

An Empirical Analysis of Friday Effect in NSE NIFTY Companies

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Abstract

This study investigates whether Friday effect exist in NSE NIFTY. The weekend Effect or Day of the Week Effect has been a hot research topic among academicians for decades. The most popular Anomaly is the Friday Effect, meaning that the Friday's Average Return is significantly higher than the Other Days' Average Returns. The presence of Friday Effect defeats the basic premises of the Efficient Market Hypothesis. Besides, it has greater implications on the design of investment strategy in the long run. The outcome of the study initiate that there was Highest Mean Return recorded in Friday and the Lowest Mean Returns were recorded in Monday for the sample indices. The analysis of seasonality results point out there is no significant Friday Effect exists in NSE NIFTY during the study period.

Keywords: *Day of the Week Effect, Friday Effect, Efficient Market Hypothesis, Seasonality, Dummy Variable Regression Model.*

1. INTRODUCTION

The Efficient Market theory states that an Efficient Market is one where the market price is an unbiased estimate of the true value of the investment. It further states that the current market price of a security fully reflects all available information and the current price is the fair price as the security has traded in that price (Fama, 1969). In the words of Fama, informational efficiency of financial markets requires that the market prices and rates of return at any given time reflect all the information available to the participants" (Fama, 1965) Market Efficiency influences the Investment Strategy for investors because in an Efficient Market, there would be no undervalued or overvalued stocks. When stock returns show certain empirical regulations, which are difficult to explain asset-pricing theories, they are called stock market anomalies. The academics and practitioners have documented many research works on the seasonality and associated behavior of securities markets all over the world. Among others, the most widely mentioned seasonal effects and market anomalies are Monday

Effect or Week-end Effect, Friday Effect, January Effect, Holiday Effect and Small firm-Effect, to mention a few. Among these, one of the widely discussed anomalies is the Friday effect of stock return.

The most common case is the Friday Effect, meaning that the Friday's Average Return is significantly higher than the Other Days' Average Returns. Fridays normally present the highest return over majority of the stock markets of the world. However, some empirical studies in different stock markets have established, the Tuesday Effect instead of the Friday Effect. During the past decades, many studies about the Day of the Week Effect have been carried out.

It is significant to note that there is a reason for the Day of the Week Effect. Monday recorded high return in some markets. In another, Monday recorded lower return. The reason is that Monday is the Day with Lowest Trading Volume, which the propensity of individuals to transact is higher relative to Other Days of the Week and that of the institutions is the lowest.

The propensity of individuals to sell on Monday is higher than their propensity to buy (Lakonishok, Josef and Maberly, Edwin, 1990). The other reason is that the settlement cost has been used to explain the day of the week variations. There are five trading days in a Stock Market. If the Settlement Day is the Second Trading Day, the Thursday return will be higher than Rest of the Week Days. If the investors buy on the Wednesday's close price and sell on the Thursday's close price, then investors will earn high return on Thursday. And it is the individual investors' behavior. The individual investors would like to sell more on Monday due to the reason that the bad news is normally released in the prior week, and the individual investor tends to use Monday as the opportunity to satisfy the liquidity needs. It is hard to say that Day of the Week Effect can generate abnormal returns. It is always possible to find the abnormal returns for short periods but it seems a much harder task to generate abnormal returns over a longer period, as anomalies vary over time and tend to disappear or even reverse after they have been discovered.

2. REVIEW OF LITERATURE

The reviews of previous studies made in India and abroad are given below. Ravi Anshuman.V and Ranadev Goswami (2000) studied the Week-End Effects by using equally weighted portfolio constructed from 70 stocks listed on the BSE. The study evidenced the (heteroskedasticity adjusted) excess positive returns on Friday and excess negative returns on Tuesday. Brooks and Persaud (2001) examined the evidence for the Day of the Week Effect in five Southeast Asian Stock Markets, including Taiwan, South Korea, the Philippines, Malaysia and Thailand. The Authors found that neither South Korea nor the Philippines recorded significant Calendar Effects. But both Thailand and Malaysia registered significant positive average returns on Monday and significant negative average returns on Tuesday. In addition, the study also documented a significant negative Wednesday Effect in Taiwan. Goloka C Nath and Manoj Dalvi (2005) used both high frequency and end of day data for the benchmark index (S&PCNX Nifty). The study, using Regression with bi-weights and dummy variables, found that

2002, Monday and Friday were significant days. However, after the introduction of the Rolling Settlement, Friday has become significant. The market inefficiency still exists and the market was yet to price the risk appropriately. Badhani K.N, Kavidayal B.D, Kavidayal P.C (2006) investigated differences in autocorrelations of S&P CNX Nifty Index Returns across the different trading days of the week.

