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An Empirical Investigation of Day of the Week Effect and Volatility in Nifty Sectoral Indices

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ABSTRACT

The present study is an empirical investigation of day of the week effect and volatility across Nifty Sectoral Indices of NSE for the period from 2013 to 2017.The existence of day of the week effect in Indian stock market and volatility was measured using various statistical tools and econometric tool like descriptive statistics, Unit Root test, Generalized Auto Regressive Conditional Hetroscedasticity (GARCH) Model. The required analyses were performed using statistical software E-views and Microsoft Excel. The concluded that for the selected period of study, the mean return for Nifty Auto Index has been highest, followed by Nifty Private Bank Index and Nifty Bank Index. Highest return was witnessed on Monday in case of Nifty Auto, Nifty Media, Nifty Metal, Nifty Realty and on Friday in case of Nifty Bank, Nifty Financial Services, Nifty IT, Nifty Pharma, Nifty Private Bank, Nifty PSU Bank. The Augmented Dickey-Fuller Test suggests that there exists no unit root in the data and the data are stationary.

Keywords: Calendar Anomaly, Day-of-the-week effect, Volatility, GARCH.

INTRODUCTION:

The present paper documents seasonality in Nifty sectoral indices in different trading days in the Indian stock market i.e. known as Day-of-the-Week effect. In financial markets, anomalies refer to situations when a security or group of securities performs contrary to the notion of efficient markets, where security prices are said to reflect all available information at any point in time. Calendar anomaly is a phenomena in the financial market in which returns on stocks or stock indices are found abnormal. Calendar anomalies state that, the stock return is abnormally high on some specific day, period or point of time. Day of the week effect is one of the most common calendar anomaly found in the financial market. This anomaly states that, returns on stocks and stock indices are not same for all the trading days of the week. The day-of-the-week effect is an example of a calendar anomaly where the daily mean return differs across the days of the week. It is noticed in previous studies that, average return on Monday are lower than the average returns on other trading days of the week. On the other hand, it is also found that, returns on Friday are higher than the return on other trading days of the week. Though, such observations are not same throughout the world. Some study (Sanjeeta, 2011; Mitra, 2016) revealed that the day of the week effect do not exist in the Indian Stock Market and therefore market can be considered as informationally efficient. The non-existence of anomalies may not provide opportunities to formulate profitable trading strategies so as to earn the abnormal return and can adopt a fair return for risk strategy.

LITERATURE REVIEW:

Tajinder Jassal and Babli Dhiman (2017) analysed stocks of eleven sectors for calendar anomalies. Study showed that there was Friday effect in both banking and Private sector banking Indices. Wednesday was found positive and significant for FMCG and Pharma Sector returns. Monday and Tuesday returns were positive and

significant for FMCG and Private sector banking indices. Other Sector followed random walk behavior and there was no negative Week day in the market. The empirical results derived from the GARCH models indicate the existence of day-of-the-week effects on stock returns and volatility of the Indian stock markets.

Srinivasan P. and Kalaivani M. (2013) investigated empirically the day-of-the-week effect on stock returns and volatility of the Indian stock markets. The GARCH (1,1), EGARCH (1,1) and TGARCH (1,1) models were employed to examine the existence of daily anomalies.The empirical results derived from the GARCH models indicated the existence of day-of-the-week effects on stock returns and volatility of the Indian stock markets. The study reveals positive Monday and Wednesday effects in the NSE-Nifty and BSE-SENSEX market returns. The average return on Monday was found significantly higher than the average return of Wednesday in the NSE-Nifty and BSE-SENSEX markets. Moreover, the asymmetric GARCH models show that the Indian stock market returns exhibit asymmetric (leverage) effect. The empirical results also showed that Tuesday effects have negative impact on volatility after controlling the persistence and asymmetric effects.

Vandana Khanna (2014) in her paper titled 'An Analysis of Day-of-the-Week Effect in Indian Stock Market' revealed that the average returns on Sensex of all the trading days are not identical, which confirms the presence of Day-of-the-Week anomaly, which refutes the Efficient Market Hypothesis (EMH). The results also showed that the presence of maximum average positive returns on Tuesday.

Sanjeeta Sharma (2011) study showed that the day of the week effect do not exist in the Indian Stock Market and this market can be considered as informationally efficient. Monday Effect and Friday Effect were also found insignificant while comparing Friday and Monday returns with other days mean returns. The period of the study was two years.

Papia Mitra (2016) paper had incorporated the GARCH model specifications where a conditional variance term was included to eliminate the problem of heteroscadasticity of the residual term. The empirical results suggested that there exists no Day-of-the-Week effect on the stock return of Sensex and Nifty indexes. However, the volatility on Tuesday was statistically significant to explain the variation in the expected stock return.

Prateek Verma (2016) in their paper investigated the Day of the Week Effect in BSE Bankex. The index has been analyzed for 10 years from 2005 April 1 to 2015 March 31. The study applies various different tools like dummy variable regression, ANOVA to examine the Day of the Week Effect. The study found that significant day of week effect does not exist in BSE Bankex; as a result abnormal profit cannot be generated.

Lutfur Rahman (2009) paper examines the presence of day of the week effect anomaly in Dhaka Stock Exchange (DSE). Several hypotheses have been formulated; dummy variable regression and the GARCH (1, 1) model were used in the study. The result indicates that Sunday and Monday returns are negative and only positive returns on Thursdays are statistically significant. Result also reveals that the mean daily returns between two consecutive days differ significantly for the pairs Monday-Tuesday, Wednesday-Thursday and Thursday-Sunday. Result also shows that the average daily return of every working day of the week is not statistically equal. Dummy variable regression result shows that only Thursdays have positive and statistically significant coefficients. Results of GARCH (1, 1) model show statistically significant negative coefficients for Sunday and Monday and statistically significant positive coefficient for Thursday dummies. The conclusion of all the findings is that significant day of the week effect present in DSE.

METHODOLOGY:

Source and Collection of Data:

This study is completely based on secondary data. The required data has been extracted from the official website of National Stock Exchange, India. The period of the study is five years that is, from 1 January 2013 to 31 December 2018. Eleven stock indices are used to represent eleven different sectors. These sectors include Auto, Bank, Finance, FMCG, IT, Pharma, Private Bank, Media, Metal, PSU banks and Realty Sector. The stock returns of 11 sectoral indices of NSE are computed with the help of daily closing prices using the formula:

$$R_t = LN\ (P_t\ /P_{t-1})$$

where P_t is the closing price of the index in t-th period and P_{t-1} is the closing price of the index in (t-1)-th period. LN is the natural log of underlying market series. Thus it is evident from the formula that the returns are converted into logs for the normality purpose.

