

Existence of Day-of-the-Week Effect: Evidence from Indian Stock Market

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Abstract

This study is an attempt to measure Day-of-the-Week Effect on the return and volatility of BSE and NSE indices for the period of 2005 through 2014. Along with the descriptive statistics, t-test and ANOVA has been used to capture mean deference in returns for the trading days Monday through Friday. Mean returns of only one index, Nifty Junior, has found statistically significant while using t-test whereas, no such difference was observed in any of the index (BSE and NSE) in ANOVA. To confirm the findings of t-test and ANOVA, an econometric model AR (1)-GARCH (1, 1) has been used. In contrast of the findings of the other indices, return on Monday for BSE Small Cap has found statistically significant. It has also observed that, volatility on Monday for return on BSE Small Cap is statistically significant. Return on Tuesday, for BSE Small Cap and BSE Mid Cap, has found negative and statistically significant. Returns on these two indices have also found negatively volatile on Tuesday. Wednesday effect has only observed on Nifty Junior but, there is no volatility captured on Wednesday for Nifty Junior. Return on Nifty Junior has also found positive and statistically significant on Friday but, there is no volatility captured for return on Nifty Junior on Friday.

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

JEL Classification: C12, C58, G,11, G14.

1- Introduction:

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. Though, in many developed market, calendar anomalies have disappeared but, still there are many developing market where these anomalies are existing in many forms *i.e.* day-of-the-week effect, week-of-the-month effect, turn-of-the-month effect, January effect, holiday effect etc.

Day of the month 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. 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. There are some variations found in other countries. In Australia and Japan, Tuesday was found to have lower return than the other trading days of the week. It is known as Tuesday effect in these countries.

Though, several studies have conducted to examine the existence of day-of-the-week effect on Indian stock market but all of these are conducted using two major indices *i.e.* NSE NIFTY and BSE SENSEX. No study has been conducted using all of the indices of BSE and NSE as per the knowledge of the author.

Keeping above variations regarding the day-of-the-week effect and research gap in mind, this study makes an attempt to examine the existence of day of the week effect in Indian stock market taking some major indices of BSE and NSE.

2- Review of Literature: Day-of-week effect is a phenomenon in which the stock return shows significantly different return on some specific day of the week. It was first documented by Osborne (1962) in the United States (US) stock market, and subsequently analyzed by Cross (1973), French (1980), Gibbons and Hess (1981), Lakonishok and Levi (1982), Smirlock and Starks (1983), Keim and Stambaugh (1983), Rogalski (1984) and Jaffe and Westerfield (1985) and Jacobs and Levy (1988). French (1980) addressed this as weekend effect and pointed out that the return on Fridays was positive while the return on Monday was abnormally negative. He pointed out that this effect came from the fact that normally the firm would announce the unfavorable news on weekends to avoid panic selling of the stocks. Damodaran (1989) showed that news announced on Fridays tended to be more negative than other weekdays. Usually, the bad news came out after the market had closed on Friday so the effect spilled over to next trading day, which was Monday. However, he pointed out that this could account for only part of weekend effect. Without the bad news announcement on Friday, the return on Monday was still less than other weekdays.

In U S, typically low mean returns are observed on Monday in comparison to the rest of the days of week. Mean returns on Friday are observed positive and abnormally higher than the mean returns on other days of the week. Wang *et al* (1997) observed that in the U S market, the well-known Monday effect occurs primarily in the last two weeks of a month. Wang used a long time series from 1962–1993 for his empirical research.

French (1980) and, Jaffe, Westerfield and Ma (1989) reported that the average returns are significantly negative on Monday and these are significantly lower than the average returns for other week-days in US and many other countries of the world. On the other hand, the average returns on Friday are found to be positive and higher than the average returns for the rest of the week.

Furthermore, Chan, Leung and Wang (2004) observed that the well known Monday seasonal is stronger in stock with low institutional holdings. Lakonishok and Maberly (1990) documented that the individual investors tend to increase trading activity (especially sell transactions) on Monday. It indicates that Monday effect could be related to the trading pattern of individual investors. Jain and Joh (1988) reported that liquidity in the market place is lower on Monday than other days of the week; they reported that total volume of New York stock exchange (NYSE) is approximately 90% of the average trading volume for Tuesday through Friday. Arsad and Coutts (1996) and Steely (2001) found that general trend of market is an important variable in determining the existence of day-of-the-week effect. Bildik (2004) asserted that low and negative Monday effect disappears when returns of the last trading day of the previous week are positive.

Anomalies do not show the same pattern in all markets. There are some variations found in day-of-the-week effect in some countries. Balban (1995), for Istanbul stock exchange and Jaffe and Westerfield (1985), for Australia and Japan found negative and lowest returns on Tuesday rather than on Monday. Negative Tuesday effect was mostly observed in European and Asian countries. Furthermore, studies on day-of-the-week effect are not limited to the equity markets of a particular country. Several studies have been conducted to investigate day-of-the-week effect on equity, and derivative markets across the world. For example, Aggarwal and Rivoli (1989), Athanassakos and Robinson (1994), Chang, Pinegar, and Ravichandran (1993), Dubois (1986), Kato and Schallheim (1985), and Solnik and Bousquet (1990) found that the distribution of foreign stock returns varies by day of the week, and Corhay, Fatemi, and Rad (1995), Flannary and Protopapadakis (1988), Gay and Kim (1987), and Gesser and Poncet (1997) stated that, return of futures and foreign exchange markets also varies by day of the week.

