



# An Analysis of the Day-of-the-Week Effect in the Indian Stock Market: Evidence from Bombay Stock Exchange

Nagesh Malavalli\* and S Sathyanarayana†

## Abstract

A major apprehension in the market efficiency hypothesis is the existence of calendar anomalies or seasonality in the stock market returns. One of the most prominent calendar anomalies is the "Day-of-the-Week" effect. Thus, investors are more worried about which day of the week is the best day for the trade. The current study aims to study empirically the Day-of-the-Week effect anomaly in the emerging stock market of a developing economy like India for the period 2004 to 2014 using *end of day* data for the benchmark Indian equity market index BSE Sensex using dummy variables regression. Empirical results conclude that BSE Sensex does not show any presence of "Day-of-the-Week" effect or seasonality. Hence one can conclude that the BSE Index is efficient and there is no Day-of-the-Week anomaly in Indian stock market.

**Keywords:** Day of the Week effects, anomaly, BSE Sensex, Unit root, ADF, Seasonality

---

\* MP Birla Institute of Management (MPBIM), Bharatiya Vidhya Bhavan (BVB), Bengaluru, India; nmalaval@mpbim.com

† MPBIM, BVB, Bengaluru, India; sathya4u.s@gmail.com

## **Introduction**

The Efficient Market Hypothesis (EMH) claims that in informationally-efficient markets, stock prices fully reflect all the relevant information that is available in the market about a stock. If the stock market is informationally-efficient then stock prices adjust immediately to the new information. The major implication of this theory is that new data regularly enter the financial market in the form of earnings announcement, dividend payment, sector report and political issues, and if the market is efficient then security prices adjust promptly to new information. This means that the security prices reflect fully all the information that is available in the market, and stock returns follow a random walk, unpredictable, without pattern, and it is practically impossible for a trader to predict stock prices in order to “beat the market”.

However, in financial markets, a lot of market anomalies contradicting the efficient market hypothesis theory have been reported. Here, market anomalies refer to situations when a stock or group of stocks perform contradicting to the notion of efficient market hypothesis, where security markets are “informationally efficient” and no one can earn superior returns. With the constant release and rapid diffusion of new information, sometimes efficient markets are difficult to achieve and even more hard to maintain because of the existence of these market anomalies such as January Effect, the Small-firm Effect, Low Book Value, Neglected Stocks, Reversals, Dogs of the Dow, the Holiday Effect, Announcement Effects, Day-of-the-Week effect etc.

Most of the studies till early eighties supported the view that the security markets are informationally efficient. Most of the security valuation models have been developed on the basis of information-efficient market. In the context of stock markets, the Day-of-the-Week effect, that negates the theory by EMH, has been documented over decades. These calendar effects are trends seen in stock returns, where the returns tend to rise or fall on a particular day or month as compared to the mean. They are called anomalies because they cannot be explained by traditional asset pricing models and they violate the weak-form of market efficiency (i.e. asset prices fully reflect all past information). Examples of such patterns

include the Month-of-the-year effect, The Day-of-the-Week Effect, Intra-month Effect, Turn-of-the-Month Effect, Holiday effect, Halloween Effect, and Daylight Savings Effect.

The Day-of-the-Week Effect phenomenon is one of the most important calendar anomalies that have been observed in many of the developed stock markets across the world. This specific anomaly has been extended to various emerging stock markets like China, Malaysia, Russia, Turkey etc. However, the latest studies in the context of emerging markets relating to the Day-of-the-Week Effect have produced contradictory evidence. Therefore the current study has been undertaken in the context of emerging economy like India.

This study adds to the existing knowledge in several ways.

1) Most of the former studies on the Day-of-the-Week Effect have mainly concentrated on the US stock markets and other developed markets like UK, Japan, Spain, Australia, Canada and Germany. Therefore the current study analyses stock market anomalies in an emerging stock market context, especially Indian stock market.