Statistical Techniques:

Daily returns have been calculated for the variables by taking the logarithm of the daily closing prices of Auto, Bank, Energy, Finance, FMCG, IT, Pharma, Media, Metal, PSU banks and Realty Sector. The statistical techniques like Unit root test, Descriptive statistics and Generalized Auto Regressive Conditional

Hetroscedasticity (GARCH) Model were used for the purpose of analysis. The study also provides summary statistics across the sectoral indices and days of the week. The variables analysed under summary statistics include mean, standard deviation, kurtosis, skewness. Mean is used to measure the performance, that is, to identify highest returns among sectoral indices and days of the week and standard deviation to measure the amount of variation. The symmetry of data and its peakedness have been interpreted using skewness and kurtosis. Augmented Dickey–Fuller test (ADF) is used to tests the stationarity of time series data. The required analysis relating to descriptive statistics, stationarity and volatility have been done using MS Excel and E-views statistical software.

OBJECTIVES OF THE STUDY:

1. To investigate whether the Day-of-the-Week effect anomaly is existing in the Nifty Sectoral Indices

Hypothesis to be tested:

H_o1: The average daily return of every working day of the week is not statistically different from the rest of the days of the week.

H_o2: There is no significant difference in the average return on the stock indices across the days of the week.

H_o3: There is no significant difference in the volatility of the stock indices across the days of the week.

FINDINGS AND DISCUSSION:

Table 1 exhibits the results of summary statistics for Nifty sectoral indices. in statistics mean is considered as a measure of performance and higher mean value indicates higher return. For the selected period of study, the mean return for Nifty Auto Index has been highest, that is, 0.00072 followed by Nifty Private Bank Index and Nifty Bank Index, that is, 0.00066 and 0.00055 respectively. The lowest returns have been seen for Nifty Realty Index (0.00015) and Nifty Metal Index (0.00023). The study showed positive returns across the indices except Nifty PSU Bank Index, that is, -0.00003. The average daily returns for Nifty Financial Services Index, Nifty FMCG Index, Nifty IT Index, Nifty Media Index, Nifty Pharma Index were noticed to be 0.00053, 0.00049, 0.00053, 0.00053, 0.00033. The standard deviation signifies the variation in data. The present study witnessed high standard deviation in respect of returns for Nifty PSU Bank Index and Nifty Realty Index, that is, 0.2142 and 0.2162 respectively. The variations were found to be low for Nifty FMCG Index, that is, 0.01097. The standard deviation was least for Nifty Financial Services Index, Nifty IT Index, Nifty Pharma Index, that is, 0.01180, 0.01180 and 0.01166 respectively as compared to other sectoral indices. The positive skewness was noticed in case of Nifty Bank Index, Nifty Metal Index, Nifty Private Bank and Nifty PSU Bank Index and negative skewness in case of Nifty Auto Index, Nifty Financial Service Index, Nifty FMCG Index, Nifty IT Index, Nifty Pharma index, Nifty Media Index and Nifty Realty Index.

Augmented Dickey-Fuller Test:

Unit root test is used to test stationary of time series data. The Augmented Dickey-Fuller Test is used in this regard. In order to use GARCH model, data selected for the study period need to be stationary. If the Augmented Dickey-Fuller (ADF) statistics is less than its critical value and p-value is less than 0.05 then the null hypothesis is rejected and the series is said to be stationary.

The hypothesis for testing stationary of the series using ADF test is:

H_0: There is presence of unit root in the series.

The probability value from the above table 2 indicates that Nifty Sectoral Indices at 5% level of significance are stationary at level. This leads to rejection of null hypothesis, thereby proving data is stationary at level.

Generalized Auto Regressive Conditional Heteroscedasticity (GARCH) Model:

In order to analyze and forecast volatility the GARCH model is of utmost important. GARCH captures volatility clustering of time series data. Day of the effect is examined using dummy variables in the model D1, D2, D3, D4, D5 representing “Monday, Tuesday, Wednesday, Thursday, Friday”. For examining the “Day of the week effect” all the days are taken in model without Constant term. It is done to deal with problem of Dummy trap and multicollinearity. The presence of “Day of the week effect” will establish when coefficient of at least one of the dummy variable is statistically significant (Tajinder Jassal and Babli Dhiman, 2017). The results will also provide evidence whether these anomalies are homogeneous across the Nifty Sectoral Indices or it changes from sector to sector.

Investors invest in stock market with the objective of generating returns on their invested capital. Some

investors expect to earn not only normal return but also tries to outperform the market. Efficient market hypothesis decides the patterns of returns from the stock Market. Therefore market efficiency is one of the determining factor for investment opportunities in the "stock Market". Table (3) shows the results for "Day of the week effect" in eleven sectoral indices. Returns from Nifty Auto on Monday (0.001936), Nifty Financial Services on Friday (0.001639), Nifty IT Index on Friday (0.001639), Nifty Media Index on Monday (0.002347), Nifty Realty Index on Monday (0.002595) were found positive and statistically significant at five per cent level of Significance. The study noticed a negative return for Nifty PSU Bank Index on Tuesday (-0.00409). Returns from FMCG, Metal, Pharma, Private Bank, Banking sector were not found statistically significant. Evidence shows the presence of "Day of the week effect" in an Indian Stock Market. However "Day of the week effect" is not present in all the sectors. It could be possible that the Indian stock market is getting efficient. However Monday and Friday effect is still present in Indian stock market and it is possible that Monday returns could be Accumulated Saturday and Sunday returns. Friday Anomaly is only present in Finance and IT sector. It might possible that investor might want to invest in the stock market on information's available to him during whole week before the start of next week. Monday is also found positive and significant at 5 per cent level of significance for Auto, Media and Realty sector. Tuesday is found negative only in PSU banking sector. ARCH and GARCH effect was found present in almost all the sectors indicating the strong effect of previous period News on current stock prices as well volatility. Only in case of Nifty Financial Services Index and Nifty IT Index GARCH effect was not found statistically significant.

CONCLUSION:

It is evident from the study that for the selected period of study, the mean return for Nifty Auto Index has been highest, followed by Nifty Private Bank Index and Nifty Bank Index. The lowest returns have been seen for Nifty Realty Index and Nifty Metal Index. The study showed positive returns across the indices except Nifty PSU Bank Index. Highest return was witnessed on Monday in case of Nifty Auto, Nifty Media, Nifty Metal, Nifty Realty and on Friday in case of Nifty Bank, Nifty Financial Services, Nifty IT, Nifty Pharma, Nifty Private Bank, Nifty PSU Bank. The present study witnessed high standard deviation in respect of returns for Nifty PSU Bank Index and Nifty Realty Index. The variations were found to be low for Nifty FMCG Index. Monday and Friday effect is still present in Indian stock market and it is possible that Monday returns could be Accumulated Saturday and Sunday returns. Friday Anomaly is only present in Finance and IT sector. It might possible that investor might want to invest in the stock market on information's available to him during whole week before the start of next week. Monday is also found positive and significant at 5 per cent level of significance for Auto, Media and Realty sector. Tuesday is found negative only in PSU banking sector. ARCH and GARCH effect was found present in almost all the sectors indicating the strong effect of previous period News on current stock prices as well volatility. Only in case of Nifty Financial Services Index and Nifty IT Index GARCH effect was not found statistically significant. The changes in return are also confirmed by time series plot shown in Appendix 1. From time series plot it can be inferred that the returns for almost all sectoral indices are fluctuative in nature.

