

Efficient Market Hypothesis Foreign Institutional Investors and Day of the Week Effect

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Abstract. The work examines the trading pattern of the Foreign Institutional Investors (FIIs) across the days of the week for a period of two years from January 2008 to February 2010. A set of parametric tests were employed to test the pattern in the data. The findings of the study show that purchases made by the FIIs are highest during Thursday. Similarly, sales made by FIIs are highest during Thursday. The data also shows that the value of purchases and sales are lowest on Mondays.

Keywords: Efficient Market, Foreign Institutional Investors, FIIs, Day of the week effect

1. Introduction

Cross (1973) was the first to point out the differences in return across weekdays. Since then, the stock market efficiency is an extensively researched area of investment management. Day-of-the-week effect is the most talked anomaly. However, due to the increased use of information technology (IT) and the ongoing stock market reforms in various countries, investors might expect stock markets to be free from such anomalies. Despite frequent claims of market efficiency, literature on the subject offers evidence of the seasonal/calendar anomalies, both in the developed and emerging stock markets. A review of the existing studies, i.e., Rozeff and Kinney (1976), French (1980), Lakonishok and Smidt (1988), Cadsby (1989), Cadsby and Ratner (1992), Agarwal and Tandon (1994), indicates that the stock markets of the developed as well as developing countries are not yet free from the seasonal anomalies despite the increased use of IT and numerous regulatory developments.

Researches have stated various causes in order to explain the day-of-week anomaly, especially Monday and Friday effects, just like the timing of the earnings announcement, settlement effects, measurement error impact, and the liquidity effect or specialist effect bias etc. Besides these, several researchers suggest that the day-of-week effect may be driven by the trading pattern of individual investors, as they are of the opinion that individual investors face an asymmetry of brokers' recommendations, in both form and time.

On the other hand, some researchers have a different opinion. In their view, institutional investors play a crucial role in the movement of the market, as they hold a major chunk of share in the leading companies. Therefore, they are comparatively in a stronger position, as to influence the movement of the markets. Study of Amihud and Mandelson (1994) indicate a positive relationship between stock market returns and FIIs. As the foreign investors purchase more and more, the stock market returns move upward and vice-versa.

2. Literature Review

Many studies have been carried out to determine the pattern of institutional investors' investment and its potential effect on stock market. Badhani (2006) finds sluggish investment activities of FIIs on Tuesday, as they receive instructions from their home country on Monday and accordingly make local investments strategies on the next day. Venezia and Shapira (2005) capture the trading behavior of institutional investors and individual investors in Israel and found that weekends influence both amateurs and professional investors; however, they affect them in opposite directions. Kamara (1997) observes that the Monday seasonal has declined with the increasing role of institutional investors in the stock market. Sias and Starks (1995) found that the weekend effect is driven primarily by the trading patterns of institutional investors. Stocks with large institutional holdings exhibit significantly greater turnover seasonality than comparable

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sized sticks held by institutional investors. Lakonishok *et al.* (1992) use new data on the holdings of 769 tax-exempt (predominantly pension) funds to evaluate the potential effect of their trading stock prices. On the basis of their studies, they suggested that pension manager's do not strongly pursue potentially destabilizing prices. Lakonishok and Maberly (1990) explain that the low volume of block trade on Monday is the day with the lowest trading volume. The propensity of individuals to transact on Monday is highest, relative to other days of the week, and that of institutional investors is lowest. Foster and Viswanathan (1990) concluded that interaction among various traders leads to patterns in trading volume, bid-ask spread, variability and return. Osborne (1962) postulates that the institutional investors use Monday morning to frame the trading strategy for the coming week, therefore, there is less trading from an institutional traders on Monday. This situation produces a downward pressure on the prices on the day.

However, not so much work has been done to link the behavior of different classes of investors with the day-of-week behaviors of stock prices in India. Therefore, this study attempts to establish a link between the investment patterns of institutional investors, especially FIIs, with the pattern of stock market return. The main objective of the study is to examine the trading pattern of FIIs across the days of the week. Simultaneously, the study also tries to explain the possible implication of institutional trading behavior for intra-week dynamics of stock prices in light of the above observations. The present study is an improvement over the existing studies because it covers the most recent period, as well as studying trading behaviour of FIIs in a rapidly growing country, i.e., India.

