ISSN:2229- 6247

Testing the Day-of-the-Week Anomaly for Sectoral Turkish Stock Market

Prof. Dr. Cengiz TORAMAN
Department of Business Administration,
Gaziantep University, Gaziantep/Turkey

Emre ÖZTOSUN
Department of Business Administration,
Gaziantep University, Gaziantep/Turkey

Emre ÇOLAKOĞLU
Department of Business Administration,
Gaziantep University, Gaziantep/Turkey

Abstract

According to the efficient market hypothesis, the historical movements of the securities are randomly distributed without being dependent on any molds, which makes it impossible for an investor using historical price information to obtain a return above normal. One of the most fundamental assumptions of the effective market hypothesis is that investors act rationally in the decision-making process. However individuals may move away from rationality in some cases in investment decisions due to psychological reasons. The irrational behavior, which the reason behind cannot be explained exactly, is called anomaly which means a deviation from normal. In this study, the anomaly of the day of the week is tested for the Istanbul Stock Exchange for the period between 2010 and 2015. The generalized autoregressive conditional heteroscedasticity (GARCH) and exponential GARCH (EGARCH) models are used as the analysis method. The results of the analysis show that Monday has the increasing effect on volatility in Turkish stock market. Similar results are found in the sectoral stock market. It is observed that the anomaly of the day of the week was valid in BİST 100 and sectoral market indices (except food and banking sector).

Keywords: The day-of-the-week anomaly, The Efficient Market Hypothesis, sectoral Turkish stock markets, EGARCH Model

1. INTRODUCTİON

The Efficient Market Hypothesis, which was proposed by Fama in 1965 to explain how stock prices are formed in financial markets, is one of the leading issues studied and discussed in the finance literature for many years (Kılıç and Buğan, 2016a; 263). According to this theory, all investors in the market are rational, and investment decisions are taken by these investors through interpretation of all information correctly and quickly. Consequently, the stock prices in the market reflect all available information that may affect the market. Therefore, in an efficient market, it is impossible for any investor to obtain excess returns using any information that is not available to other investors (Fama, 1965a). According to the efficient market hypothesis, as the past movements of the securities are randomly distributed it is impossible to predict future prices based on historical price movements (Fama, 1965b). As an answer to the arguments that it is possible to have excess returns by using different markets and techniques, Fama (1970) developed the efficient market hypothesis and he categorized the efficiency of the markets in three groups as; weak, semi-weak and strong form, depending on their level of development and type of information input.

Many studies examining how stock prices have developed over the years have resulted in different assumptions than the efficient market hypothesis. These contradictory results are expressed in the literature by the concept of anomaly, which means deviation from the normal, and classified under three groups; cyclical, cross-sectional and price anomalies (Erdoğan & Elmas, 2010). Cyclical anomalies are perceived as evidence for weak form efficiency; cross-sectional and price anomalies for semi-strong form efficiency (Karan, 2001).

Cyclical or calendar anomalies are one of the most famous abnormal return phenomena. These anomalies can be discovered by monitoring daily price movements with the help of various statistical methods. Calendar anomalies are classified as; day time effect, day of the week effect, week of the month effect, and month of the year effect (Zhang, Lai, & Lin, 2016). The day of the week anomaly, which is the main focus of this study, implies that on a certain day of the week, returns tend to be lower or higher than other days contrary to the argument of the efficient market hypothesis that stock prices are distributed randomly at a certain time interval. In determining day of the week anomaly although there are studies argue that there is not a certain day

for negative or positive returns, in general it is observed that negative lowest returns are on Mondays and positive highest returns are on Fridays. This negative-Monday positive-Friday pattern is also referred as weekend effect by some researchers.

There are different views on the causes of these anomalies in financial markets. Researchers close to classical finance school, assume that companies usually report negative news on Friday after the closure of the markets and the negative impact of these news are reflected on the prices on the following Monday, and as they loss their effect until Friday, the highest returns are seen on Fridays (Karan & Uygur, 2001). On the other hand, researchers close to behavioral finance argue that in general individuals are not rational; therefore they may take irrational investment decisions under the effect of their mental and psychological situation, and under the influence of emotional and mental bias (Brahmana, 2012).