The present study faced the limitation with regards to the period of study which is only five years. There exists the scope for further research, that is, the period of the study can be extended to accumulate more number of years. Even the study can be conducted for stock exchanges by considering other market anomalies like month effect.

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Table 1: Descriptive Statistics for the Nifty Sectoral Indices

Indices	Mean	Std. Deviation	Kurtosis	Skewness	Minimum	Maximum	Sum	Count
N Auto Index	0.00072	0.01171	2.62091	-0.25467	-0.07534	0.05808	0.88584	1231
N Bank Index	0.00055	0.01377	3.63859	0.05495	-0.07146	0.09037	0.67252	1231
N Financial Services Index	0.00053	0.01180	14.01535	-0.70274	-0.12490	0.08922	0.64742	1231
N FMCG Index	0.00049	0.01097	3.35556	-0.29014	-0.06969	0.05243	0.60381	1231
N IT Index	0.00053	0.01180	14.01535	-0.70274	-0.12490	0.08922	0.64742	1231
N Media Index	0.00053	0.01354	1.87075	-0.26049	-0.08393	0.05184	0.64856	1231
N Metal Index	0.00023	0.01634	1.86995	0.02502	-0.07306	0.09387	0.28106	1231
N Pharma Index	0.00033	0.01166	2.65737	-0.48898	-0.07241	0.04981	0.40696	1231
N Private Bank Index	0.00066	0.01370	4.53003	0.03992	-0.06897	0.09754	0.81720	1231
N PSU Bank Index	-0.00003	0.02142	18.57222	1.58935	-0.09819	0.25949	-0.03282	1231
N Realty Index	0.00015	0.02162	2.80383	-0.47342	-0.12335	0.08093	0.18068	1231
Source: Compilation by Author								

Table 2: Stationarity Results of Nifty Sectoral Indices

Augmented Dickey-Fuller test statistic		
Variables	**t-Statistic**	**Prob.***
N Auto Index	-31.9321	0.0000
N Financial Services Index	-33.629	0.0000
N FMCG Index	-33.4887	0.0000
N IT Index	-33.629	0.0000
N Media Index	-34.6468	0.0000
N Metal Index	-33.795	0.0000
N Pharma Index	-32.0861	0.0000
N Private Bank Index	-25.8824	0.0000
N PSU Bank Index	-33.1396	0.0000
N Realty Index	-32.5747	0.0000
N Bank Index	-25.6284	0.0000
Test critical values:		
1% level	**5% level**	**10% level**
-3.965531	-3.41347	-3.12878
Source: Compilation by Author		

Table 3: Generalized Auto Regressive Conditional Heteroscedasticity (GARCH) Model

	Variable	Monday	Tuesday	Wednesday	Thursday	Friday	C	RESID (-1)^2	GARCH (-1)
N Auto Index	Coefficient	0.001936	0.000986	0.000631	0.000629	0.000909	1.08E-05	0.109061	0.816662
	Prob.	0.0077	0.1348	0.3453	0.363	0.1733	0.0001	0	0
N Financial Services Index	Coefficient	0.001017	3.91E-05	0.000443	-0.000748	0.001639	0.000113	0.241845	-0.013237
	Prob.	0.1884	0.9631	0.5666	0.2417	0.0089	0	0	0.8067
N FMCG Index	Coefficient	0.000492	0.000754	0.0005	0.000524	0.000126	5.01E-06	0.039784	0.918829
	Prob.	0.4218	0.2333	0.4906	0.4656	0.8542	0.0094	0	0
N IT Index	Coefficient	0.001017	3.91E-05	0.000443	-0.000748	0.001639	0.000113	0.241845	-0.013237
	Prob.	0.1884	0.9631	0.5666	0.2417	0.0089	0	0	0.8067
N Media Index	Coefficient	0.002347	-0.00061	0.000975	0.000748	0.000475	2.65E-05	0.088446	0.766488
	Prob.	0.004	0.4787	0.2269	0.3516	0.5682	0.0047	0	0
N Metal Index	Coefficient	0.001045	-0.00118	0.00023	0.000402	-0.00022	1.02E-05	0.058501	0.903818
	Prob.	0.278	0.2097	0.8212	0.6782	0.8171	0.0043	0	0
N Pharma Index	Coefficient	-0.0001	-0.00065	0.001117	0.000142	0.001251	3.61E-06	0.030338	0.943828
	Prob.	0.8872	0.3485	0.1407	0.8416	0.0702	0.0006	0	0
N Private Bank Index	Coefficient	0.001337	0.000164	0.000963	0.000543	0.001356	1.09E-06	0.047815	0.947228
	Prob.	0.0936	0.8248	0.1848	0.3978	0.0636	0.0121	0	0
N PSU Bank Index	Coefficient	0.000814	-0.00409	0.000225	-0.000115	0.001401	7.45E-05	0.234872	0.637821
	Prob.	0.5125	0.0007	0.8613	0.9213	0.2328	0	0	0
N Realty Index	Coefficient	0.002595	-0.00226	0.000715	0.000369	0.001256	9.59E-05	0.148317	0.652066
	Prob.	0.0335	0.0804	0.5841	0.7753	0.3399	0	0	0
N Bank Index	Coefficient	0.001306	-0.00031	0.001059	0.000537	0.00131	1.39E-06	0.047291	0.946197
	Prob.	0.1053	0.701	0.1291	0.4273	0.0775	0.0018	0	0

Source: Compilation by Author

Table 4: Day wise descriptive statistics for Nifty Sectoral Indices

NIFTY AUTO					
	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
Mean	0.001340	0.000552	0.000434	0.000427	0.000863
Median	0.002270	0.000679	0.000978	0.000677	0.001210
Maximum	0.043787	0.058084	0.035371	0.029517	0.038448
Minimum	-0.075337	-0.05291	-0.030736	-0.03813	-0.047196
Std. Dev.	0.012246	0.012417	0.011103	0.011256	0.011526
Skewness	-1.140935	0.229114	-0.002487	-0.158296	-0.149004
Kurtosis	9.144919	5.896834	3.603101	3.775717	4.208493
Jarque-Bera	436.8307	89.24183	3.804278	7.224405	15.49265
Probability	0.000000	0.000000	0.149249	0.026992	0.000432
Sum	0.327036	0.137404	0.108977	0.105400	0.207020
Sum Sq. Dev.	0.036439	0.038236	0.030817	0.031167	0.031751
Observations	244	249	251	247	240