3. Methodology and Data Analysis

The primary data for this study consists of daily purchases, sales and net investments made by the FIIs, which have been obtained from *www.moneycontrol.com* website. The time period for determining the trading behavior of the FIIs is 2 years from January 1, 2008 to February 28, 2010.

3.1. Analysis of Data from January1, 2008 to February 28, 2010

The day wise descriptive statistics of all these series are given in the Table 1, Table 2 and Table 3. If a graph is prepared it could be seen that the purchases and sales by the FIIs is made on Thursday.

Descriptive Statistics of Data Pertaining to FIIs Purchase-Equity by FIIs					
Parameters	Monday	Tuesday	Wednesday	Thursday	Friday
Mean	2515.033981	2815.384762	2820.296364	2903.942	2758.545098
Standard Error	131.8371727	153.2209304	110.7412639	131.9224639	114.5102313
Median	2280.2	2636.3	2785.45	2669	2665.25
Standard Deviation	1338.001169	1570.04733	1161.464174	1319.224639	1156.496647
Sample Variance	1790247.13	2465048.619	1348999.028	1740353.648	1337484.494
Kurtosis	6.816753826	13.96097477	0.805497279	0.481492165	1.137694562
Skewness	2.15018165	2.716798639	0.693509113	0.788589637	0.769696591
Range	8241.9	11933.1	5588.2	6854.7	6469.4
Minimum	58.1	645.8	811.3	292	356.8
Maximum	8300	12578.9	6399.5	7146.7	6826.2
Sum	259048.5	295615.4	310232.6	290394.2	281371.6
Count	103	105	110	100	102
Largest(1)	8300	12578.9	6399.5	7146.7	6826.2
Smallest(1)	58.1	645.8	811.3	292	356.8
Descriptive Statistics of Data Pertaining to FIIs Purchase – Debt by FIIs					
Parameters	Monday	Tuesday	Wednesday	Thursday	Friday
Mean	311.0165049	434.1038095	252.5072727	465.817	358.5676471
Standard Error	37.31437444	95.6167948	92.70059398	67.87353267	47.9469371
Median	193.7	179.7	211.9	206.65	189.3

Standard Deviation	378.69954	979.7805888	972.252032	678.7353267	484.240328
Sample Variance	143413.3416	959970.0021	945274.0137	460681.6436	234488.6953
Kurtosis	3.639997839	58.49624555	67.63929681	13.49194476	5.772329605
Skewness	1.896925035	6.936613965	-7.028249394	3.078498216	2.271664336
Range	1738	9047.9	11277.4	4513.5	2591.7
Minimum	0	0	-8712.7	0	-186.9
Maximum	1738	9047.9	2564.7	4513.5	2404.8
Sum	32034.7	45580.9	27775.8	46581.7	36573.9
Count	103	105	110	100	102
Largest(1)	1738	9047.9	2564.7	4513.5	2404.8
Smallest(1)	0	0	-8712.7	0	-186.9

Table 1: Descriptive Statistics of Data Pertaining to FII Purchase – Equity and Debt by FIIs

