for the estimation period; and, n is the number of days in the estimation period

Now, the aggregate estimation period standard deviation, $\sigma_{N,pre}$ is calculated as follows:

$$\sigma_{N,est} = \sqrt{\frac{\sum_{i=1}^N \sigma_{i,est}^2}{N^2}}$$

As discussed earlier, the t-statistics for AARs is calculated as:

$$t_{AARt} = \frac{AAR_t}{\sigma_{N,est}}$$

Similarly, the t-statistics for CAARs is calculated as:

$$t_{CAARt} = \frac{AAR_t}{\sigma_{N,est} \sqrt{N_{t+1}}}$$

Where,

N_{t+1} is the absolute value of event day t plus 1

Thus, the t-values obtained will be used to test the hypothesis of the study.

The null hypothesis to be tested is that "on and around demonetization, abnormal returns are less than or equal to zero". If the AARs and the CAARs are found to be positive as well as significant, it indicates that the market reacted positively and the abnormal returns on the demonetization day and post-demonetization were more than those during the pre-demonetization period. If the t-test statistic lies between -1.96 to +1.96 or -2.58 to +2.58, the pertinent abnormal return is not significant at 5% or 1% levels of significance respectively.

Discussion

Table 1 depicts the descriptive statistics of the daily AARs during the event window. The mean AAR for the sample is 0.03 with a maximum of 2.86, a minimum of -1.68 and a standard deviation of 0.74. The sample distribution is positively skewed which means that it is right-tailed and the probability for extremely negative outcomes is less. The kurtosis of 3.21 also indicates that the

distribution is leptokurtic, i.e., the tails are fatter and the risk of extreme outcomes is low.

Table 1: Descriptive statistics of the AARs during the event window

Mean	Median	Standard Deviation	Standard Error	Skewness	Kurtosis	Min.	Max.
0.03	-0.05	0.74	0.10	0.85	3.21	-1.68	2.86

Table 2 presents the daily AARs, the CAARs and the corresponding t-values for the event window period, i.e., t-30 to t+30 days. The empirical results depict that a negative AAR is experienced on 16 trading days during the pre-demonetization period of 30 days and 17 trading days during the post-demonetisation (including the effective date of demonetisation) period of 31 days. However, during a shorter period, i.e., t-3 to t+3 days only one trading day has experienced a negative AAR while on the rest of the 6 trading days, the AARs are positive. Further, for the observations before the demonetization, no significant AAR is noticed while during the post-demonetization period, significant average abnormal returns are noticed. While significant AARs at 5% confidence level are observed on t+3 and t+28 days, the AARs on the effective day t, t+1, t+7 and t+12 are significant at 1% level. This infers that during the post-demonetization period the banking sector stocks have earned significant abnormal returns. The empirical results also infer that the CAARs during the period t-30 to t-2 days are not significant while those during the period from t-1 to t+11 days are significant. While the CAAR on t-1 day is significant at 5% level, the CAARs on t to t+11 days are significant at 1% level. The positive, increasing and significant CAARs from t-1 to t+11 days indicate that the market reacted optimistically to the demonetization move.