2) In an observation, Guin (2005) documented that in western markets the companies and Governments normally release good news during weekdays (between Monday and Friday) and bad news over the weekends. Correspondingly, the bad news is echoed in lower stock returns on the next week's first trading day (Mondays) and favorable news is reflected in higher stock prices on the last trading day (Friday). The current study aims at this observed phenomenon in emerging stock markets like Indian stock market.

3) Majority of the studies have utilized the same data and this excessive usage of the same data generates data mining problem. However, most of the empirical studies conducted across markets both developed and emerging, provide contradicting evidence over the period of time. Therefore, this paper aims to investigate the Day-of-the-Week Effect in the Indian stock market using the most recent data.

4) The current study will also provide valuable insights for policy makers and market participants in several ways. For policy makers forming policies in Indian stock market and for participants who

are trading in the market; the study would be very beneficial in adjusting their trading strategies to exploit the market anomalies in their favor. 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. This paper aims to investigate empirically the Day-of-the-Week Effect on stock returns with special reference to BSE Sensex using the most recent data keeping the above considerations in view.

## **Literature Review**

A brief review of previous studies has been presented here to find the research gap in the area of anomalies. Extensive literature is available with regard to several forms of market anomalies. Fama (1965) noted Monday's variance to be 20 per cent greater than other days' returns. Later, many empirical studies by French & Kenneth R (1980), Gibbons, Michael and Hess (1981), Lakonishok and Levi (1982), Gultekin and Gultekin (1983), Theobald and Price (1984), Keim, Donald, Robert and Stambagh (1984), Theobald and Price (1984), Jaffe and Westerfield (1985), Simrlock and Starts (1986), Santesmases (1986), Board and Sutcliffe (1988), Kohers and Kohers (1995), Rogalski (1984), Lakonishok and Smidt (1988), Kiyamaz and Berument (2006) and many other studies support the existence of the Day-of-the-Week Effect in developed economies stock markets. Most of these studies confirm that stock prices are expected to be lower on Monday and higher on Friday the closing day of the week especially in USA and Canada.

An empirical study by Halil Kiyamaz and Hakan Berument (2006) in five developed economies—NYSE, UK, Canada, Germany and Japan by employing Regression Analysis, ARCH and GARCH techniques. The study shows that the highest volatility exists on Mondays for Japan and Germany, Thursdays for the UK, and for US and Canada it's on Friday. Jeffrey Jaffe and Randolph Westerfield (1985) explored the Day-of-the-Week Effect in Japanese market by employing regression technique and they found the lowest mean return to occur on Tuesday. Chang, Pinegar and Ravichandran (1993) examined the presence of the Day-of-the-Week Effect in Canada, Hong Kong, France, Italy, the Netherlands,

Spain, Sweden, Switzerland and the UK stock markets by employing robustness tests. The study shows the existence of the Day-of-the-Week Effect. However, an interesting study conducted by Ozenbas (2006) in four developed markets by employing variance ratio statistics revealed increased difficulty of price discovery just before and after the weekend non-trading period. Bayar and Kan (1999) explored nineteen developed markets daily return during the period of 1993-98 by using regression. The study shows the existence of the Day-of-the-Week Effect in developed markets. Another study by Chukwuogor-Ndu (2006) examined the financial markets' trend in 15 emerging and developed European financial markets. The study found the presence of Day-of-the-Week Effect during the period of 1997 to 2004.

In recent years, several studies have been undertaken to test the returns of emerging markets for the existence of the anomaly the Day-of-the-Week Effect. Agathe (2008) examined the presence of the Day-of-the-Week Effect in Mauritius by employing regression analysis; the study indicates that the day of the week effect is statistically insignificant. Anwar and Mulyadi (2009) investigated the Day-of-the-Week Effect in an emerging market, in particular the Stock Exchanges of Indonesia, Singapore and Malaysia by employing GARCH, EGARCH to confirm the existence. In Singapore, there are abnormal returns on Monday and Friday, however, there is positive abnormal return on Friday in Indonesia and Malaysian stock market. In an investigation by Batuo Enowbi, Guidi and Mlambo (2009) in South Africa, Tunisia Morocco and Egyptian stock markets found the existence of the Day-of-the-Week Effect. In Indian context, Ramesh Chander, Kiran Mehta and Renuka Sharma (2008) presented the evidence on the Day-of-the-Week Effect in Indian stock markets. They documented negative returns on Monday and positive returns on Friday. Another study by Balaban (1994) in Istanbul Index (ISECI) documented the presence of Day-of-the-Week Effect during the period of 1994 to 98. A study by Das and Jariya (2009) in Sri Lankan stock market supported the existence of the Day-of-the-Week Effect in Lankan stock markets. Their study confirms that Friday is statistically most significant.