According to this study, Indian Stock Market followed the international trend. Besides, there was a significant highest positive first order autocorrelation between Friday returns and returns of Next Trading Day. Syed A. Basher and Perry Sadorsky (2006) used both unconditional and conditional risk analysis to investigate the Day-of-the-Week Effect in 21 Emerging Stock Markets. The results of this study showed that while the Day-of-the-Week Effect was not present in the majority of Emerging Stock Markets studied, some Emerging Stock Markets did exhibit strong Day-of-the-Week Effect even after accounting for conditional market risk. Rengasamy Elango and Nabila Al Macki (2008) investigated whether the anomalous Week End Effect was found in the rapidly emerging Indian Equity Market. Their analysis produced mixed results indicating that the Monday Returns were negative and low in the case of two out of three indices. The study also examined the Week End Effects and showed that Monday Returns were negative in one of the benchmark indices. Nageswari.P and Babu.M. (2011) examined the Week End Effect in the Indian Stock Market. The study found that the mean returns were positive for all days of the week, highest on Friday and lowest on Monday. It was inferred that the Day of the Week Pattern did not exist in the Indian Stock Market during the study period. Nageswari.P and Selvam.M (2011) explored the Day of the Week Effect during the Post Rolling Settlement Period. The study found that the Highest Mean Return on Friday and the Lowest Mean Return on Tuesday were observed during the study period. Further, there was strong significant positive relationship between Monday – Friday and no significant relationship among other days of the week. The results indicated that the Day of the Week Effect did not exist in the Indian Stock Market during the study period.

The above literature provides an overview of Day of the week Effects in various global Stock Markets. It is to be noted that only few have focused on the Friday Effect in the Indian Stock Markets. Against this backdrop, this study makes an attempt to examine whether India, which is one of the fast emerging markets, offers evidences of anomaly, thus ensuring abnormal returns to the investors during the Friday in NSE NIFTY.

3. STATEMENT OF THE PROBLEM

The firms and Governments generally release good news between Monday and Friday and bad news on the week-ends. As a result, the bad news is reflected in lower stock prices on the next trading day (Mondays) and good news is reflected in higher stock prices on Friday. This would reduce the share price further. Similarly, in the Month of January, firms normally release new information pertaining to the previous accounting year. When new positive information reaches the market, the prices become bullish due to buying pressure. The active trading strategies, based on the knowledge of market anomalies, would provide benefits to the investors; but the countervailing arbitrage will also exploit the excess return over time. In this environment, it is necessary to periodically find out whether these types of Anomalies exist in the Stock Market. Against this background, the present study covering Analysis of Friday Effects in NIFTY in Indian Stock Market is significant.

4. OBJECTIVES OF THE STUDY

The present study intends to identify and analyze the Friday Effect exist in the NSE NIFTY in Indian Stock Market.

5. HYPOTHESIS OF THE STUDY

The present study tested the following null hypothesis

NH1: There are no significant differences among the returns of different trading days the week.

6. METHODOLOGY OF THE STUDY

(a) **Sample Selection :** The **National Stock Exchange (NSE)** is the stock exchange located at

Mumbai, India. It is in the top 20 largest stock exchanges in the world by market capitalization and largest in India by daily turnover and number of trades, for both equities and derivative trading. NSE has a market capitalization of around US\$1 trillion and over 1,652 listings as of July 2012. Though a number of other exchanges exist, NSE and the Bombay Stock Exchange are the two most significant stock exchanges in India and between them are responsible for the vast majority of share transactions. The NSE's key index is the S&P CNX Nifty, known as the **NSE NIFTY** (National Stock Exchange Fifty), an index of fifty major stocks weighted by market capitalization. Against this background, this study considered the NSE NIFTY as sample.

(b) **Sources of Data :** The required information of the present study were collected from the www.nseindia.com and PROWESS, which is corporate database maintained by CMIE.

(c) **Period of the Study :** The present study covers a period of one year from 1st April 2004 to 31st March 2012.

Tools Used For Analysis

The following tools were used for the analysis of the returns and volatility for the sample indices taken for this study.

(I) Returns

The formula below was used to compute the daily returns for each of the companies under NSE NIFTY.

$$R_{t=1} = \ln [I_t / I_{t-1}] * 100$$

Where,

R_t = Daily return (I),

\ln = Natural log of underlying market series

(I),

I_t = Closing value of a NSE Nifty (I) on a specific trading day (t), and

I_{t-1} = Closing value of a NSE Nifty (I) on preceding trading day (t-1).