Descriptive Statistics of Data Pertaining to FIIs Sale-Equity by FIIs					
Parameters	Monday	Tuesday	Wednesday	Thursday	Friday
Mean	2464.168932	2646.339048	2769.653636	2969.701	2661.281373
Standard Error	130.7163367	129.7451973	114.1389182	148.9518677	109.031156
Median	2232.3	2487.6	2680.7	2606.05	2610.65
Standard Deviation	1326.625927	1329.492648	1197.099073	1489.518677	1101.160699
Sample Variance	1759936.351	1767550.702	1433046.191	2218665.89	1212554.885
Kurtosis	10.72422529	9.218766112	5.635041853	2.152749777	1.523118115
Skewness	2.480451487	2.231567247	1.718701956	1.24720359	0.961312662
Range	10010.7	9247.7	7548	8525.3	5712.3
Minimum	4.7	757.8	1034.3	191.8	616.1
Maximum	10015.4	10005.5	8582.3	8717.1	6328.4
Sum	253809.4	277865.6	304661.9	296970.1	271450.7
Count	103	105	110	100	102
Largest(1)	10015.4	10005.5	8582.3	8717.1	6328.4
Smallest(1)	4.7	757.8	1034.3	191.8	616.1
Descriptive Statistics of Data Pertaining to FIIs Sale - Debt by FIIs					
Parameters	Monday	Tuesday	Wednesday	Thursday	Friday
Mean	279.8242718	267.0152381	279.9872727	395.297	323.4960784
Standard Error	34.37326686	29.98003945	33.03277083	63.5972422	51.15751474
Median	176.3	187.4	182.7	188.55	213.9
Standard Deviation	348.8505581	307.2039882	346.4506232	635.972422	516.6655727
Sample Variance	121696.7119	94374.29034	120028.0343	404460.9215	266943.314
Kurtosis	11.11459993	3.024061181	4.858022649	7.384613341	23.78288874
Skewness	2.703405169	1.659386268	2.053184687	2.759643901	4.314965331
Range	2272.3	1457.7	1667.1	3008	3803.5
Minimum	0	0	0	0	0
Maximum	2272.3	1457.7	1667.1	3008	3803.5
Sum	28821.9	28036.6	30798.6	39529.7	32996.6
Count	103	105	110	100	102
Largest(1)	2272.3	1457.7	1667.1	3008	3803.5
Smallest(1)	0	0	0	0	0

Table 2: Descriptive Statistics of Data Pertaining to FII Sale – Equity and Debt by FIIs

Parameters	Monday	Tuesday	Wednesday	Thursday	Friday
Mean	50.86504854	169.0457143	50.64272727	-65.759	97.26372549

Table 3: Descriptive Statistics of Data Pertaining to FII-Net Investment – Equity by FIIs

3.2. Analysis of Data from January 1, 1999 to January 1, 2008

Table 4, Table 5 and Table 6 shows the data for the FIIs purchases, sales and net investment, respectively. Graphic display of these figures will show that the maximum purchases are made during Friday, while maximum sales are achieved during Thursday. Monday accounts for lower value of purchase and sales.

Parameters	Monday	Tuesday	Wednesday	Thursday	Friday
Mean	1122.75	1119.41	1133.65	1209.53	1262.9

Table 4: Descriptive Statistics of Data Pertaining to FIIs Purchases During 1999-2008

Parameters	Monday	Tuesday	Wednesday	Thursday	Friday
Mean	1021.04	1004.01	1095.52	1148.54	1116.2

Table 5: Descriptive Statistics of Data Pertaining to FIIs Sales by FIIs During 1999-2008

Parameters	Monday	Tuesday	Wednesday	Thursday	Friday
Mean	101.45	115.47	36.96	60.66	146.41

Table 6: Descriptive Statistics of Data Pertaining to FIIs Net Investment During 1999-2008

3.3. Analysis of Data using Parametric Test (Anova)

3.3.1 Analysis of Purchases Data

The significance value comes out to be 0.272, which is less and shows that there is not much difference between the purchase patterns amongst the different days of the week. But as per the Table 7 there is a significant difference between the days 1-4 (Monday- Thursday), which is 97% significant.

Purchase	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	8970900.012	4	2242725.003	1.293	.272
Within Groups	8.934E8	515	1734741.947		
Total	9.024E8	519			

Table 7: ANOVA Observation for Purchase Data

3.3.2 Analysis of Sales Data

The significance value comes out to be 0.081, which is high and shows that there exists difference between the sales patterns amongst the different days of the week. There is also a significant difference between the days 1-4 (Monday- Thursday), which is 99% significant.

Sales	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	1.399E7	4	3497543.741	2.090	.081
Within Groups	8.617E8	515	1673119.965		
Total	8.756E8	519			

Table 8: ANOVA Observation for Sales Data

4 Conclusion

Present study reveals that purchases, sales and investment made by the FIIs shows a day-of-the-week effect. The study also shows that the effect is seen primarily on the Thursday and Monday, wherein the trading is highest and lowest, respectively. Hence, despite the use of sophisticated information technology and many reforms, the stock market is still not fully efficient.

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