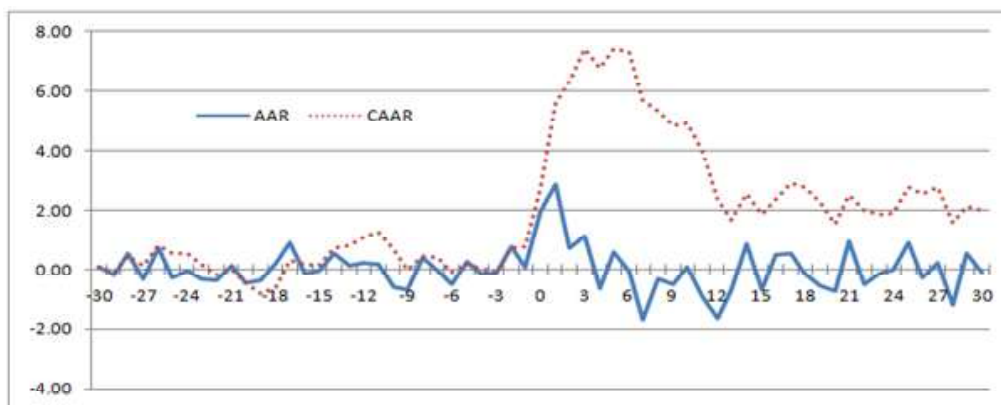


Fig. 1: AARs and CAARs for the event window (t-30 to t+30) days period

Table 2: Daily AARs, CAARs and t-values for the pre & post-demonetization period

Days	Pre-Demonetization Period			Post-Demonetization Period			CAAR	t _{CAAR}
	AAR	t _{AAR}	T _{CAAR}	Days	AAR	t _{AAR}		
t-30	0.09	0.17	0.30	t	1.95	3.74**	3.51	6.755**
t-29	-0.20	-0.38	0.24	t+1	2.86	5.50**	6.37	8.667**
t-28	0.55	1.05	0.44	t+2	0.72	1.39	7.10	7.878**
t-27	-0.31	-0.59	0.33	t+3	1.11	2.14*	8.21	7.894**
t-26	0.71	1.36	0.60	t+4	-0.63	-1.20	7.58	6.522**
t-25	-0.27	-0.53	0.51	t+5	0.60	1.16	8.19	6.428**
t-24	-0.04	-0.08	0.50	t+6	-0.05	-0.09	8.14	5.917**
t-23	-0.33	-0.64	0.38	t+7	-1.68	-3.24**	6.46	4.390**
t-22	-0.35	-0.68	0.25	t+8	-0.33	-0.64	6.12	3.925**
t-21	0.15	0.28	0.31	t+9	-0.50	-0.96	5.62	3.420**
t-20	-0.45	-0.86	0.13	t+10	0.09	0.18	5.72	3.315**
t-19	-0.36	-0.69	-0.02	t+11	-0.91	-1.75	4.81	2.669**
t-18	0.22	0.42	0.08	t+12	-1.66	-3.18**	3.15	1.681
t-17	0.93	1.78	0.50	t+13	-0.70	-1.35	2.45	1.260
t-16	-0.12	-0.24	0.46	t+14	0.86	1.65	3.31	1.644
t-15	-0.04	-0.09	0.45	t+15	-0.66	-1.27	2.65	1.273
t-14	0.56	1.08	0.74	t+16	0.51	0.98	3.16	1.473
t-13	0.12	0.23	0.83	t+17	0.54	1.03	3.69	1.675

Contd....

Figure1 presents the AARs and the CAARs for the t-30 to t+30 days. It clearly depicts that the AARs and CAARs before the demonetization followed a similar trend and even overlapped each other. However, just from the day of demonetization, the CAARs rose drastically for a few days in a big M pattern. Also the AARs and the CAARs after the demonetization never overlapped each other and there existed some gap between them. This infers that the demonetization had a positive impact on the banking sector stocks that lead to consistent positive CAARs during the post-demonetization period of 30 days.

Table 3 presents the AARs and the CAARs for the period around the demonetization. Event period of 15 days, 7 days and 3 days are studied from days -7 to +7, -3 to +3 and -1 to +1 respectively. It is noticed that the AARs during the short period of 3 days and 7 days period including few days' pre and post-demonetization, are high and significant. The CAARs during the 3 days, 7 days and 15 days period including few days' pre and post-demonetization, are high and significant at 1% level. Pre and post-event period of 10 days, 7 days and 3 days are studied from days -10 to -1, -7 to -1, -3 to -1, 0 to +2, 0 to +6 and 0 to +9 respectively. The AARs during the pre-demonetization period, i.e., 10 days, 7 days and 3 days before demonetization, are not significant while the AARs during post-demonetization period of 3 days is significant. Even the CAARs during the pre-demonetization period, i.e., 10 days, 7 days and 3 days before demonetization, are not significant while the CAARs during post-demonetization period of 3 days, 7 days and 10 days are significant. Non-significant abnormal returns during pre-demonetization period infer that the market had no information leakage. Significant pre-event ARs and CARs indicate that information leaks in stock exchanges before the announcement (Ahsan, Chowdhury & Sarkar, 2013; Bhuvaneshwari & Ramya, 2014). The abnormal returns are significant in the shorter windows around demonetization. Shorter windows reveal the effects of announcements better than the longer windows (Babita, Prakash, & Shakila, 2012). The results, thus, infer that the market had no information before the announcement of demonetization and accordingly it reacted optimistically leading to abnormal returns.