Al-Loughani and Chappell (2001) and AL-Mutairi (2010) employed the GARCH model on Kuwait stock market and found that returns were higher on Friday and lower on Monday. The result indicates the existence of Day-of-the-Week Effect in Kuwait markets which in turn recommends that the market is inefficient. Hassan Aly, et al. (2004) in their study investigated daily anomalies in the Egyptian stock market using the Capital Market Authority Index; the study revealed that there is no significant difference in returns and rejected the Day-of-the-Week Effect. Rahman (2009) investigated the presence of Day-of-the-Week Effect in Dhaka Stock Exchange (DSE). The result shows that only on Thursdays the returns are found to be statistically significant. Mookerjee and Yu (1999) discovered positive Thursday and Friday effects in the Shanghai securities exchange, but they could not notice the Day-of-the-Week Effect in the Shenzhen securities exchange. Choudhry (2000) studied seven emerging markets to investigate the existence of the Day-of-the-Week Effect that include India, Indonesia, Malaysia, Philippine, Korea, Taiwan, and Thailand. The findings demonstrated a presence of the Day-of-the-Week Effect.

A lot of Indian researchers also conducted research on the Day-of-the-Week Effect on Time Series Data. A Study by Sharma and Kennedy (1977) supported the theory of random walk and confirmed that the Indian stock markets were efficient. However, Kulkarni (1978) confirms the presence of abnormal returns in the Indian stock markets and rejected the random walk hypothesis. The existence of calendar anomalies with the Indian stock market has been examined by Choudhury (1991) and Obaidulla (1994) examining the fairness of monthly returns and daily returns respectively found the evidence for existence of calendar anomalies. Poshakwale (1996) found that mean returns, except for the Monday and Wednesday were positive and they also confirm that the standard deviation is larger for the first and the last days of the week. A study by Chukwuogor-Ndu, and Feridun (2006) confirms that the Day-of-the-Week Effect was statistically insignificant in most of Asia Pacific Financial Markets. A study by Roger Ignatius (1992) and Golaka Nath and Manoj Dalvi (2004) confirmed the existence of a weak form of the weekend effect in the Indian market. Chander, Mehta and Sharma (2008) documented the existence of the Day-of-the-Week Effect in Indian stock markets

citing negative returns on Monday and positive returns on Friday which were almost similar to the evidence from developed economies. Sharma and Kennedy (1977) found that the Indian markets were efficient and followed the theory of random walk.

## Data and Methodology

### Objectives of the study

1. To analyse the presence of Day-of-the-Week Effect anomaly in the Indian Stock Markets with special reference to BSE Sensex
2. To study the efficiency of Indian Stock Market

### Hypothesis of the study

$$H_0: \mu_M = \mu_T = \mu_W = \mu_{TH} = \mu_F$$

$$H_1: \mu_M \neq \mu_T \neq \mu_W \neq \mu_{TH} \neq \mu_F$$

### Data for the study

In this study the data used for analysis is the closing price of BSE Sensex for the period, April 2004 to March 2014. The data required for the study has been collected from the database of the Bombay Stock Exchange and other websites.

In the first phase, the financial data collected for ten years has been tested for unit root by employing ADF test. In the second phase a descriptive statistics has been run to study the mean distribution and variance, and standard deviation and later robust dummy variable regression has been run. In the last phase t-test, two samples has been run to draw the conclusion, then those variables have been tested at 5% level of significance. Finally, these results have been compared to the available evidence.