However, all of the above studies are found to be focused on the patterns in mean returns, there are some other studies that have been conducted to investigate on the time series behavior of stock prices in terms of volatility by using GARCH models. French et al. (1987) examine the relationship between stock prices and volatility and report that unexpected stock market returns are negatively related to the unexpected changes in volatility. Glosten et al. (1993) and Nelson (1991) in their study concludes that positive unanticipated returns reduce conditional volatility whereas, negative unanticipated returns increase conditional volatility. Baillie and DeGennaro (1990) find no evidence of a relationship between portfolio mean returns and variance. These findings are further supported by Chan, Karolyi, and Stulz (1992), who report a significant foreign influence on the time-varying risk premium for U.S. stocks but find no significant relationship between the conditional expected excess return on the S&P 500 and its conditional variance. Corhay and Rad (1994) and Theodossiou and Lee (1993) find no significant relationship between stock market volatility and expected returns for major European stock markets.

While studying weekend effect of stock returns in the Indian market Singhal and Bahure (2009), found that there is significant difference in mean return on Monday as compare to Friday for the indices BSE SENSEX, BSE 200 and NSE NIFTY.

Poornima and Chitra (2014) in their recent study on Indian stock market found highest mean return on Friday and the lowest mean return on Monday for the sample index NSE NIFTY. The analysis of seasonality results point out there is no significant Friday Effect exists in NSE NIFTY during the study period. Amarnani, Neeraj and Vaidya, Parth (2014), in their study on calendar anomalies in Indian stock market, observed negative return on Monday for NSE NIFTY and positive return on Monday for BSE SENSEX.

The finding of most of the studies referenced above, report that the expected returns in stock markets are time varying and conditionally heteroskedastic. This study investigates on the existence of day of the week effect on the various indices of BSE and NSE of Indian stock market.

3- Objectives: The present study focuses on the following objectives:

- i) To identify day of the week effect on the return of the various indices of NSE and BSE taken for this study.

4- Hypotheses: Following is the major hypothesis formed to attain the set objectives of this study:

H_{01} "There is no significant difference among the five trading day's returns of the selected indices".

Or

$$R_{t_{mon}} = R_{t_{tue}} = R_{t_{wed}} = R_{t_{thu}} = R_{t_{fri}}$$

5- Methodology: The methodology and sample used for this study is stated in the following line:

5.1- Sample for the study: Bombay Stock Exchange (BSE) and National Stock Exchange (NSE) are two apex

barometer of the Indian economy. They indicate the performance of the whole economy. Keeping the importance of these two exchanges, this study includes the following indices as the sample:

Bombay Stock Exchange	National Stock Exchange
BSE Sensex	CNX NIFTY
BSE 100	CNX 100
BSE 200	CNX 200
BSE 500	CNX 500
BSE Mid Cap	CNX Mid Cap
BSE Small Cap	CNX Nifty Junior

5.2- Period of Study: The present study covers the period of 10 years from 1st Jan 2005 to 31st Dec. 2014.

5.3- Tools used for the Study: Continuously compounded daily returns on the indices, have been used for this study, which are defined as the first difference of Logarithmic natural values of adjusted closing prices of the indices. The formula applied to get the percentage return is as follows:

$$r_t = \ln(P_t/P_{t-1}) * 100$$

Here,

r_t = Return on particular indices for time t.

ln = Logarithmic Natural.

P_t = Daily adjusted closing price for time t.

P_{t-1} = Daily adjusted closing price for time t-1.

5.4- Descriptive Statistics: Primarily the data was analysed using the mean, variance, standard deviation, t-statistics, and F-statistics (ANOVA). To analyse and apply statistical tools, a software SPSS 17 has been used.

5.5- Econometrics Modeling: Though the proper care has been taken for extracting the results from descriptive statistics but for the confirmation of the results derived from the primary analysis the econometrics have been employed in the study. The AR (1) - GARCH (1, 1) model has been used to examine the effect of the calendar anomalies. Following models have been used:

$$r_t = c + \rho r_{t-1} + \delta \text{Mon}_t + e_t$$

$$e_t = u_t \sqrt{h_t} u_t \sim N(0, \sigma^2)$$

$$h_t = \omega + \alpha \epsilon_{t-1}^2 + \beta h_{t-1} + \pi \text{Mon}_t \text{-----(i)}$$

In the above equation the first equation is known as mean equation where as the second equation is known as a variance equation. The second line establishes a link between mean and conditional variance. The mean equation signify that the return generating process is assumed to follow AR (1) process; therefore today's return is dependent on yesterday's returns through coefficient ρ . Such dependence is generally observed in empirical research.

In variance equation the conditional variance for a given day h_t depends on yesterday's squared residuals (ϵ_{t-1}^2) through coefficient α and on yesterday's conditional variance through coefficient β . In this standard GARCH (1, 1) model, coefficient α is called the news coefficient while coefficient β governs the persistence of volatility. To ensure consistency in volatility estimation, both of the coefficients should be non-negative and their sum must be less than 1.