Figure2 represents the AARs and CAARs for the 10 days, 7 days and 3 days from days -10 to -1, -7 to -1, -3 to -1, 0 to +2, 0 to +6 and 0 to +9 respectively around demonetisation. It is seen that as we move towards the demonetization day, both the AAR and the CAAR start rising and from the effective date the rise was tremendous. It indicates that abnormal returns were higher and positive since demonetization. It could also be inferred that the positive impact of demonetization over the banking sector stocks continued for a few days.

Table 3: AARs and CAARs around demonetization

Window Period	AAR	tAARt	CAAR	tCAARt
-7 to +7	0.35	0.67	5.24	2.60**
-3 to +3	1.05	2.02*	7.38	5.36**
-1 to +1	1.62	3.12**	4.87	5.41**
-10 to -1	-0.05	-0.10	-0.47	-0.29
-7 to -1	0.05	0.10	0.35	0.25
-3 to -1	0.24	0.46	0.73	0.81
0 to +2	1.84	3.54**	5.53	6.14**
0 to +6	0.94	1.81	6.57	4.78**
0 to +9	0.41	0.79	4.06	2.47*

* Significant at p value of 0.05. **Significant at p value of 0.01

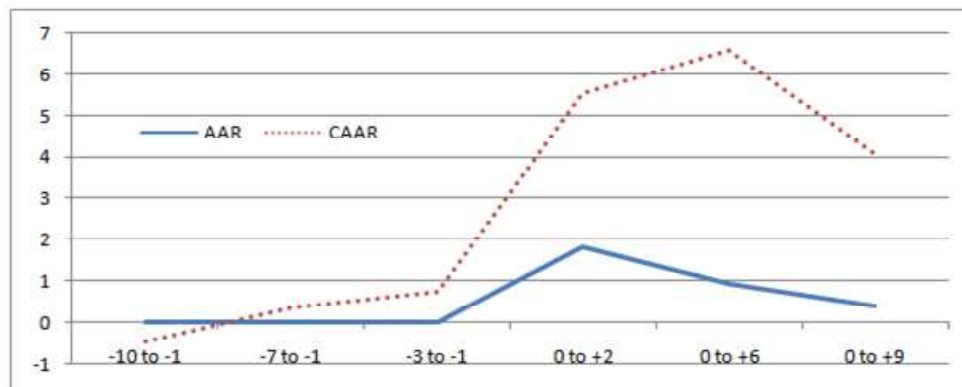


Fig. 2: AAR and CAAR around demonetization

Conclusion

Based on empirical findings, it seems that demonetization affected the banking sector stocks positively. Significant abnormal returns also confirm that information affects the stock returns and post-event period can be utilised by the investors for earning some abnormal returns. The presence of significant abnormal returns on the event day as well as the post-event period implies that the market had no information about demonetization previously (also supported by Pandey & Jaiswal, 2017; and, Bharadwaj, et. al., 2017).

The review of the literature reveals that very few studies have been conducted using event study methodology in India. The study emphasises the use of event study to analyse the impacts of demonetisation on banking sector stocks and

also provides a scope for further study in the field. Researchers may conduct further study with a bigger sample size increasing the scope with stocks of other sectors and aggregating some more events. We anticipate that the literature can be enhanced by the use of other test statistics and using other models of abnormal return.