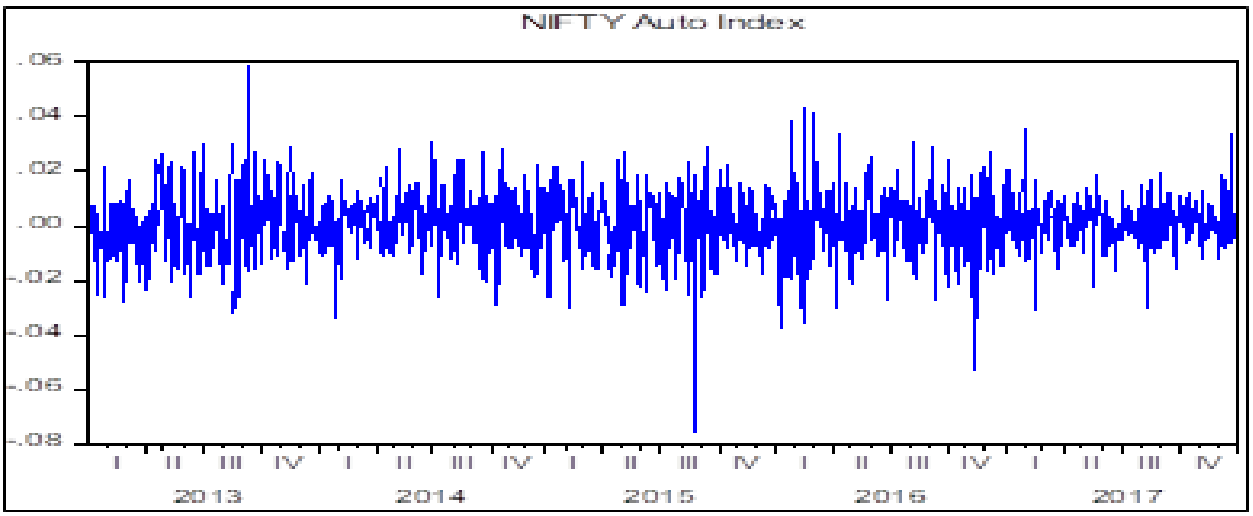
NIFTY BANK					
	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
Mean	0.000903	-0.00108	0.000534	0.000912	**0.001507**
Median	0.001256	-0.000491	-7.52E-05	0.000421	0.002034
Maximum	0.037324	0.042564	0.046071	0.090373	0.053253
Minimum	-0.071463	-0.055161	-0.047327	-0.041098	-0.059117
Std. Dev.	0.013338	0.013922	0.012207	0.014894	0.014340
Skewness	-0.765368	-0.493319	0.146995	1.050028	0.023426
Kurtosis	6.786634	5.234860	4.795475	9.066243	5.179101
Jarque-Bera	169.5978	61.91859	34.61877	424.1149	47.50678
Probability	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	0.220416	-0.268987	0.134077	0.225330	0.361689
Sum Sq. Dev.	0.043228	0.048068	0.037251	0.054572	0.049148
Observations	244	249	251	247	240
NIFTY FINANCIAL SERVICES					
	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
Mean	0.000628	-2.59E-06	0.000486	0.000253	**0.001292**
Median	0.001219	-0.000329	0.000215	-7.33E-05	0.001045
Maximum	0.027967	0.034327	0.026261	0.032211	0.089220
Minimum	-0.049155	-0.03583	-0.034286	-0.042912	-0.124903
Std. Dev.	0.011259	0.009577	0.010110	0.011468	0.015778
Skewness	-0.638321	0.294230	-0.105661	-0.426987	-1.233339
Kurtosis	5.342173	4.931392	3.711651	4.067028	23.66439
Jarque-Bera	72.34182	42.29432	5.763620	19.22296	4331.015
Probability	0.000000	0.000000	0.056033	0.000067	0.000000
Sum	0.153337	-0.000645	0.122108	0.062542	0.310075
Sum Sq. Dev.	0.030806	0.022748	0.025554	0.032355	0.059495
Observations	244	249	251	247	240
NIFTY FMCG					
	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
Mean	0.000669	0.000238	0.000295	**0.001056**	0.000194
Median	0.001046	0.000198	0.000780	0.001819	0.000868
Maximum	0.037964	0.052434	0.034211	0.032999	0.025253
Minimum	-0.047598	-0.069695	-0.033103	-0.034629	-0.039317
Std. Dev.	0.012087	0.012450	0.009965	0.009965	0.010167
Skewness	-0.365248	-0.3664	-0.032972	0.030385	-0.530841
Kurtosis	4.924504	9.547730	3.926829	4.244598	4.120972
Jarque-Bera	43.07964	450.3762	9.029318	15.98004	23.83746
Probability	0.000000	0.000000	0.010947	0.000339	0.000007
Sum	0.163311	0.059154	0.074070	0.260819	0.046461
Sum Sq. Dev.	0.035501	0.038443	0.024825	0.024429	0.024703
Observations	244	249	251	247	240