(II) Descriptive Statistics

Under Descriptive Statistics, the Average Daily Returns (mean), Standard Deviation, Skewness and Kurtosis were used.

(III) Kruskal-Wallis Test

The Kruskal-Wallis Test is employed for testing the equality of mean returns among different months of the year. The formula for calculating the Test Statistic ' H ' is as under:

$$H = \frac{12}{N(N+1)} \sum_{j=1}^5 \frac{R_j^2}{n_j} - \frac{3(N+1)}{N}$$

Where,

R_j = Sum of the Ranks in the j th Column,

n_j = Number of Cases in the j th Column, and

N = Sum of Observations in all the Columns

(IV) Dummy Variable Regression Model

In order to investigate the Monday effect, the following dummy variable regression equation is used.

$$R_t = \hat{\alpha}_1 D1(\text{Mon}) + \hat{\alpha}_2 D2(\text{Tue}) + \dots + \hat{\alpha}_5 D5(\text{Fri}) + \hat{\alpha}_t$$

Where,

R_t = Index return percent in the month t ;

$D1(\text{Mon})$ = dummy variable equal to 1 if t is a Monday and 0 otherwise,

$D2(\text{Tue})$ = dummy variable equal to 1 if t is a Tuesday and 0 otherwise,

$D3(\text{Wed})$ = dummy variable equal to 1 if t is a Wednesday and 0 otherwise,

$D4(\text{Thu})$ = dummy variable equal to 1 if t is a Thursday and 0 otherwise,

$D5(\text{Fri})$ = dummy variable equal to 1 if t is a Friday and 0 otherwise,

$\hat{\alpha}_t$ = error term

The intercept, $\hat{\alpha}_1$ $\hat{\alpha}_5$, represent the average deviation of each day from the Monday return. Thus, if the daily returns are equal, one expects the dummy variable coefficients to be statistically close to zero. So, the coefficients of the regression are the mean returns obtained from Monday to Friday applying ordinary least square (OLS).

7. ANALYSIS OF FRIDAY EFFECT IN NSE NIFTY**(i) Analysis of Descriptive Statistics**

The results of Descriptive Statistics for NSE NIFTY returns for the period from 1st April 2004 to 31st March 2012 were illustrated in Table-1. The above Table shows that the mean returns of selected Indices were positive for all trading days and they were higher (0.1619 for NSE NIFTY) on Friday and lower (0.0169 for NSE NIFTY) on Monday. The Standard Deviation of Returns was highest (2.0891 for NSE

Table - 1

THE RESULTS OF DESCRIPTIVE STATISTICS FOR NSE NIFTY INDEX DAILY RETURNS FROM 1st APRIL 2004 TO 31st MARCH 2012

NSE NIFTY INDEX					
Weekdays	Mean	S.D.	Skew.	Kurt.	Obs.
Monday	0.0169	2.0891	0.3654	14.367	397
Tuesday	0.0724	1.5595	0.1068	6.7334	398
Wednesday	0.1083	1.5971	-0.2279	5.7426	400
Thursday	0.0337	1.5495	-0.2639	5.5018	395
Friday	0.1619	1.8497	0.6915	8.7573	393

Source: Computed from PROWESS.

NIFTY) on Monday and the lowest (1.5495 for NSE NIFTY) on Thursday. This indicates the fact that the NSE NIFTY was more volatile on Monday and less volatile on Thursday. It is to be noted that the Day Trader could gain from such volatility. The Skewness of the Returns Distribution was found to be positive

for Monday and Tuesday for NSE NIFTY while it was negative for the remaining days of the week. The Peak of the Return Distribution shows that it was Leptokurtic for all trading days of the week. It indicates that the majority of the return series were close to the mean for the selected indices.

Table - 2

THE RESULTS OF KRUSKALL-WALLIS TEST OF NSE NIFTY DAILY RETURNS FROM 1st APRIL 2004 TO 31st MARCH 2012

Indices	K-W Test	Df	P-value
NSE NIFTY	2.5395	4	0.6375
Degrees of freedom. N-1 4 N = 5		Table value: 1%	- 13.277
		5%	- 9.488

(ii) Analysis of Kruskal-Wallis Test

Table-2 presents the Results of Kruskal-Wallis Test for NSE NIFTY Returns from 1st April 2004 to 31st March 2012. Kruskal-Wallis Test is commonly used to test the equality of mean returns of the different days of the week. The above Table clearly

shows that the Value of Kruskal-Wallis Test Statistic (NSE NIFTY - 2.5395) was lower than the Table Value (9.488) at 5% level of significance in 4 degrees of freedom for the sample Index returns. It clearly indicates that there was no significant difference between the returns of different days of the week.