This standard AR (1) - GARCH (1, 1) model is augmented by a dummy variable mon_t . This is Monday dummy and takes the value of '1' Monday and '0' on other days. In mean equation coefficient δ_1 captures the Monday effect. If this coefficient is positive and significant it implies that the returns on Monday are significantly higher than the returns on other days of the week. On the other hand if δ_1 is negative and significant it implies that Monday returns are lower than the returns on other week days. A non-significant δ_1 coefficient signifies the absence of Monday anomaly in returns.

Similarly, coefficient π captures the Monday effect in volatility. A positive and significant value of π indicates that volatility increases on Monday while a negative and significant value of this coefficient is an indicator of reduction in volatility on Monday. A non-significant value will show absence of Monday effect on volatility.

6- Results and Discussion: To compare the mean returns of the all five days (Monday to Friday) and measure the variance, if any, ANOVA test has been applied. Results are discussed in following lines:

Table 1 shows that, return for BSE Sensex, BSE 100, BSE 200, BSE 500 indices are higher on Wednesday than the return on any other trading day. Further, it is very interesting observation that, the standard

deviation as proxy of risk, is less on Wednesday as compare to other trading days. For BSE Small Cap Index, mean return in high on Monday (0.15) as compare to the mean return of other trading days. But it has also higher standard deviation (1.79). For BSE mid cap the mean return on Monday is higher (0.09) with higher standard deviation (1.73) followed by Wednesday (0.08) than other trading days. The finding also reveals that, returns on Monday and Friday are higher than the average returns of the week for all the BSE indices taken in this study except the return on BSE Small Cap, which has a negative return on Friday (-0.04). Results also show that, returns on Thursday are lowest for all the BSE Indices followed by Tuesday. Investors can avoid their intraday trading on that day. However, the study finds that, there is a difference in mean returns on the indices across the days but, the difference is not statistically significant. No p value of the f-test was found less than 0.05 for any of the BSE index.

Table 2 shows the results of the ANOVA worked out for the NSE indices. Results show that, returns on NSE Nifty, NSE 200, and NSE 500 are higher (0.09, 0.09, 0.09 respectively) on Wednesday followed by returns on Friday (0.08, 0.08, and 0.08 respectively). For NSE 100, returns are higher on Thursday (0.12) followed by return on Monday (0.09). Returns for Nifty Mid Cap and Nifty Junior, are higher on Friday (0.11 and 0.12 respectively) followed by Monday (0.09) for Nifty Mid Cap and Tuesday (0.11) for Nifty Junior. Similar to the outcome of the ANOVA worked out for the BSE Indices, the outcome of the ANOVA worked out for the NSE Indices, shows that return on Thursday is lowest for NSE Nifty, NSE 200, NSE 500, and NSE Nifty Mid Cap followed by Tuesday. But, return on Nifty Junior is lowest on Wednesday (-0.09).

It is an interesting observation for the NSE Indices that, the standard deviation, as a proxy of risk, is comparatively less for the day when returns are higher except NSE Nifty Junior. However, the result shows the difference in mean returns for different trading days but, it is not found statistically significant for any of the NSE index.

Independent sample t-test has been performed to check whether there is any significant difference between mean return on a particular day and mean returns on other trading days. For this purpose five dummy variable on the name of five week days i.e. Monday dummy, Tuesday dummy, Wednesday dummy, Thursday dummy, and Friday dummy were created. Results supports to the results obtained from ANOVA. Results shows that, return on Thursday are negative for CNX 500(-0.00), CNX Mid Cap (-0.01) and BSE Mid Cap (-0.00) whereas, returns on Tuesday and Friday are negative for BSE Small Cap (-0.00 and -0.03 respectively). However, there is a difference in mean returns on a particular trading day and average mean return of other trading days but, the difference in mean return is statistically significant only for Nifty Junior ($t = -2.16, p = 0.03$) on Wednesday. NSE Nifty Junior shows a negative return (-0.09) on Wednesday. These results are shown in Table 3.

6.1- Day of the Week Effect: Econometric Models

The confirmatory statistics has been applied to confirm whether the results discussed in the preceding section are valid or not. It is assumed that results are only valid when the variables under consideration are identically distributed Gaussian variables. However, this assumption is not valid for the assets returns because the asset returns are found to be autoregressive and usually shows the volatility clustering. Therefore, the true nature of the seasonal anomalies cannot be known unless the adjustment is made for conditional mean and volatility. We use the AR (1)-GARCH (1, 1) for this purpose and then include the dummy-variables in mean and variance equations to examine the presence of anomaly.

6.1.1- Monday Effect:

For the examination of the Monday effect in returns and volatility, one dummy variable representing the Monday is included in the following AR(1)-GARCH(1,1) model:

$$\begin{aligned}
 r_t &= C + \rho r_{t-1} + \delta_1 Mon_t + e_t \\
 e_t &= u_t \sqrt{h_t} u_t \sim N(0,1) \\
 h_t &= \omega + \alpha \varepsilon_{t-1}^2 + \beta h_{t-1} + \pi Mon_t \dots\dots\dots(i)
 \end{aligned}$$

Where, R_t is the return on a particular index. Mon_t is the dummy variable for Monday, it takes the value of 1 for Monday and 0 otherwise. If Monday effect on returns is present, coefficient δ_1 in above equation must be statistically significant. Similarly, coefficient π will indicate the presence of Monday effect on volatility. Results are presented in table 4.