### Daily Returns

The data used in this research consist of daily index returns using values for the BSE Index, from April 2004 to March 2014. During this trading period between Monday to Friday is considered. The daily returns  $R_t$  computed from BSE 30 Index as follows.

$$R_t = \frac{\ln[C_t]}{C_{t-1}} \quad (1)$$

Where:  $R_t$  = return on day 't'

$C_t$  = Closing Price on day 't'

$C_{t-1}$  = Closing Price on day 't-1'

and  $\ln$  = natural log of underlying market series.

To investigate the Day-of-the-Week Effect we estimate the following regression equation.

Following dummy variable regression model has been used to investigate the day of the week effect:

$$R_t = \alpha + \beta_1 M + \beta_2 T + \beta_3 W + \beta_4 Th + \beta_5 F + \epsilon_t \quad (2)$$

Where  $R_t$  is the daily returns

M, T, W, Th and F are dummy variables for Monday, Tuesday, Wednesday, Thursday, and Friday respectively.

$\beta_1, \beta_2, \beta_3, \beta_4$  and  $\beta_5$  are restrictive coefficients

$\epsilon_t$  = error term

If it is a Monday, then  $M=1$  and "0" for all other days, if T is a Tuesday then  $T = 1$  and "0" for all other days and so forth  $\epsilon$  is a random term.  $\beta_1- \beta_5$  are co-efficient to be estimated using Ordinary Least Square.

## Data Analysis

### Investigation of existence of Unit Root

The unit root test for the stationarity has been applied for log returns. For this purpose, both Augmented Dickey-Fuller (ADF) tests as well as the Phillip-Perron (PP) tests are conducted. The p-values turn out to be 0.00 which means that the null hypothesis has been rejected (there is no unit root in the distribution).

Table 1 Results of Unit Root Test (ADF)

		t-Statistic	Prob.*
Test Critical Values		-32.1497469264923	0.000000
	1% Level	-3.432003	
	5% Level	-2.862151	
	10% Level	-2.567113	

Table 2 Results of Unit Root Test (Philips Perron Test)

		t-Statistic	Prob.*
Test Critical Values		-46.27762	0.0001
	1% Level	-3.433589	
	5% Level	-2.862857	
	10% Level	-2.567518	

### Analysis of Descriptive Statistics for BSE Sensex- Index Returns

Table 3 Descriptive Statistics

	Monday	Tuesday	Wednesday	Thursday	Friday	Total
Mean	0.000243	0.000585	0.001444	0.000377	0.000655	0.000612353
Median	0.000609	0.000234	0.000326	0.000531	-	0.000307659
Standard Deviation	0.016375	0.013667	0.01387	0.013612	0.015588	0.014993623
Variance	0.000268	0.000187	0.000192	0.000185	0.000243	0.000224809
Kurtosis	3.27798	2.796713	2.534546	2.549787	2.64999	3.463102011
Skewness	-0.30504	0.107574	0.31987	-0.05438	-0.10068	-0.09708874
Range	0.148277	0.110426	0.107497	0.116725	0.136855	0.156280368
Minimum	-0.07407	-0.04972	-0.04808	-0.04778	-0.07066	-0.07407027
Maximum	0.074207	0.060702	0.059421	0.068943	0.066191	0.082210092
Sum	0.126127	0.303007	0.747819	0.195063	0.340193	1.59334167
Count	519	518	518	518	519	2592

By descriptive statistics we note that mean return of Wednesday is higher when compared to the rest of the week. The mean return on Wednesday is 0.001444 followed by Friday at 0.000655 and Tuesday (0.000585), which is higher compared to the other days of week. The mean return on Monday is 0.000243, which is lower when compared to the other days of the week. The mean return on rest of

week is 0.000612353. The higher mean return shows that there is “Wednesday Effect” in Bombay Stock exchange and returns on other days are not constant. The variance on Monday is 0.000268 which is more than the variance on other days. During the study period, the kurtosis measure of return distribution was leptokurtic for all days of the week, but the highest (3.27798) being on Monday. Even Wednesday’s Skewness is 0.31987, which is higher than the rest of the week.