REFERENCES

- Ataullah, A., Song, X., & Tippett, M. (2011). A modified Corrado test for assessing abnormal security returns. *The European Journal of Finance*, 17(7), 589-601. Retrieved from <http://dx.doi.org/10.1080/1351847X.2011.554294>
- Ahsan, A. F. M. M., Chowdhury, M. A. R., & Sarkar, A. H. (2014). An empirical study on market reaction around the bonus issues announcements in Bangladesh. *International Journal of Economics and Finance*, 6 (1), 82-98. DOI: <http://dx.doi.org/10.5539/ijef.v6n1p82> Retrieved from <http://ccsenet.org/journal/index.php/ijef/article/view/30892/19065>
- Babita, R., Prakash, P., & Shakila, B. (2012). Market reaction to bonus announcements: Empirical evidence from Bombay stock exchange. *Adarsh Journal of Management . Research* Retrieved from <http://www.adarshjournals.in/index.php/ajmr/article/download/88336/67326>
- Bharadwaj, Et. al. (2017). Impact of demonetization on Indian stock market. *International Journal of Management*, 8 (3), 75-82. Retrieved from http://www.iaeme.com/MasterAdmin/Journal_uploads/IJM/VOLUME_8_ISSUE_3/IJM_08_03_007.pdf
- Bhuvaneshwari, K. & Ramya, K. (2014). Impact of stock split announcement on stock prices. *International Journal of Management*, 5(3), 36-46. Retrieved from <http://www.iaeme.com/MasterAdmin/uploadfolder/10120140503004/10120140503004.pdf>
- Brown, S. J., & Warner, J. B. (1980). Measuring security price performance. *Journal of Financial Economics*, 8(3), 205-258. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.553.4024&rep=rep1&type=pdf>
- Brown, S. J., & Warner, J. B. (1985). Using daily stock returns, the case of event studies. *Journal of Financial Economics*, 14(1), 3-31. Retrieved from <http://leeds-faculty.colorado.edu/bhagat/brownwarner1985.pdf>
- Cai, F., Joo, H., & Zhang, Z. (2009). The impact of macroeconomic announcements on real time foreign exchange rates in emerging markets. *International Finance Discussion Papers*, No. 973, May 2009. Retrieved from <https://www.federalreserve.gov/pubs/ifdp/2009/973/ifdp973.pdf>

- Campbell, J. Y., Lo, A. W., and A. C. MacKinlay, A.C.(1997). The econometrics of financial markets. Princeton University Press. Available online at: <https://www.nrc.gov/docs/ML1208/ML12088A329.pdf>
- Chauhan, S., & Kaushik, N. (2017). Impact of demonetization on stock market: Event study methodology, *Indian Journal of Accounting*, XLIX(1), 127-32. Retrieved from <http://indianaccounting.org/downloads/17%20%20%20Swati%20Chauhan%20%20Nikhil%20Kaushik.pdf>
- Corrado, C. J. (1989). A nonparametric test for abnormal security-price performance in event studies. *Journal of Financial Economics*, 23, 385-95. Retrieved from [https://doi.org/10.1016/0304-405X\(89\)90064-0](https://doi.org/10.1016/0304-405X(89)90064-0)
- Corrado, C. J., & Zivney, T. L. (1992). The specification and power of the sign test in event study hypothesis tests using daily stock returns. *Journal of Financial and Quantitative Analysis*, 27, 465-78. DOI: 10.2307/2331331
- Cowan, A.R. (1992). Nonparametric event study tests. *Review of Quantitative Finance and Accounting*, 2, 343-358. Retrieved from <https://doi.org/10.1007/BF00939016>
- Dash, S. D., & Bagha, P. (2017). Impact of demonetization on stock price movements in banking sector of India, *International Journal of Research and Scientific Innovation*, IV(VIIS), 33-36. Retrieved from <https://www.rsisinternational.org/IJRSI/Issue44/33-36.pdf>
- Demonetization: Impact on the Economy (2016, November, 14). NIPFP Working Paper no. 182. Retrieved from http://www.nipfp.org.in/media/medialibrary/2016/11/WP_2016_182.pdf
- Deodhar, R. P. (2016). Black money and demonetization (November 14, 2016). Retrieved from <https://ssrn.com/abstract=2869172>
- Ganesan, G., & Gajendranayagam, B. (2017). Impact of demonetization on Indian economy, *International Journal of Applied Research*, 3(9), 433-36. Retrieved from <http://www.allresearchjournal.com/archives/2017/vol3issue9/PartG/3-8-156-693.pdf>
- Gumus, Et.al. (2011). The impact of domestic and foreign macroeconomic news on stock market volatility: Istanbul stock exchange. *Bogazici Journal*, 25(1), 123-37. Retrieved from <http://www.serialsjournals.com/serialjournalmanager/pdf/1470724804.pdf>
- Here is what PM Modi said about the new Rs 500, Rs 2000 notes and black money (2016, November, 8). *India Today*. Retrieved from <http://indiatoday.intoday.in/story/live-pm-narendra-modi-addresses-nation/1/805755.html>.
- Kolari, J. W., & Pynnonen, S. (2010). Event study testing with cross-sectional correlation of abnormal returns. *The Review of Financial Studies*, 23(11), 3996-4025. Retrieved from <https://doi.org/10.1093/rfs/hhq072>