It is observed in the preceding studies that, returns and volatility in returns on Monday for all the BSE indices is influenced by its own AR (1), ARCH and GARCH factors or its own shocks. Present study shows that, in mean equation, coefficient of AR (1), which is ρ , is positive and statistically significant at 1 % significance level for all the BSE and NSE indices. It means today's returns of all the BSE and NSE indices are influenced by the yesterday's returns of these indices. ARCH term (α) and GARCH term (β) for all the indices has also found

positive and statistically significant at 1 % significance level. In mean equation, coefficient of Monday dummy, which is δ_1 , has found positive and statistically significant only for BSE Small Cap at 1% significance level. It means there is Monday effect on the returns of BSE Small Cap. Returns on Monday for BSE Small Cap are significantly higher than other days. No Monday effect was found on the returns of other BSE and NSE indices. In the variance equation, the coefficient of Monday dummy, which is π , has found positive and significant for BSE Small Cap and BSE Mid Cap at 5 % and 1% significance level, respectively. But, it has found negative and significant for CNX Nifty 100 at 1 % significance level.

6.1.2- Tuesday Effect: The following equation is used to examine Tuesday effect:

$$\begin{aligned} r_t &= C + \rho r_{t-1} + \delta_1 Tue_t + \varepsilon_t \\ \varepsilon_t &= u_t \sqrt{h_t} u_t \sim N(0,1) \\ h_t &= \omega + \alpha \varepsilon_{t-1}^2 + \beta h_{t-1} + \pi Tue_t \end{aligned} \dots\dots\dots(ii)$$

Where, Tue_t is the dummy variable for Tuesday.

Table 5 shows the outcome of regression analysis conducted to measure Tuesday effect on returns. Results show that, in mean equation, coefficient of Tuesday dummy (δ_1) is negative and statistically significant for BSE Small Cap BSE Mid Cap at 1 % and 5 % significance level respectively. It indicates that, return on Tuesday for these two indices are significantly lower than the return of other trading days of the week.

In variance equation, coefficient of Tuesday dummy is negative and statistically significant for all the BSE and NSE indices at 1 % significance level except, CNX 100. Coefficient of Tuesday dummy for CNX 100 was not found statistically significant in variance equation but, it was also found negative.

6.1.3- Wednesday Effect: The following equation is used to examine Wednesday effect:

$$\begin{aligned} r_t &= C + \rho r_{t-1} + \delta_1 Wed_t + e_t \\ e_t &= u_t \sqrt{h_t} u_t \sim N(0,1) \\ h_t &= \omega + \alpha \varepsilon_{t-1}^2 + \beta h_{t-1} + \pi Wed_t \end{aligned} \dots\dots\dots(iii)$$

Where, Wed_t is the dummy variable for Wednesday.

Table 6 reveals the outcome of the AR(1) – GARCH(1,1) model which has been run to measure the Wednesday effect on returns. Mean equations show that, there is no Wednesday effect in mean returns of any of the BSE and NSE indices except, CNX Nifty Junior. Coefficient of Wednesday dummy for Nifty Junior in mean equation was found negative and statistically significant at 5 % significance level. It shows that, return for CNX Nifty Junior is lower and negative on Wednesday.

In variance equation, volatility in return was found statistically significant only for BSE Small Cap and CNX 100 at 5 % and 1 % level of significance, respectively. Volatility for BSE Small Cap is negative whereas, volatility for CNX 100 is positive. Overall results show that, returns are not volatile on Wednesday for rest of the indices.

6.1.4- Thursday Effect: The following equation is estimated to examine the Thursday effect:

$$\begin{aligned} r_t &= C + \rho r_{t-1} + \delta_1 Thu_t + e_t \\ e_t &= u_t \sqrt{h_t} u_t \sim N(0,1) \\ h_t &= \omega + \alpha \varepsilon_{t-1}^2 + \beta h_{t-1} + \pi Thu_t \end{aligned} \dots\dots\dots(iv)$$

Where, Thu_t is the dummy variable for Thursday.

Results, for the model used to capture Thursday effect in Indian stock market, have been depicted in Table 7. In mean equation of the model, no such effect has found for any of the index taken in this study. The volatility has found statistically significant at 1 % level of significance only for CNX 100.

6.1.5- Friday Effect: The following equation is estimated to examine the Friday effect:

$$\begin{aligned} r_t &= C + \rho r_{t-1} + \delta_1 Fri_t + e_t \\ e_t &= u_t \sqrt{h_t} u_t \sim N(0,1) \\ h_t &= \omega + \alpha \varepsilon_{t-1}^2 + \beta h_{t-1} + \pi Fri_t \end{aligned} \dots\dots\dots(v)$$

Where, Fri_t is the dummy variable for Friday.

Table 8 reveals the outcome of AR(1) – GARCH(1,1) model run to check Friday effect on the returns. Results show that, Friday effect was only observed for CNX Nifty Junior. Coefficient of Friday dummy was

found statistically significant at 5 % significance level. No Friday effect was found in any of the other BSE and NSE indices.