The study also found that the highest value of standard deviation was recorded on Monday (0.016375) followed by Friday (0.015588) and the least value of standard deviation were recorded on Thursday (0.013612). However, for the entire week it stood (0.014993623). This indicates that the Indian stock market was more volatile on Monday and Friday and least volatile on rest of the days during the study period.

### Analysis of OLS Regressions Model to Test Seasonality

Table 4 Regression results

Days	Mean	Coefficients	Standard Error	t Stat	P-value
Monday	0.000243	-0.0002564	0.001030264	-0.24887	0.80348335
Tuesday	0.000585	-2.28797E-05	0.001026681	-0.02229	0.98222232
Wednesday	0.001444	0.000596868	0.001031827	0.578458	0.56300796
Thursday	0.000377	-0.000275455	0.001031304	-0.26709	0.78941947
Friday	0.000655	-0.000205455	0.001031303	-0.26718	0.68541947

Intercept is  $\alpha$  in the set equation. Standard error measures the variability in approximation of the coefficient and lower standard error means coefficient is closer to the true value of the coefficient.

It is clear from the above Table No. 4, that only one variable (Wednesday) recorded Positive Coefficient Value for and other variables (Monday, Tuesday, Thursday and Friday) recorded Negative Coefficient Value during the study period. But none of the coefficients (days of the week) were statistically significant at conventional level of significance (5%) indicating that there was no Day-of-the-Week Effect in the Sensex Returns.

Table 5 Regression table

<b>Regression Statistics</b>	
Multiple R	0.019488133
R Square	0.000379787
Adjusted R Square	-0.001645529
Standard Error	0.016175344
Observations	2473

As the Table No. 5 depicts, there is very little support for the model. R-square value of (0.000379787) represents a no support for the model indicating that only 0.037% of the information of dependent variable is predicted by the model, and F-Statistic indicates that the overall fit of the model was poor.

Table 6 ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	5	0.000245334	4.91E-05	0.23441781	0.947486091
Residual	2468	0.645731838	0.000262		
Total	2473	0.645977172			

F test has been conducted to check the fitness of the model. The results show that there is no Day-of-the-Week effect in Bombay Stock market. ANOVA suggest that model with F value (0.23441781) does not support any significance (0.947486091).

Table 7 t-test results

H0: The daily returns in the stock market are same across different trading days of the week.

H1: The daily returns in the stock market are not same across different trading days of the week.

<b>t-Test: Paired Two Sample for Means (1%)</b>			<b>t-Test: Paired Two Sample for Means (5%)</b>		
	t Stat	t Critical two-tail	t Stat	t Critical two-tail	
Mon - Tue	-0.222273	2.58532	-0.22227	1.96454	Accept Null

t-Test: Paired Two Sample for Means (1%)			t-Test: Paired Two Sample for Means (5%)		
	t Stat	t Critical two-tail	t Stat	t Critical two-tail	
Mon -Wed	-0.73147	2.58532	-0.73147	1.96454	Accept Null
Mon -Thu	0.01455	2.58532	0.01455	1.96454	Accept Null
Mon -Fri	-0.19930	2.58532	-0.19930	1.96454	Accept Null
Tue-Wed	-0.62973	2.58532	-0.62973	1.96454	Accept Null
Tue-Thu	0.27578	2.58532	0.27578	1.96454	Accept Null
Tue-Fri	0.00775	2.58532	0.00775	1.96454	Accept Null
Wed-Thu	0.93442	2.58532	0.93442	1.96454	Accept Null
Wed-Fri	0.62982	2.58532	0.62982	1.96454	Accept Null
Thu-Fri	-0.26257	2.58532	-0.26257	1.96454	Accept Null

## Discussion and Conclusion

The EMH asserts that in informationally-efficient markets the mean returns for a given day is not significantly different from the other days of the week. The study aims at exploring the presence of the Day-of-the-Week anomaly on stock returns in Indian stock market. The study empirically analyses the day of the week effect in BSE Sensex Index log returns for the period from 1st April 2004 to 30st March 2014. The collected data has been tested for stationarity by employing ADF and Philips Perron Tests. Both the tests showed that there is no unit root in the distribution and the data is stationary. Our results support the efficient market hypothesis as we did not find any significant difference in means for individual days.