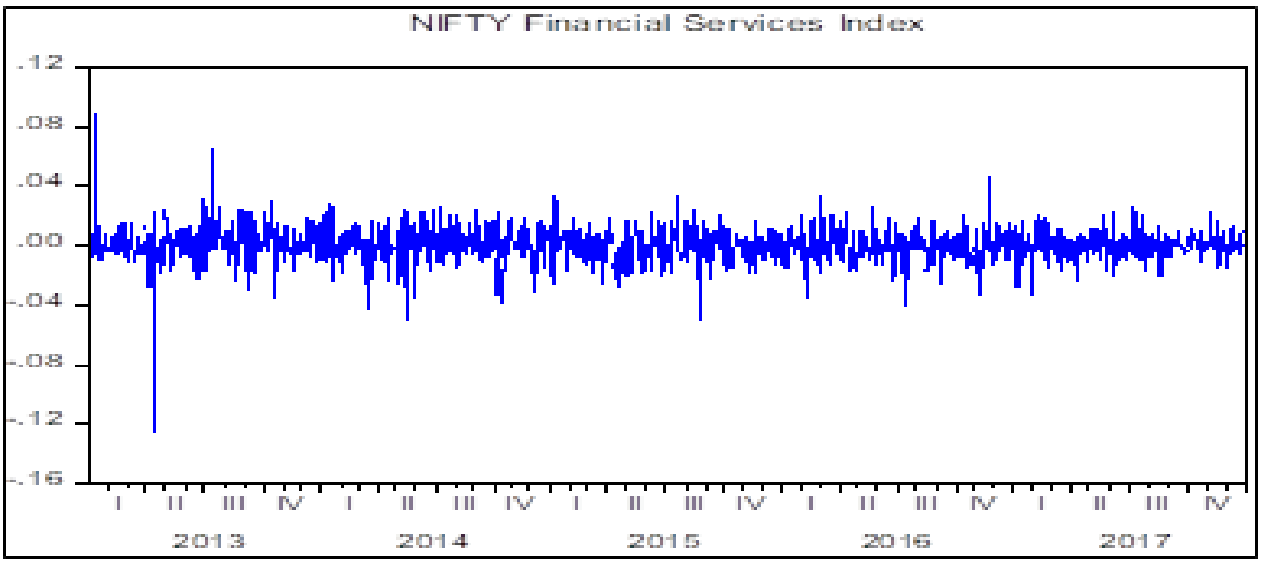
NIFTY IT					
	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
Mean	0.000628	-2.59E-06	0.000486	0.000253	**0.001292**
Median	0.001219	-0.000329	0.000215	-7.33E-05	0.001045
Maximum	0.027967	0.034327	0.026261	0.032211	0.089220
Minimum	-0.049155	-0.03583	-0.034286	-0.042912	-0.124903
Std. Dev.	0.011259	0.009577	0.010110	0.011468	0.015778
Skewness	-0.638321	0.294230	-0.105661	-0.426987	-1.233339
Kurtosis	5.342173	4.931392	3.711651	4.067028	23.66439
Jarque-Bera	72.34182	42.29432	5.763620	19.22296	4331.015
Probability	0.000000	0.000000	0.056033	0.000067	0.000000
Sum	0.153337	-0.000645	0.122108	0.062542	0.310075
Sum Sq. Dev.	0.030806	0.022748	0.025554	0.032355	0.059495
Observations	244	249	251	247	240
NIFTY MEDIA					
	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
Mean	**0.002275**	-0.001053	0.000673	0.000327	0.000443
Median	0.002564	0.000315	0.000388	0.000318	0.000899
Maximum	0.051835	0.046961	0.043700	0.050710	0.039501
Minimum	-0.083926	-0.045755	-0.031454	-0.03825	-0.045017
Std. Dev.	0.014335	0.013169	0.012729	0.013890	0.013434
Skewness	-0.795609	-0.329327	0.002234	0.175572	-0.332887
Kurtosis	8.304747	4.766563	3.214026	3.514685	3.671534
Jarque-Bera	311.8353	36.87868	0.479274	3.995264	8.942126
Probability	0.000000	0.000000	0.786914	0.135656	0.011435
Sum	0.555046	-0.262304	0.168875	0.080678	0.106268
Sum Sq. Dev.	0.049935	0.043007	0.040510	0.047460	0.043130
Observations	244	249	251	247	240
NIFTY METAL					
	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
Mean	**0.001318**	-0.001143	0.000539	0.000695	-0.000262
Median	0.000980	-0.000336	0.001180	0.000485	-0.000579
Maximum	0.093875	0.047315	0.041777	0.072704	0.043534
Minimum	-0.073064	-0.052049	-0.04412	-0.048447	-0.056275
Std. Dev.	0.017322	0.016720	0.015457	0.016570	0.015580
Skewness	0.198522	-0.27423	-0.058699	0.378741	-0.205661
Kurtosis	7.589667	3.486006	3.102468	4.857354	3.831509
Jarque-Bera	215.7640	5.571479	0.253951	41.40899	8.605925
Probability	0.000000	0.061683	0.880755	0.000000	0.013528
Sum	0.321631	-0.284597	0.135369	0.171618	-0.062957
Sum Sq. Dev.	0.072912	0.069334	0.059732	0.067543	0.058015
Observations	244	249	251	247	240

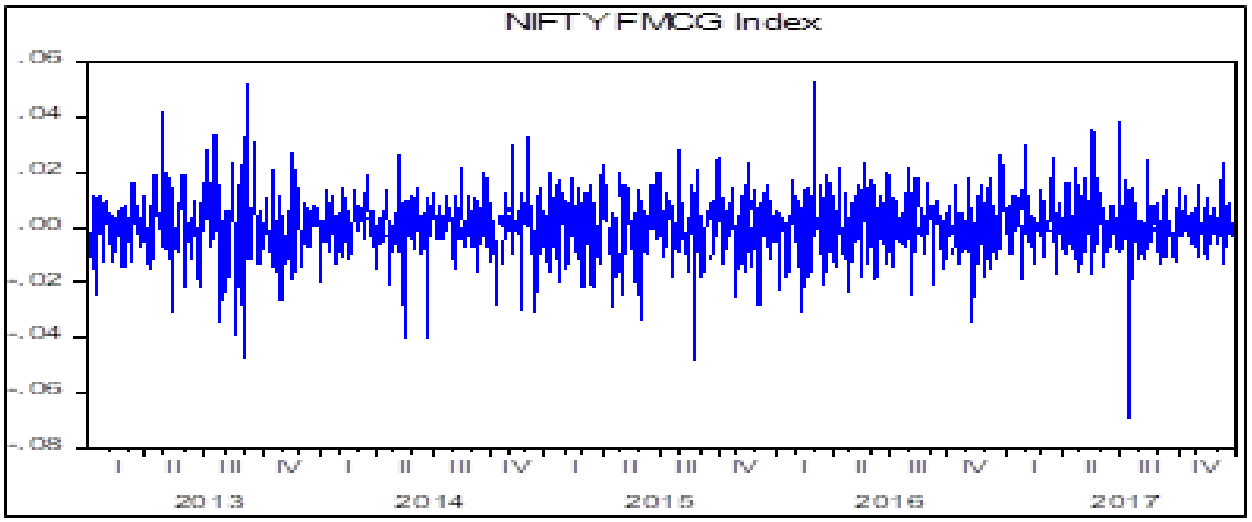
NIFTY PHARMA					
	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
Mean	-0.000111	-0.001004	0.001015	0.000415	**0.001362**
Median	0.000219	0.000282	0.001646	0.000626	0.001565
Maximum	0.049811	0.026201	0.030070	0.032711	0.038215
Minimum	-0.062547	-0.072412	-0.040202	-0.029778	-0.047712
Std. Dev.	0.012027	0.012012	0.011138	0.011420	0.011638
Skewness	-0.625241	-1.315593	-0.384027	0.171223	-0.096139
Kurtosis	6.704498	8.181486	3.963047	3.263346	4.513703
Jarque-Bera	155.4179	350.3735	15.86913	1.920638	23.28267
Probability	0.000000	0.000000	0.000358	0.382771	0.000009
Sum	-0.026968	-0.250104	0.254718	0.102393	0.326918
Sum Sq. Dev.	0.035150	0.035782	0.031012	0.032080	0.032371
Observations	244	249	251	247	240
NIFTY PRIVATE BANK					
	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
Mean	0.000918	-0.000666	0.000523	0.001157	**0.001426**
Median	0.001709	-0.000397	-0.000401	0.000734	0.001663
Maximum	0.033670	0.043275	0.040627	0.097545	0.053607
Minimum	-0.068968	-0.061941	-0.055103	-0.04045	-0.062321
Std. Dev.	0.013036	0.014327	0.012019	0.014948	0.014024
Skewness	-0.856223	-0.623589	-0.066723	1.264002	0.047245
Kurtosis	6.643152	6.164768	5.350290	10.53021	5.772412
Jarque-Bera	164.7511	120.0513	57.95662	649.3521	76.95196
Probability	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	0.223953	-0.165954	0.131281	0.285788	0.342133
Sum Sq. Dev.	0.041295	0.050909	0.036112	0.054970	0.047004
Observations	244	249	251	247	240
NIFTY PSU BANK					
	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
Mean	0.001125	-0.00269	0.000496	-0.000672	**0.001684**
Median	0.000615	-0.001344	-0.000149	-0.00044	3.08E-05
Maximum	0.091399	0.039945	0.259487	0.083642	0.078061
Minimum	-0.098185	-0.063638	-0.055328	-0.057939	-0.060577
Std. Dev.	0.021301	0.017751	0.025068	0.020523	0.021679
Skewness	-0.166724	-0.398693	4.519838	0.671553	0.231011
Kurtosis	6.281333	3.595747	47.40941	5.738252	3.824309
Jarque-Bera	110.5964	10.27891	21480.49	95.73267	8.929491
Probability	0.000000	0.005861	0.000000	0.000000	0.011508
Sum	0.274450	-0.669875	0.124440	-0.166028	0.404195
Sum Sq. Dev.	0.110258	0.078143	0.157106	0.103612	0.112329
Observations	244	249	251	247	240