Results of variance equation show that, volatility in index return is statistically significant at 5 % significance level for CNX Nifty and at 1 % significance level for rest of the indices except, CNX 100. Volatility for CNX 100 was not found statistically significant. Overall results show that, volatility is high on Friday than the other trading days of the week in Indian stock market. This finding supports the macroeconomic news release hypothesis.

7- Conclusion: This study has examined the existence of day-of-the-week effect in Indian stock market. Though, the study does not find such effect on most of the indices taken for this study. Results show that, mean return of only one index, Nifty Junior, has found statistically significant while using t-test whereas, no such difference was observed in any of the index (BSE & NSE) in ANOVA. To confirm the findings of t-test and ANOVA, an econometric model AR (1)-GARCH (1, 1) has been used. In contrast of the findings on the other indices, return on Monday for BSE Small Cap has found statistically significant. It has also been observed that, volatility on Monday for return on BSE Small Cap is statistically significant. Return on Tuesday, for BSE Small Cap and BSE Mid Cap, has found negative and statistically significant. Returns on these two indices have also found negatively volatile on Tuesday. Investors should avoid their investment on this index on Tuesday. Wednesday effect has only observed on Nifty Junior but, there is no volatility captured on Wednesday for Nifty Junior. Return on Nifty Junior has also found positive and statistically significant on Friday but, there is no volatility captured for return on Nifty Junior on Friday too.

This study has supported to the findings of the Amarnani, Neeraj and Vaidya, Parth, (2014), regarding the negative return on Monday for NSE NIFTY but does not support to the positive return on Monday for BSE SENSEX as, it has observed a negative return on Monday for BSE SENSEX.

The findings of this study have also supported to the findings of Osborne (1962, Cross (1973), French (1980), Gibbons and Hess (1981), Lakonishok and Levi (1982), Keim and Stambaugh (1983), Rogalski (1984) and Jaffe and Westerfield (1985) and Jacobs and Levy (1988) by observing day of the week effect in the Indian stock market. The present study found the positive return on Friday in Indian stock market. French (1980) addressed this as weekend effect and pointed out that the return on Fridays was positive while the return on Monday was abnormally negative.

According to the Efficient Market Hypothesis, investors can not gain abnormal return on their investment since all information is reflected in stock prices. As we have seen in the finding of some recent studies that, there is no existence of day of the week effect in the Indian stock market. This study also supports to the findings of such previous studies for most of the indices which is a sign of efficient market. The findings of this study will help to the investors to prepare their investment strategy for indices where day-of-the-week effect exists, either in negative or in positive form.

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Table 1: Day-of-the-Week Effect in Return for BSE Indices

Weekday	Mean Return & Standard Deviation	BSE Indices					
		BSE Sensex	BSE 100	BSE 200	BSE 500	BSE Small Cap	BSE Mid Cap
Monday	\bar{X}	0.07	0.07	0.07	0.08	0.15	0.09
	σ	1.81	1.82	1.79	1.77	1.79	1.73
Tuesday	\bar{X}	0.03	0.03	0.03	0.03	-0.00	0.00
	σ	1.41	1.42	1.41	1.39	1.47	1.43
Wednesday	\bar{X}	0.11	0.10	0.09	0.09	0.10	0.08
	σ	1.47	1.46	1.45	1.42	1.54	1.46
Thursday	\bar{X}	0.02	0.01	0.00	0.00	0.02	-0.00
	σ	1.44	1.44	1.42	1.38	1.46	1.36
Friday	\bar{X}	0.07	0.08	0.08	0.07	-0.04	0.07
	σ	1.69	1.65	1.62	1.58	1.45	1.44
Average \bar{X}	\bar{X}	0.06	0.06	0.05	0.05	0.05	0.05
Average σ	σ	1.57	1.57	1.54	1.52	1.55	1.49
F-Test	F	0.26	0.25	0.27	0.27	1.20	0.47
	P	0.90	0.91	0.90	0.90	0.31	0.76

Table 2: Day-of-the-Week Effect in Return for NSE Indices

Weekday	Mean Return & Standard Deviation	NSE Indices					
		NSE Nifty	NSE 100	NSE 200	NSE 500	NSE Nifty Mid Cap	NSE Nifty Junior
Monday	\bar{X}	0.06	0.09	0.06	0.07	0.09	0.07
	σ	1.82	1.47	1.80	1.77	1.75	1.74
Tuesday	\bar{X}	0.03	0.02	0.03	0.03	0.01	0.11
	σ	1.42	1.42	1.41	1.39	1.42	1.60
Wednesday	\bar{X}	0.09	0.03	0.09	0.09	0.09	-0.09
	σ	1.46	1.55	1.43	1.42	1.45	1.63
Thursday	\bar{X}	0.02	0.12	0.00	-0.00	-0.01	0.08
	σ	1.47	1.59	1.43	1.41	1.41	1.69
Friday	\bar{X}	0.08	0.02	0.08	0.08	0.11	0.12
	σ	1.67	1.80	1.60	1.56	1.48	1.95
Average \bar{X}	\bar{X}	0.06	0.06	0.05	0.05	0.06	0.06
Average σ	σ	1.57	1.57	1.54	1.52	1.51	1.73
F-Test	F	.17	.40	.28	.32	.69	1.24
	P	.95	.81	.89	.86	.60	0.29