Contrary to many other studies in the western markets and their evidences to the Day-of-the-Week Effect, Indian markets as proxied by the BSE Sensex, fail to support the existence of Day-of-the-Week Effect. This could be due to the fact that we have chosen to study

long time period of the market. It may be further studied in bull periods and bear periods to see if the anomaly exists, in other words, if the trending markets support the existence of the Day-of-the-Week Effect. However, in the long run it is rational to conclude that with so much of technology and so many more market participants active in the market, this known anomaly of Day-of-the-Week has to disappear as every investor finds a way to profit from it, eventually driving it away.

But it is imperative though not statistically significant that we do find evidences that there were high mean returns earned on Wednesday and Friday and low mean returns recorded on Monday during the study period. Whether there is a Weekend Effect in the short run is something that needs to be tested. This could lead to an investment strategy to buy at the end of Monday and sell on Wednesday if it is convenient or at least cover on the Friday thereby making more profitable returns.

## References

- Agathee, U. S., (2008). Day of the week effects: Evidence from the stock exchange of Mauritius (SEM). *International Research Journal of Finance and Economics*, 17.
- Al-Mutairi, A. (2010), An Investigation of the day-of-the-week effect in the Kuwait stock exchange. *Research Journal of International Studies*, 16.
- Al-Loughani, N., and Chappell, D. (2001), Modeling the day-of-the-week effect in the Kuwait stock exchange: A nonlinear GARCH representation. *Applied Financial Economics*, 11(4): 353-359.
- Aly, H., Mehdian, S., and Perry, M. J. (2004), An analysis of the day-of-the-week-effects in the Egyptian stock market. *International Journal of Business*, 9(3)
- Anwar, Y., and Mulyadi, M. S. (2009), The day of the week effects in Indonesia, Singapore, and Malaysia stock markets. MPRA Paper No. 16873, posted August 20, 2009/04:34,
- Balaban, E. (1994). Day of the week effects: New evidence from an emerging stock market. Discussion Paper No: 9410, The Central Bank of the Republic of Turkey Research Department.

- Bayar, A., and Kan, O. B. (1999), Day of the week effects: Recent evidence from nineteen stock markets. *Central Bank Review* 2 (2002) 77-90
- Board, J. L. G., and Sutcliffe, C. M. C. (1988). The weekend effect in UK stock market returns. *Journal of Business Finance and Accounting*, 15(2), 199-213.
- Chander, R., Mehta, K., and Sharma, R. (2008), A reexamination of the day-of-the-week effect on the Indian stock markets. *The ICAI Journal of Applied Finance*, 14(4): 5-20.
- Chang, E.C., Pinegar, J. M., and Ravichandran, R. (1993), International evidence on the robustness of the day-of-the-week effect. *Journal of Financial and Quantitative Analysis* 28(4).
- Choudhury, S. K. (1991). Seasonality in share returns: Preliminary evidence on the day of the week effect. *Chartered Accountant*, November, 407-409.
- Choudhry, T. (2000), Day of the week effect in emerging Asian stock markets: Evidence from the GARCH Model. *Applied Financial Economics*, 10: 235-242.
- Chukwuogor-Ndu, C., Feridun, M. (2006), An econometric investigation of the day-of-the-week effect and returns volatility in fifteen Asia Pacific financial markets (1998-2003). *Applied Econometrics and International Development*, AEID. 6(1).
- Chukwuogor-Ndu, C. (2006), Stock market returns analysis, day-of-the-week effect, volatility of returns: Evidence from European financial markets 1997-2004. *International Research Journal of Finance and Economics*, 1, 112-124.
- Das, B. InunJuria A. M.,(2009). Day of the week effect and the stock returns in the Colombo stock exchange an analysis of empirical evidence. *Indian journal of Finance*, iii (8), 31-38.
- Enowbi, M. B., Guidi, F., and Mlambo, K. (2009), Testing the weak-form market efficiency and the day of the week effects of some African countries. MPRA Paper No. 19116.
- Fama, E. F. (1965). Efficient capital markets: A review of theory and empirical work. *Journal of Business*, 1, 34-105.
- Fama, E. (1970), Efficient capital markets: A review of theory and empirical work. *Journal of Finance*, 25, 383-417.
- French, K. R., (1980), Stock returns and the weekend effect. *Journal of Financial Economics*, 8(1), 55-70.