NIFTY REALTY					
	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
Mean	0.001897	-0.002357	0.000477	0.000199	0.000566
Median	0.001993	0.000000	0.001188	0.001357	0.000848
Maximum	0.077205	0.066310	0.055164	0.079964	0.080930
Minimum	-0.117445	-0.094518	-0.123348	-0.072386	-0.077635
Std. Dev.	0.023281	0.020988	0.021234	0.021172	0.021325
Skewness	-0.416178	-0.683195	-0.974645	-0.185112	-0.179007
Kurtosis	6.518624	4.998911	7.646471	4.550372	4.688543
Jarque-Bera	132.9143	60.82515	265.5311	26.14823	29.79353
Probability	0.000000	0.000000	0.000000	0.000002	0.000000
Sum	0.462790	-0.58688	0.119723	0.049256	0.135786
Sum Sq. Dev.	0.131707	0.109247	0.112717	0.110275	0.108683
Observations	244	249	251	247	240
Source: Compilation by Author					

Appendix1: Graphical Representation of Time Series Plot of Nifty Sectoral Indices



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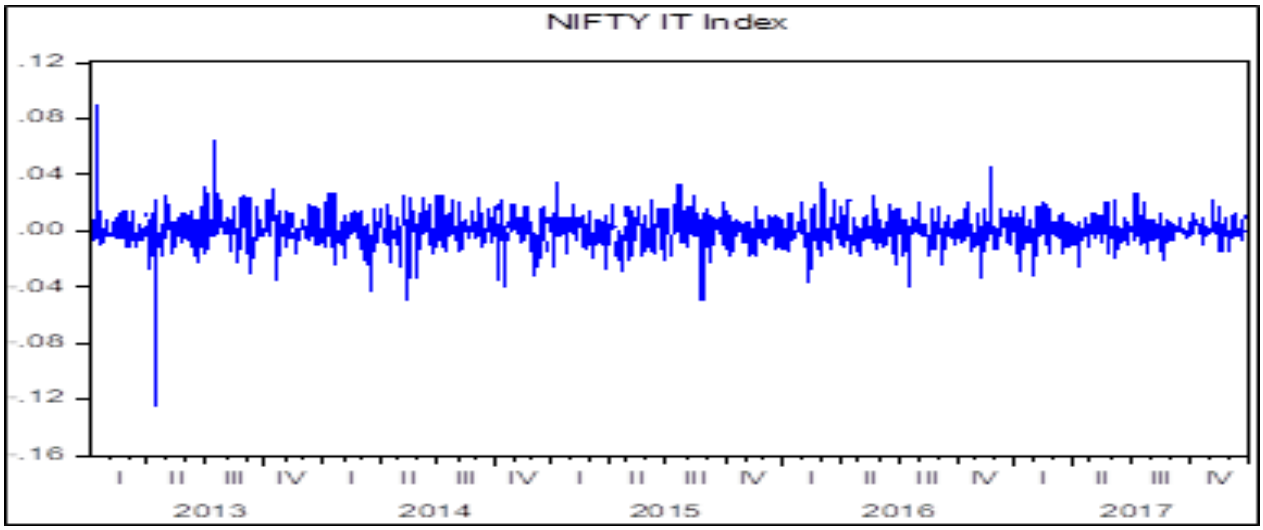
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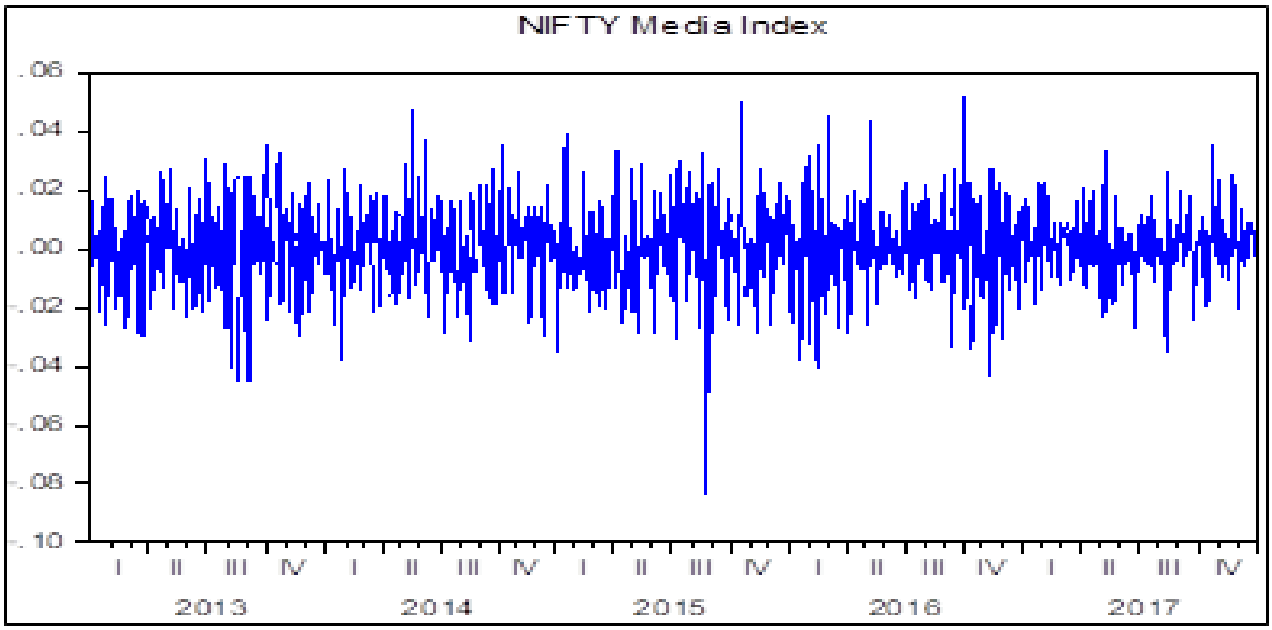
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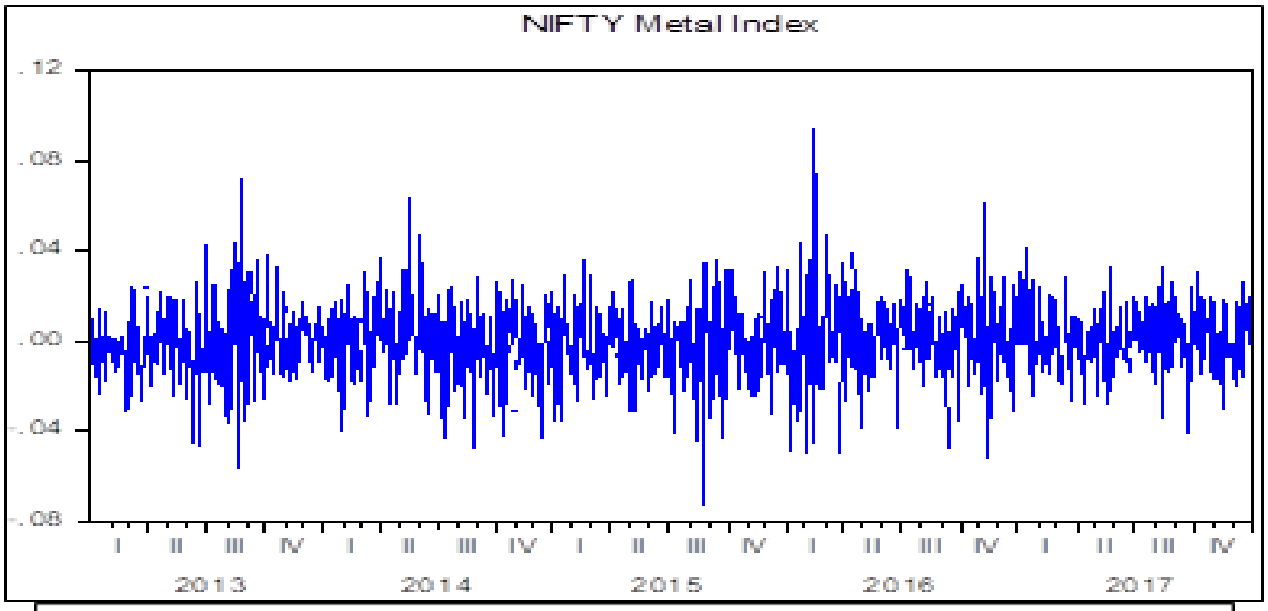