Table 3: Independent Sample t-test for BSE and NSE Indices

Index	Tuesday Dummy	N	\bar{X}	σ	t	P
BSE Small Cap	1	499	-0.00	1.47	-0.79	0.43
	0	1969	0.06	1.57		
	Wednesday Dummy					
NSE Nifty Junior	1	494	-0.09	1.63	-2.16	0.03
	0	1974	0.09	1.75		
	Thursday Dummy					
NSE 500	1	489	-0.00	1.41	-0.88	0.38
	0	1979	0.07	1.54		
NSE Mid Cap	1	489	-0.01	1.41	-1.15	0.25
	0	1979	0.07	1.53		
BSE Mid Cap	1	489	-0.00	1.36	-0.88	0.38
	0	1979	0.06	1.53		
	Friday Dummy					
BSE Small Cap	1	489	-0.03	1.45	-1.31	0.19
	0	1979	0.07	1.57		

Table 4: Econometric Model at Index Level to Check Monday Effect on Return and Volatility

Indices	Statistics	Mean Equation			Variance Equation				Ad. R ²
		C	AR	Mon _t	C	A	B	Mon _t	
BSE Sensex	Coeff.	0.08	0.08	0.04	0.03	0.09	0.89	-0.04	0.01
	t-test	3.29**	3.64**	0.73	2.41*	12.09**	111.38**	-0.59	
BSE 100	Coeff.	0.08	0.10	0.04	0.03	0.1	0.88	-0.02	0.01
	t-test	3.23**	4.39**	0.77	2.42*	12.34**	104.39**	-0.24	
BSE 200	Coeff.	0.08	0.11	0.05	0.03	0.1	0.88	-0.02	0.01
	t-test	3.19**	4.95**	0.99	2.58*	12.56**	102.01**	-0.28	
BSE 500	C Coeff.	0.08	0.12	0.05	0.03	0.10	0.88	-0.01	0.01
	t-test	3.22**	5.54**	1.03	2.58*	12.74**	101.14**	-0.19	
BSE Small Cap	Coeff.	0.03	0.28	0.15	0.05	0.17	0.80	0.14	0.08
	t-test	1.34	13.71**	2.84**	2.74**	12.79**	65.26**	1.97*	
BSE Mid Cap	Coeff.	0.07	0.21	0.07	0.03	0.15	0.83	0.14	0.04
	t-test	2.81*	10.49**	1.27	2.00*	13.93**	90.79**	7.89**	
CNX NIFTY	Coeff.	0.08	0.07	0.04	0.04	0.10	0.89	-0.06	0.00
	t-test	3.14**	3.36**	0.79	2.71**	12.13**	105.92**	-0.83	
CNX 100	Coeff.	0.08	0.08	0.02	0.08	0.10	0.81	-0.26	0.00
	t-test	3.33**	3.73**	0.53	4.93**	12.07**	100.29**	-3.35**	
CNX 200	Coeff.	0.08	0.10	0.05	0.03	0.11	0.88	0.09	0.01
	t-test	3.07**	4.77**	0.89	2.24*	12.56**	104.55**	0.13	
CNX 500	Coeff.	0.07	0.19	0.05	0.04	0.13	0.84	0.06	0.01
	t-test	3.07**	5.15**	0.92	2.15*	12.59**	105.84**	0.20	
CNX Mid Cap	Coeff.	0.07	0.019	0.05	0.04	0.13	0.84	0.06	0.01
	t-test	2.78**	9.18**	0.96	2.63**	13.96**	92.29**	0.80	
CNX Nifty Junior	Coeff.	0.09	0.15	-0.06	0.06	0.11	0.88	-0.13	0.02
	t-test	3.38**	7.25**	-1.04	3.03**	12.33**	110.30**	-1.36	

Note: **p<0.01, * p<0.05.

Table 5: Econometric Model at Index Level to Check Tuesday Effect on Return and Volatility

