

Examining The Day Of The Week Effect In Istanbul Stock Exchange (ISE)

Murat Cinko, Marmara University, Rep. of Turkey
Emin Avci, Marmara University, Rep. of Turkey

ABSTRACT

The existence of day of the week effect for Istanbul Stock Exchange (ISE) was analyzed on the basis of ISE-100 index returns, the returns of all stocks traded in ISE and market capitalization based portfolio returns during 1995-2008. In line with the previous findings, the results of the study presented that the ISE-100 index, ISE traded stocks and market capitalization based portfolios had significant negative Monday and significant positive Thursday and Friday returns.

Keywords: Day of the week effect; market efficiency

I. INTRODUCTION

For over a century, investors and academicians around the world have been studying to figure out the way the security prices fluctuate. Although several academicians suggested various theories to explain the securities price movements in the financial markets, there is no consensus on the validity of those theories and a few could survive to the current decade. One of these theories is the Efficient Market Hypothesis (EMH).

Since its introduction by Eugene Fama (1965), the validity EMH has been questioned on several aspects. One of the critics directed to EMH is the existence of price anomalies, like reoccurrence of similar price patterns in the stock market during a trading day; week or year or period. These anomalies are generally called as the day of the week effect, January effect, and turn of the month effect.

This study will investigate the existence of day of the week effect in Istanbul Stock Exchange (ISE). Although, the evidences about the day of the week effect anomaly in ISE had been documented by several studies; the findings of those studies were based on market indexes, like ISE-100 index. However, this study investigated the existence of the day of the week effect on stock basis by examining the returns of each stock traded on ISE and market capitalization based portfolio returns.

The study is organized as follows. Section two summarizes the literature on the day of the week effect anomaly; section three provides the research design of the study; section four presents the empirical findings and the last section concludes.

II. LITERATURE REVIEW

Several studies were devoted to investigate the existence of day of the week effect anomaly in developed stock markets. Among the studies that examined the US stock markets documented that daily stock returns tend to be negative on Mondays, and tend positive on Fridays (Cross, 1973; French, 1980; Gibbons and Hess, 1981; Keim and Stambaugh, 1984; Rogalski, 1984). On the other hand, several other evidences for the existence of day of the week effect were also reported for developed stock markets (Kiyamaz and Berument, 2003; Gregoriou et.al., 2004).

Furthermore, in several studies, the evidences for the day of the week effect was also documented for the developing stock markets (Brooks and Persaud, 2001; Chusanachoti and Kamath, 2002, Demirer and Karan, 2002; Ajayi, et.al., 2004; Tonchev and Kim, 2004; Hui, 2005; Cinko, 2008).

III. RESEARCH DESIGN

Istanbul Stock Exchange (ISE), as the only stock market in Turkey, was inaugurated in late 1985 and began operation in 1986. The Istanbul Stock Exchange characterized with high volatility in the market returns since its establishment. Such volatility attracts many local and foreign investors as it provides high return possibility. Besides the financial crises realized since the establishment of the market, ISE presented an outstanding growth as an emerging market. The number of companies listed in the ISE increased to 284 in 2008 while it was 80 in 1986. Total trading volume and the total market capitalization were \$261.274 billion and \$119.698 billion in 2008, respectively. Table 1 reports key market indicators for the years between 1986 and 2008.

Table 1 ISE Key Indicators

Year	Number of Companies (Yearend)	Traded Value (US\$ Million)	Traded Number of Stocks	Total Market Values of the Companies (US\$ Million)	ISE-100 Closing Values (US\$)
1986	80	13	3	938	131,53
1987	82	118	15	3.125	384,57
1988	79	115	32	1.128	119,82
1989	76	773	238	6.756	560,57
1990	110	5.854	1.537	18.737	642,63
1991	134	8.502	4.531	15.564	501,50
1992	145	8.567	10.285	9.922	272,61
1993	160	21.770	35.249	37.824	833,28
1994	176	23.203	100.062	21.785	413,27
1995	193	52.357	306.254	20.782	382,62
1996	213	37.737	390.924	30.797	534,01
1997	244	58.104	919.784	61.879	981,99
1998	262	70.396	2.242.531	33.975	484,01
1999	256	84.034	5.823.858	114.271	1.654,17
2000	287	181.934	11.075.685	69.507	817,49
2001	279	80.400	23.938.149	47.689	557,52
2002	262	70.756	33.933.251	34.402	368,26
2003	264	100.165	59.099.780	69.003	778,43
2004	274	147.755	69.614.651	98.073	1.075,12
2005	282	201.763	81.099.503	162.814	1.726,23
2006	290	229.642	91.634.552	163.775	1.620,59
2007	292	300.842	116.824.185	289.986	2.789,66
2008	284	261.274	114.793.157	119.698	1.027,98

Source: ISE Annual Fact Book 2008.

This study examined the existence of day of the week effect for ISE-100 index and 324 stocks traded in ISE throughout 1995 – 2008. The data set was composed of daily returns for 324 stocks and the total number of returns 819,726. Among these stocks, minimum number of observation for a stock in the data set was 248 and the maximum number of observation for a stock was 3406.

The returns for stocks and indexes were calculated by:

$$r_{t,i} = \ln\left(\frac{y_{t,i}}{y_{t-1,i}}\right)$$

$r_{t,i}$ = i^{th} stock or index return at time t ,

$y_{t,i}$, $y_{t-1,i}$ = i^{th} stock price or index value for time t and $t-1$ respectively.