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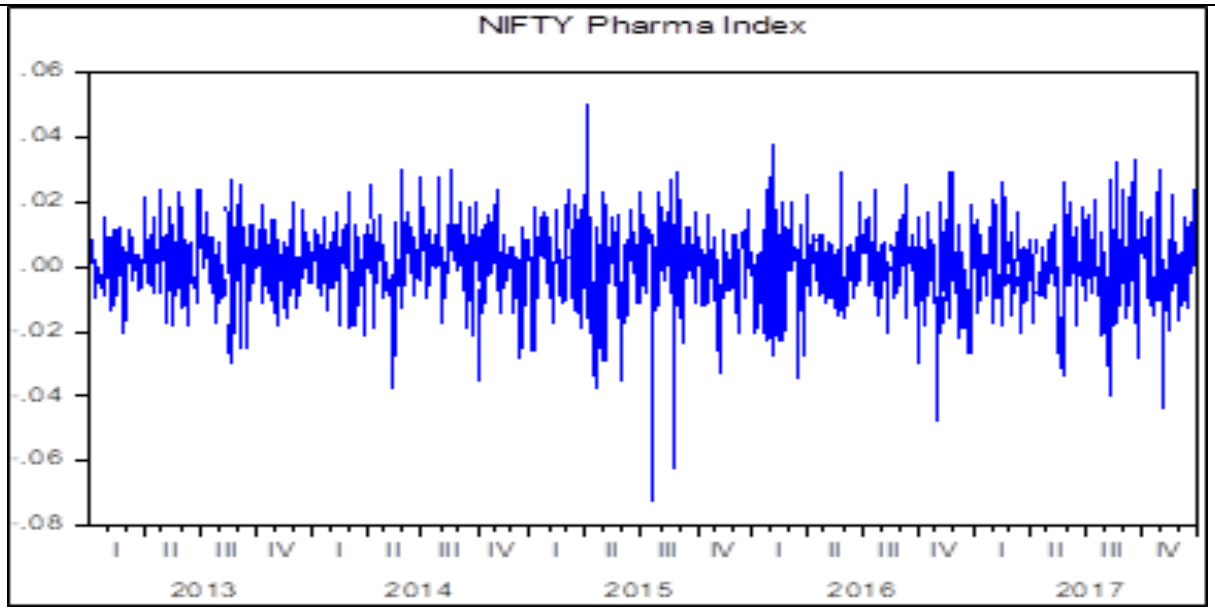
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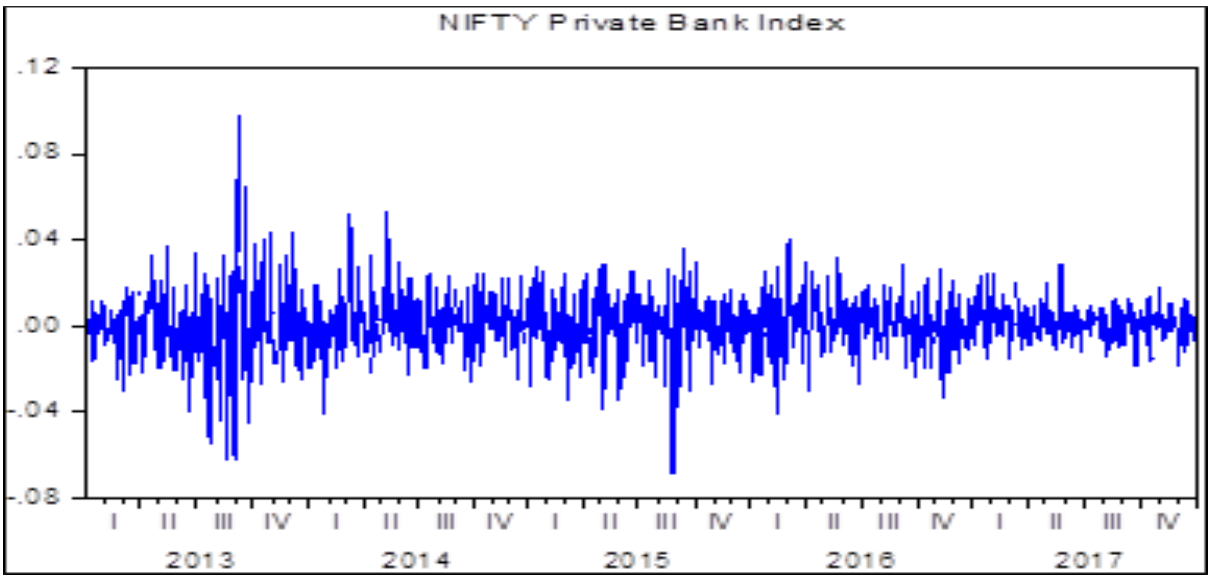
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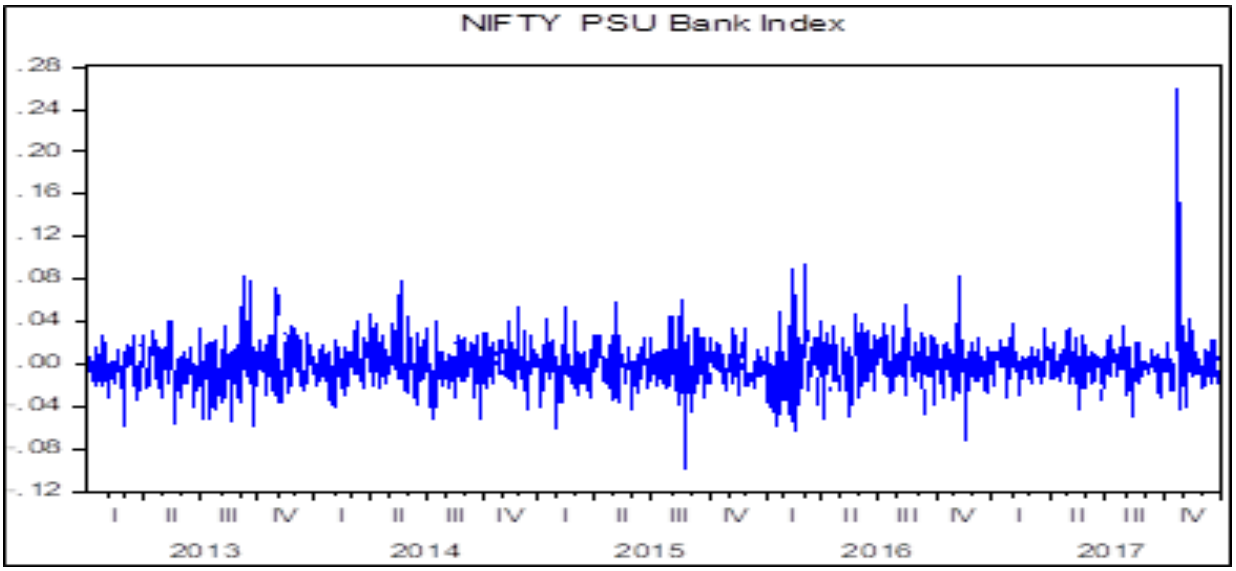
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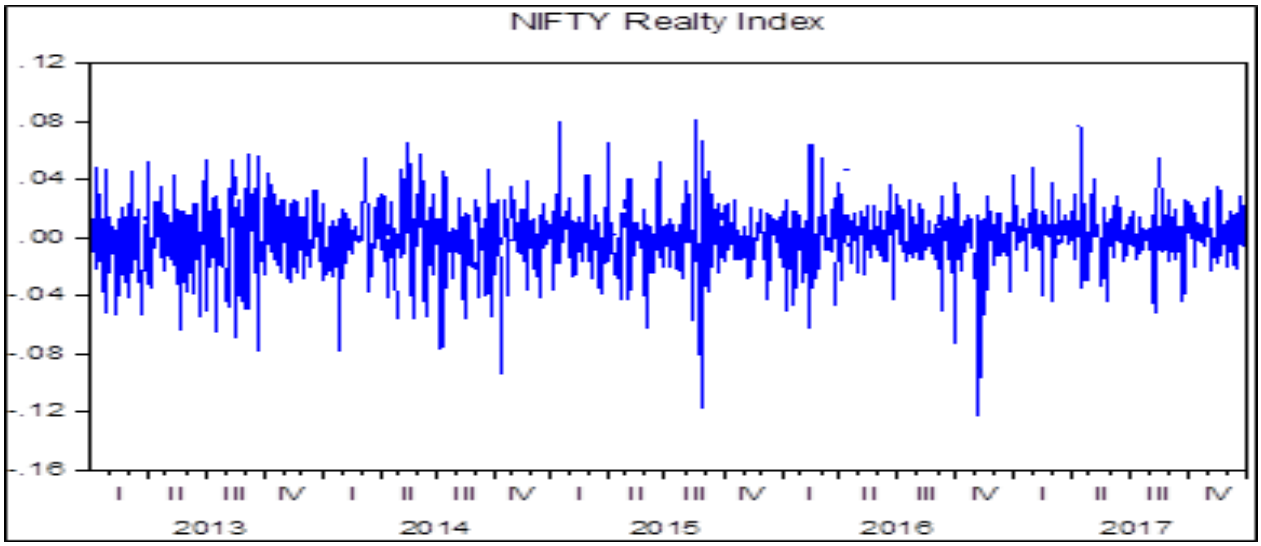
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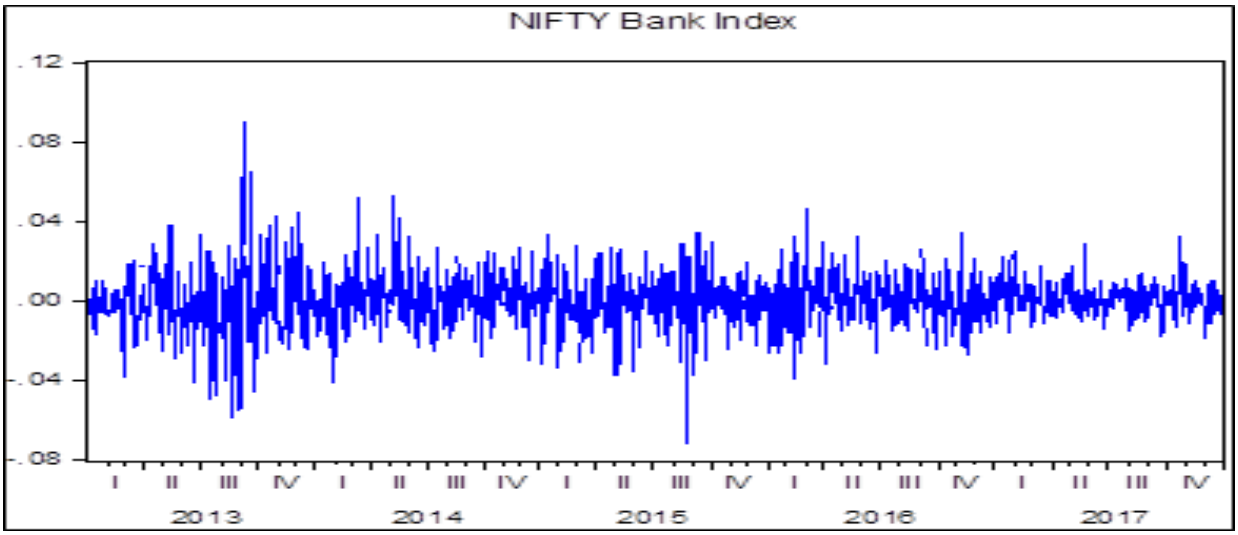
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