Indices	Statistics	Mean Equation			Variance Equation				Ad. R ²
		C	AR	Tue _t	C	α	B	Tue _t	
BSE Sensex	Coeff.	0.10	0.08	-0.06	0.09	0.10	0.89	-0.30	0.01
	t-test	4.29**	3.54**	-1.21	5.05**	11.52**	100.97**	-3.77**	
BSE 100	Coeff.	0.1	0.09	-0.06	0.09	0.1	0.88	-0.29	0.01
	t-test	4.14**	4.29**	-1.2	5.29**	11.82**	98.02**	-3.77**	
BSE 200	Coeff.	0.1	0.11	-0.06	0.09	0.11	0.88	-0.28	0.01
	t-test	4.16**	4.87**	-1.25	5.25**	12.09**	96.50**	-3.65**	
BSE 500	Coeff.	0.1	0.12	-0.07	0.09	0.11	0.87	-0.26	0.01
	t-test	4.23**	5.45**	-1.32	5.23	12.35**	96.65**	-3.65**	
BSE Small Cap	Coeff.	0.09	0.28	-0.14	0.11	0.16	0.81	-0.20	0.08
	t-test	3.56**	13.53**	-2.71**	6.27**	12.76**	67.54**	-2.89**	
BSE Mid Cap	Coeff.	0.10	0.21	-0.10	0.09	0.14	0.83	-0.17	0.04
	t-test	4.11**	10.43**	-2.07*	5.44**	13.97**	96.63**	-2.71**	
CNX NIFTY	Coeff.	0.10	0.07	-0.06	0.09	0.10	0.89	-0.29	0.00
	t-test	4.02**	3.26**	-1.08	4.77**	11.5**	97.34**	-3.41**	
CNX 100	Coeff.	0.10	0.09	-0.06	0.06	0.10	0.88	-0.16	0.00
	t-test	4.10**	3.92**	-1.08	3.35**	12.08**	101.60**	-1.84	
CNX 200	Coeff.	0.10	0.10	-0.07	0.09	0.11	0.89	-0.29	0.01
	t-test	4.05**	4.67**	-1.38	5.41**	12.15**	99.43**	-3.84**	
CNX 500	Coeff.	0.10	0.11	-0.07	0.09	0.11	0.88	-0.27	0.01
	t-test	3.79**	9.12**	-1.77	5.06**	13.27**	96.35**	-2.79**	
CNX Mid Cap	Coeff.	0.10	0.19	-0.09	0.10	0.13	0.84	-0.21	0.02
	t-test	3.79**	9.12**	-1.77	5.06**	13.27**	96.35**	-2.79**	
CNX Nifty Junior	Coeff.	0.08	0.15	-0.01	0.13	0.12	0.87	-0.43	0.02
	t-test	2.97**	7.13**	-0.19	5.81**	12.39**	105.46**	-4.51**	

Note: **p<0.01, * p<0.05.

Table 6: Econometric Model at Index Level to Check Wednesday Effect on Return and Volatility

Indices	Statistics	Mean Equation			Variance Equation				Ad. R ²
		C	AR	Wed _t	C	A	B	Wed _t	
BSE Sensex	Coeff.	0.08	0.08	0.04	0.02	0.09	0.89	0.01	0.01
	t-test	3.45**	3.65**	0.71	1.44	11.92**	108.54**	0.15	
BSE 100	Coeff.	0.08	0.10	0.03	0.04	0.1	0.88	-0.03	0.01
	t-test	3.44**	4.39**	0.59	2.08*	12.20**	1.2.34**	-0.36	
BSE 200	Coeff.	0.08	0.11	0.03	0.03	0.11	0.88	-0.01	0.03
	t-test	3.57**	4.94**	0.48	2.01*	12.41**	100.35**	-0.17	
BSE 500	Coeff.	0.08	0.12	0.03	0.04	0.11	0.88	-0.02	0.01
	t-test	3.56**	5.53**	0.56	2.22*	12.03**	99.81**	-0.31	
BSE Small Cap	Coeff.	0.05	0.28	0.08	0.11	0.17	0.80	-0.17	0.01
	t-test	1.79	13.77**	1.41	5.82**	12.83**	66.18**	-2.11*	
BSE Mid Cap	Coeff.	0.07	0.21	0.04	0.80	0.15	0.83	-0.16	0.04
	t-test	2.87**	10.49**	0.81	4.96**	13.95**	95.07**	-1.94	
CNX NIFTY	Coeff.	0.08	0.07	0.03	0.03	0.10	0.89	0.01	0.00
	t-test	3.40**	3.37**	0.51	1.45	11.87**	102.48**	0.13	
CNX 100	Coeff.	0.09	0.09	-0.01	-0.02	0.10	0.89	0.24	0.00
	t-test	3.74**	3.95**	-0.12	-1.21	12.31**	109.55**	3.24**	
CNX 200	Coeff.t	0.08	0.10	0.03	0.04	0.11	0.88	-0.03	0.01
	t-test	3.30**	4.78**	0.63	2.14*	12.46**	103.70**	-0.30	
CNX 500	Coeff.	0.08	0.11	0.04	0.04	0.11	0.88	-0.03	0.01
	t-test	3.36**	5.16**	0.71	2.22*	12.51**	105.30	-0.40	
CNX Mid Cap	Coeff.	0.07	0.19	0.03	0.08	0.14	0.84	-0.13	0.03
	t-test	2.89**	9.15**	0.57	4.29**	13.26**	94.35**	-1.47	
CNX Nifty Junior	Coeff.t	0.11	0.15	-0.14	0.00	0.11	0.88	0.18	0.02
	t-test	4.22**	7.28**	-2.35*	0.08	12.27**	111.29**	1.58	

Note: **p<0.01, * p<0.05.