- Gibbons, M. R., & Hess, P., (1981). Day-of-the-week effects and asset returns. *Journal of Business*, 54, 579-96.
- Gultekin, M. N., and Gultekin, N. B. (1983). Stock market seasonality: International evidence. *Journal of Financial Economics*, 12, 469-481.
- Ignatius, R. (1992), The Bombay stock exchange: Seasonalities and investment opportunities. School of Business, Discussion Papers, Bond University.
- Jaffe, J. and Westerfield, R. (1985). Patterns in Japanese common stock returns: Day of the week and turn of the year effects. *Journal of Financial and Quantitative Analysis*, 20(2), 261-272.
- Jaffe, J. F., Westerfield, R., & Christopher, M. (1989). A twist on the Monday effect in stock prices: Evidence from the U.S. and foreign stock markets. *Journal of Banking and Finance*, 13, 641-650.
- Keim., D. B., Robert F., and Stambaugh (1984). A further investigation of the weekend effect in stock returns. *The Journal of Finance*, 39(3), 819-840.
- Kiyamaz H., and Berument H., (2003), The day of the week effect on stock market volatility and volume: International evidence. *Review of financial Economics*, 363-380.
- Kohers, T., & Kohers, G. (1995). The impact of firm size differences on the day-of-the-week effect: A comparison of major stock exchanges. *Applied Financial Economics*, 5, 151-60.
- Lakonishok, J., and Levi, M. (1982). Weekend effects in stock returns: A note. *Journal of Finance*, 37(3), 883-890.
- Lakonishok, J., & Smidt, S. (1988). Are seasonal anomalies real? A ninety years perspective. *The Review of Financial Studies*, 1(4), 403-425.
- Mookerjee, R. and Yu, Q. (1999), An empirical analysis of the equity markets in China. *Review of Financial Economics*, 8: 41-60.
- Nath, G. C. and Dalvi, M. (2004), Day-of-the-week effect and market efficiency-evidence from Indian equity market using high frequency data of national stock exchange. Paper presented at The Center for Analytical Finance, Indian School of Business, Hyderabad, December, pp.19-21.
- Obaidulla, M. (1994). *Indian Stock Market: Theories and Evidence*, Hyderabad: ICFAI, 90-93.

- Ozenbas, D. (2006). Day of the week effects in intra-day volatility patterns of equity markets: A study of US and European stock markets. *International Business & Economics Research Journal*, 5(6).
- Poshakwale S. (1996). Evidence on weak form efficiency and day of the week effect in the Indian stock market. *Finance India*, X (3).
- Rahman, L. (2009), Stock market anomaly: Day of the week effect in Dhaka stock exchange. *International Journal of Business and Management*, 4, 193-206.
- Rogalski, R. J. (1984). New findings regarding day-of-the-week returns over trading and nontrading periods: A note. *Journal of Finance*, 39, 1603-14.
- Santesmases, M. (1986). An investigation of Spanish stock market seasonalities. *Journal of Business Finance and Accounting*, 13(2), 267-276.
- Theobald, M., and Price, V. (1984). Seasonality estimation in thin markets. *Journal of Finance*, 39(2), 377-392.