- Kolari, J. W., & Pynnonen, S. (2011). Nonparametric rank tests for event studies. *Journal of Empirical Finance*, 18(5), 953-971. Retrieved from <https://doi.org/10.1016/j.jempfin.2011.08.003>
- Kothari, S. P. & Warner, J. B. (2006). Econometrics of event studies. Handbook of Corporate Finance: Empirical Corporate Finance, B. Espen Eckbo (ed.). Retrieved from <http://www.bu.edu/econ/files/2011/01/KothariWarner2.pdf>
- Kumar, A (2016). Economic consequences of demonetization: Money supply and economic structure. *Economic & Political Weekly*, LII(1), 14-17. Retrieved from http://www.epw.in/system/files/pdf/2017_52/1/CM_LII_1_07012017_Arun_Kumar.pdf
- Malhotra, M., Thenmozhi. M., & Kumar, G. A. (2007). Stock market reaction and liquidity changes around bonus issue announcement: Evidence from India. 10th capital markets conference, Indian Institute of Capital Markets Paper. Retrieved from <http://ssrn.com/abstract=962830>
- Mehndiratta, N. & Gupta, S. (2010). Impact of dividend announcement on stock prices. *International Journal of Information Technology and Knowledge Management*, 2(2), 405-10. Retrieved from <http://csjournals.com/IJITKM/PDF%203-1/47.pdf>
- Miglani, P. (2011). An empirical analysis of impact of right issues on shareholders returns of Indian listed companies. *Journal of Arts, Science & Commerce*, II (4), 169-76. Retrieved from www.researchersworld.com/vol2/issue4/Paper_19.pdf
- Mishra, A. K. (2005). An empirical analysis of market reaction around the bonus issues in India. Retrieved from <https://core.ac.uk/download/pdf/9315482.pdf>
- Muthukamu, M. & Rajamohan, S. (2015). Stock price reaction to bonus issue – evidence from Indian equity market. *International Academic Research Journal of Economics and Finance*, 3(4), 32-41. Retrieved from <https://acrpublish.com/article/publishedarticles/02102015IARJEF232.pdf>
- Nikkinen, J., Omran, M., Sahlström, P., & Äijö, J. (2006). Global stock market reactions to scheduled U.S. Macroeconomic News Announcements, *Global Finance Journal*, 92-104. Retrieved from http://www.egx.com.eg/pdf/global_us_gfj.pdf
- Note ban: J&K sees 60% dip in terrorism-related violence, hawala operations down 50%. (2017, January, 07). *Times of India*. Retrieved from <http://timesofindia.indiatimes.com/india/note-ban-jk-sees-60-dip-in-terrorism-related-violence-hawala-operations-down-50/articleshow/56385244.cms>
- Pandey, D. K., & Jaiswal, A. K. (2017). Impacts of demonetization on Indian stock market- An empirical study, *Barkaat Journal of Finance AI& Management*, 9 (2), 46-66. DOI: <http://dx.doi.org/10.5958/2229-4503.2017.00015.7>

- Roychoudhury, A. (2017, January, 05). 94% of demonetised notes have been deposited back in banks. *Business Standard*. Retrieved from http://www.business-standard.com/article/economy-policy/94-of-demonetised-notes-have-been-deposited-back-in-banks-117010401187_1.html
- Rs 4,172 cr dirty money recovered since Nov 8, Rs 105 cr seized in new notes. (2016, December, 30). *India TV News*. Retrieved from <http://www.indiatvnews.com/business/india-rs-4-172-cr-dirty-money-recovered-since-nov-8-rs-105-cr-seized-in-new-notes-363023>
- Saini, A. & Minakshi (2016). Impact of devaluation of Chinese Yuan on Global Stock Markets. *IJABER*, 14(7), 5309-16. Retrieved from <http://www.serialsjournals.com/serialjournalmanager/pdf/1470724804.pdf>
- Shariff, A & Khan, A. U. (2016, November, 16). Why demonetization will not eliminate black money or corruption. *The Wire*. Retrieved from <https://thewire.in/80319/demonetization-will-not-eliminate-black-money-or-corruption/>