Table 7: Econometric Model at Index Level to Check Thursday Effect on Return and Volatility

Indices	Statistics	Mean Equation			Variance Equation				Ad. R ²
		C	AR	Fri _t	C	A	β	Fri _t	
BSE Sensex	Coeff.	0.10	0.07	-0.05	0.01	0.09	0.89	0.09	0.01
	t-test	4.19**	3.64**	-0.94	0.40	12.21**	112.37**	1.22	
BSE 100	Coeff.	0.10	0.09	-0.06	0.01	0.10	0.88	0.08	0.01
	t-test	4.20**	4.41**	-1.08	0.74	12.41**	105.22**	1.07	
BSE 200	Coeff.	0.10	0.11	-0.06	0.82	0.11	0.88	0.07	0.01
	t-test	4.28**	4.96**	-1.15	0.99	12.58**	102.36**	0.91	
BSE 500	Coeff.	0.10	0.12	-0.06	0.12	0.11	0.88	0.07	0.01
	t-test	4.30**	5.55**	-1.10	1.02	12.74**	101.55**	0.91	
BSE Small Cap	Coeff.	0.07	0.28	-0.01	0.08	0.17	0.80	-0.03	0.08
	t-test	2.60**	13.93**	-0.22	3.68**	12.95**	69.12**	-0.31	
BSE Mid Cap	Coeff.	0.09	0.21	-0.05	0.07	0.14	0.83	-0.06	0.04
	t-test	3.74**	10.68**	-0.88	3.38**	14.10**	97.57**	-0.70	
CNX NIFTY	Coeff.	0.10	0.07	-0.06	0.01	0.10	0.89	0.11	0.002
	t-test	4.04**	3.36**	-0.97	0.32	12.15**	105.85**	0.17	
CNX 100	Coeff.	0.08	0.08	0.07	-0.02	0.11	0.88	0.24	0.004
	t-test	3.13**	3.76**	1.18	-1.13	12.21**	100.92**	3.28**	
CNX 200	Coeff.t	0.10	0.11	-0.07	0.02	0.11	0.88	0.08	0.01
	t-test	4.16**	4.80**	-1.23	0.91	12.64**	106.12**	1.03	
CNX 500	Coeff.	0.10	0.11	-0.07	0.02	0.11	0.88	0.07	0.01
	t-test	4.18**	5.19**	-1.33	0.96	12.68**	107.81**	0.93	
CNX Mid Cap	Coeff.	0.09	0.19	-0.06	0.06	0.13	0.84	-0.00	0.03
	t-test	3.67**	9.33**	-1.06	2.52*	13.38**	96.16**	-0.01	
CNX Nifty Junior	Coeff.t	0.07	0.15	0.06	0.00	0.11	0.87	0.17	0.02
	t-test	2.51*	7.16**	11.46	0.06	12.36**	108.83**	1.76	

Note: **p<0.01, * p<0.05.

Table 8: Econometric Model at Index Level to Check Friday Effect on Return and Volatility

Indices	Statistics	Mean Equation			Variance Equation				Ad. R ²
		C	AR	Fri _t	C	A	β	Fri _t	
BSE Sensex	Coeff.	0.08	0.08	0.05	-0.01	0.10	0.89	0.20	0.01
	t-test	3.35**	3.58**	0.84	-0.83	12.09**	104.76**	2.97**	
BSE 100	Coeff.	0.08	0.09	0.06	-0.01	0.11	0.88	0.22	0.01
	t-test	3.15**	4.34**	1.02	-0.80	12.36**	100.31**	3.22**	
BSE 200	Coeff.	0.08	0.11	0.06	-0.01	0.11	0.87	0.20	0.01
	t-test	3.20**	4.91**	1.01	-0.56	12.51**	98.14**	3.07**	
BSE 500	Coeff.	0.08	0.12	0.05	-0.01	0.11	0.87	0.20	0.01
	t-test	3.30**	5.49**	0.90	-0.48	12.68**	97.72**	3.02**	
BSE Small Cap	Coeff.	0.08	0.27	-0.08	0.02	0.17	0.80	0.28	0.08
	t-test	3.17**	13.44**	-1.36	0.85	13.08**	68.19**	3.01**	
BSE Mid Cap	Coeff.	0.07	0.21	0.04	0.00	0.15	0.83	0.25	0.04
	t-test	3.06**	10.48**	0.80	0.18	14.16**	97.13	2.96**	
CNX NIFTY	Coeff.	0.08	0.07	0.05	-0.01	0.10	0.89	0.19	0.00
	t-test	3.11**	3.33**	0.90	-0.49	12.07**	100.36**	2.64**	
CNX 100	Coeff.	0.09	0.08	-0.01	0.05	0.10	0.89	-0.10	0.00
	t-test	3.65**	3.91**	-0.23	3.46**	12.37**	107.73**	-1.43	
CNX 200	Coeff.t	0.07	0.10	0.06	-0.00	0.11	0.88	0.19	0.01
	t-test	2.96**	4.77**	1.14	-0.33	12.56**	101.78**	2.83**	
CNX 500	Coeff.	0.07	0.11	0.07	-0.01	0.11	0.88	0.19	0.01
	t-test	2.93**	5.16**	1.22	-0.44	12.60**	103.52**	2.86**	
CNX Mid Cap	Coeff.	0.07	0.19	0.07	0.00	0.14	0.84	0.25	0.03
	t-test	2.66**	9.20**	1.31	0.26	13.25**	94.33**	2.81**	
CNX Nifty Junior	Coeff.t	0.05	0.15	0.14	0.00	0.12	0.87	0.20	0.02
	t-test	2.04*	7.21**	2.36*	0.02	12.46**	104.89**	2.06*	

Note: **p<0.01, * p<0.05.