Table - 3

RESULTS OF DUMMY VARIABLE REGRESSION MODEL FOR NSE NIFTY DAILY RETURNS FROM APRIL 2004 TO MARCH 2012

NSE NIFTY				
Variable	Coefficient	Std. Error	t-statistic	Prob.
Tuesday	0.0524	0.1237	0.424	0.6716
Wednesday	0.0843	0.1235	0.6827	0.4949
Thursday	0.0097	0.1239	0.0785	0.9374
Friday	0.1379	0.1241	1.1114	0.2665
C	0.024	0.0876	0.274	0.7841
Adjusted Rsquared	0.0008	F-statistic		0.4156
D.W.	1.8507	Prob. (F-statistic)		0.7975

Source: Computed from PROWESS using E-views. *Significant at 5% level.

(iii) Analysis of Dummy Variable Regression Model

Table 3 shows the Results of the Linear

Regression Analysis for NSE NIFTY and from April 2004 to March 2012. It is to be noted that the Benchmark Day in the Model was Monday,

represented by the Intercept. The Values of Coefficients (0.1379 for NSE NIFTY) in Friday was high compared to the other days of the week. Further, none of the coefficients was significant at 5% level of significance, indicating that there was no Day of the Week Effects in the NSE NIFTY. It is to be noted that the R² (0.0008) was low. The insignificant F-statistic indicates that the overall fit of the model was poor. Further, Durban-Watson Statistic Value of 1.85 for NSE NIFTY and 1.76 for BSE 500 Index indicates autocorrelation in the residuals. Therefore, the Null Hypothesis (NH1), "There is no significant difference among the returns of different trading days of the week", is not rejected. In other words, there did not appear any Day of the Week Anomaly for NSE NIFTY Returns during the study period.

8. OUTCOMES OF THE STUDY

The following are the important findings of the present study

1. The analysis of the study expose that there were Positive Mean Returns recorded for all days of the week while the Highest Mean Returns (0.1619 for NSE NIFTY) were recorded on Friday, and the Lowest Mean Returns (0.0169 for NSE NIFTY) were recorded on Monday for the sample indices during the study period. It is suggested that the investors may buy the shares on Monday and sell them on Friday because they may get better returns than on other days of the week.
2. The Standard Deviation of Returns was highest (2.0891 for NSE NIFTY) on Monday and the lowest (1.5495 for NSE NIFTY) on Thursday. This indicates the fact that the NSE NIFTY Index Returns were more volatile on Monday and less volatile on Thursday. It is to be noted that the Day Trader could benefit from such volatility.
3. NSE NIFTY returns recorded high risk with low return and vice versa. Hence the market Regulators may take necessary steps to maintain risk and return tradeoff.
4. The Return Distribution was Positively Skewed

for Monday and Tuesday for NSE NIFTY Index returns.

5. The Kurtosis measure of Returns Distribution was Leptokurtic for all days of the week, showing the Highest Values (14.36 for NSE NIFTY) on Monday for the sample indices during the study period. It indicates that the Return Distribution was not normally distributed during the study period.
6. The analysis of Kruskal-Wallis Statistics shows that the Test Statistic value (2.5395 for NSE NIFTY) was lower than the Table Value (9.488) at 5% level of significance in 4 degrees of freedom for the selected Index returns. It clearly indicates that there was no significant difference between the returns of different days of the week.
7. The Value of Coefficients in Friday was high and none of the variables were statistically significant at conventional level of risk in NSE NIFTY Index returns. And also the insignificant F-value did not confirm Friday in Indian stock market during the study period.

9. CONCLUSION

This study examined the Friday effect for NSE NIFTY Index returns. The study used the logarithmic data for sample indices in NSE and applies the Dummy Variable Regression Model. The outcome of the study initiate that there was Highest Mean Return recorded in Friday and the Lowest Mean Returns were recorded in Monday for the sample indices. The seasonality results point out there is no significant Friday effect exist in Indian Stock Market during the study period. The study discloses that Monday has the lowest returns but it is the best period to buy the scrip's (buy low). The Friday's show the high returns that is the best period to sell the securities (sell high). It further suggests that investors could experiment the above strategy, to start with, on small stocks and extend the same on blue-chips based on the risks and rewards. This gains further momentum as Indian markets are more transparent and open to the global institutional investors and fund managers seeking profitable trade opportunities.

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