In order to investigate the existence of day of the week effect, regression model was constructed by the use of daily dummies. The model utilized in the study was presented in the following equation:

$$r_{t,i} = \beta_1 DM + \beta_2 DT + \beta_3 DW + \beta_4 DTH + \beta_5 DF + e_i$$

$r_{i,t}$ = i^{th} stock or index return at time t

DM, DT, DW, DTH, DF = the dummy for Monday; Thursday, and etc..

By the use of regression model given above, the existence of the day of the week effect in ISE was analyzed from four different aspects. First of all, the day of the week effect in ISE-100 index, which is accepted as a market indicator, was questioned. The daily returns during 1995-2008 for the ISE-100 index was utilized for this purpose. After this analyzes, as a second aspect, the existence of the day of the week effect was examined separately for each stock that were considered in ISE-100 index. A similar analysis, as a third aspect, was carried out for 324 stocks traded in the ISE. And hence, a last analysis was done on the basis of stock market capitalization value. By the use of year end market capitalization values, stocks were divided into five groups from highest value to the lowest for each year. Each group was considered as a portfolio and daily portfolio returns were calculated by taking the equally weighted average of stock returns in the same portfolio. Hence, the existence of the day of the week effect was analyzed for each portfolio.

IV. EMPIRICAL FINDINGS

The following tables through 2-5 summaries the empirical finding of the study (all results can be provided upon request). Table 2 provides the regression results for ISE-100 index returns. It is obvious that the negative Monday return and positive Thursday and Friday returns are significant at 5% level. On the other hand, there is no significant return pattern for Tuesday and Wednesday.

Table 2 Day of the Week Effect for ISE-100 Index

	Regression Coefficient	P Value
Monday	-0,215	0,045
Tuesday	0,023	0,829
Wednesday	0,118	0,269
Thursday	0,361	0,001
Friday	0,383	0,000

Table 3 summarizes the findings of the regression analysis for the stocks, which are considered in calculation of the ISE-100 index. In Table 3, the total number of significant regression coefficients is given for each day of the week among 100 stocks. The 35% of the ISE-100 index stocks displays a significant negative Monday returns, and 46% and 47% of the ISE-100 index stocks displays a significant positive Thursday and Friday returns, respectively. Although, there are some stocks which presented significant return patterns in other days, they are negligible.

Table 3 Day of the Week Effect for Stocks Considered in ISE-100 Index

	Significant Positive Return*	Significant Negative Return*	Total Number of Companies
Monday	0	35	35
Tuesday	0	2	2
Wednesday	1	2	2
Thursday	46	1	47
Friday	47	0	47

* 5% significance level

Table 4 summarizes the findings of the regression analysis for all stocks traded in ISE during 1995-2008. In Table 4, the total number of significant regression coefficients is given for each day of the week among 324 stocks.

Total of 108 stocks displays a significant negative Monday returns. Furthermore, for 142 and 122 companies have significant positive Thursday and Friday returns, respectively. There are more significant positive returns for Thursdays than Fridays.

Table 4 Day of the Week Effect for ISE Traded Stocks

Day of the Week	Number of Companies		Total Number of Companies
	Significant Positive Return*	Significant Negative Return*	
Monday	0	108	108
Tuesday	1	9	10
Wednesday	1	9	10
Thursday	142	1	143
Friday	122	0	122
TOTAL	266	127	393

* 5% significance level

And hence, a last analysis was done on the basis of stock market capitalization value. By the use of year end market capitalization values, stocks were divided into five groups from highest value to the lowest for each year. Each group was considered as a portfolio and daily portfolio returns were calculated by taking the equally weighted average of stock returns in the same portfolio. Hence, the existence of the day of the week effect was analyzed for each portfolio.

Table 5 Day of the Week Effect for Portfolio Returns

Day of the Week	Market Value Based Portfolio				
	P1	P2	P3	P4	P5
Monday	-	-	-	-	-
Tuesday	ns.	ns.	ns.	ns.	ns.
Wednesday	ns.	ns.	ns.	ns.	ns.
Thursday	+	+	+	+	+
Friday	+	+	+	+	+

n.s. : *Not significant*, - : *Significant negative return*, + : *Significant positive return*

* 5% significance level

Table 5 presents the findings of the regression analysis for portfolios which are constructed according to market capitalization value. The first portfolio, denoted by P1, is composed of the stock with the lowest market capitalization. On the other hand, the fifth portfolio, denoted by P5, is composed of the stock with the highest market capitalization. Regardless of the market capitalization, all portfolios presented significant negative Monday and significant positive Thursday and Friday returns. No significant results can be found out for Tuesdays and Wednesdays.

V. CONCLUSION

In this study, the existence of day of the week effect for ISE was analyzed on the basis of ISE-100 index returns, the returns of all stocks traded in ISE and market capitalization based portfolio returns. In line with the previous findings, the results of the study presented that the ISE-100 index, ISE traded stocks and market capitalization based portfolios had significant negative Monday and significant positive Thursday and Friday returns.

When all of the findings are considered, the ratio significant positive returns on Thursdays are higher than the significant returns for Fridays.

AUTHOR INFORMATION

Murat Çinko has PhD. of Statistics at Marmara University Social Sciences Institute. His research area is financial econometrics.

Emin Avci has PhD. of Accounting and Finance at Marmara University, Istanbul. His research areas are derivative instruments and forecasting in financial markets.

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NOTES