2. LİTERATURE

The first study that identified the effect of the day of the week and described it as an anomaly is by Cross (1973). The study, which investigated the average returns of the S&P 500 index, concluded that when compared with the other trading days of the week; the highest returns occurred on Fridays, and the lowest on Mondays. Similarly, in other pioneering studies following this study, it was observed that the highest returns were usually on Friday (Lakonishok & Levi, 1985; Smirlock & Starks, 1986) while excessive losses in the US stock markets compared to other days were on Mondays (French, 1980; Gibbons & Hess, 1981; Rogalski, 1984). The effect of the day of the week became an anomaly that is explored extensively in the finance literature.

There are also studies that use many international indices to investigate this anomaly, which is observed in the US markets. Jaffe and Westerfield (1985) in their study using indices for the USA, Canada, the UK, Japan and Australia concluded that in the markets of the USA, the UK and Japan the day of the week anomaly effect is found to be similar to previous studies however for Japan and Australia the lowest returns occurred on Tuesdays. In their studies Condoyanni et. al. (1987) stated the day of the week effect in the markets of the USA and the UK realized as Mondays with negative returns and Friday with positive returns but in the markets of France, Canada, Japan and Singapore negative were seen on Tuesday alongside Mondays. Agrawal & Tandon (1994) in their study covering indices of 18 countries from the Europe, Asia, Australia, South and North America, Australia concluded that in the 9 countries the lowest negative returns were seen on Mondays, and in 8 countries on Tuesdays; for all countries except for Luxembourg the highest positive returns were seen on Fridays.

Parallel to the emergence of the day of the week anomaly in the financial literature, studies to investigate the existence of this effect in Turkey also started. One of the first studies in the literature, Muradoğlu and Oktay (1993) using market data for the period between 1988 and 1993, revealed that negative returns occurred on Tuesday while positive returns were on Friday. In the same period Aybar (1993) found that in Turkish markets negative returns were obtained on Thursday and positive returns were obtained on all other days and he argued that these anomalies did not exist in Turkish markets since findings were not compatible with negative-Monday positive-Friday pattern. Balaban (1995), using daily stock market closing data for the period between 1988 and 1994, found that the negative returns were obtained on Tuesdays, but this was statistically insignificant; nevertheless the highest returns being obtained on Fridays. In many of the subsequent studies, different conclusions were stated such as; the negative returns were on Monday and the highest earnings were on Friday (Abdioglu & Degirmenci, 2013; Atakan, 2008; Berument, Hakan; İnamlık, Ali; Kıymaz, 2004; Eken & Üner, 2010; Kıyılar & Karakaş, 2005; Korkmaz, Başaran, & Çevik, 2010; Tunçel, 2007), while the highest returns were obtained on Fridays, negative returns were on Tuesdays rather than Monday (Bildik, 2004; Oguzsoy & Güven, 2003), the lowest and negative returns were obtained on Monday, the highest returns were obtained on Thursdays rather than Friday (Cinko & Avci, 2009; Hamarat & Tufan, 2008) while the highest returns were obtained on Fridays, the lowest returns were on Wednesdays and Thursdays (Ergül, Akel, & Dumanoğlu, 2009), the day of the week effect was limited or did not exist (Başdaş, 2011; Ergül, Dumanoğlu, & Akel, 2008; Tunçel, 2008).

When recent studies are examined, Konak and Kendirli (2014) in their study using close prices of the BIST 100 index for the period between 2005 and 2012, concluded that positive returns were obtained for all days of the week and the highest returns being on Wednesdays. When they examined the same period taking the crisis period as base, they found that negative returns in the pre-crisis period were only on Fridays, during the crisis period on Mondays and after the crisis on Thursdays. Bozkurt (2015) using BIST100 index for period of 2000 and 2014, Akbalık & Özkan (2016) using BIST30 index for the period of 2003 and 2015, did not find any day of the week effect. Güç, Saçan, & Yıldırım (2016) in their study covering BIST 100 daily closing prices for

the period between 2002 and 2013, found that according to the GARCH and ARCH models the highest returns were on Thursdays and for the OLS model the highest returns were on Fridays, while low and negative returns were obtained on Mondays comparing with other days of the week according to the ARCH and OLS models. Özarı & Turan (2016) using BİST100 and BİST30 index data for the period of 2005 and 2015, concluded that the lowest and the negative returns were on Mondays and the positive and the highest on Fridays.

3. DATA AND FİNDİNGS

In this study, the day of the week effect is investigated in the Borsa Istanbul and its sub-sectors. The period between 01.01.2010 and 31.12.2015 is selected as the analysis period. Daily data are used in the analysis and the number of observations is 1565. In the analysis, the stock returns are used, and the returns are calculated using the formula r = LN (Pt) -LN (Pt-1). Price graphs of the series are shown in Figure 1.

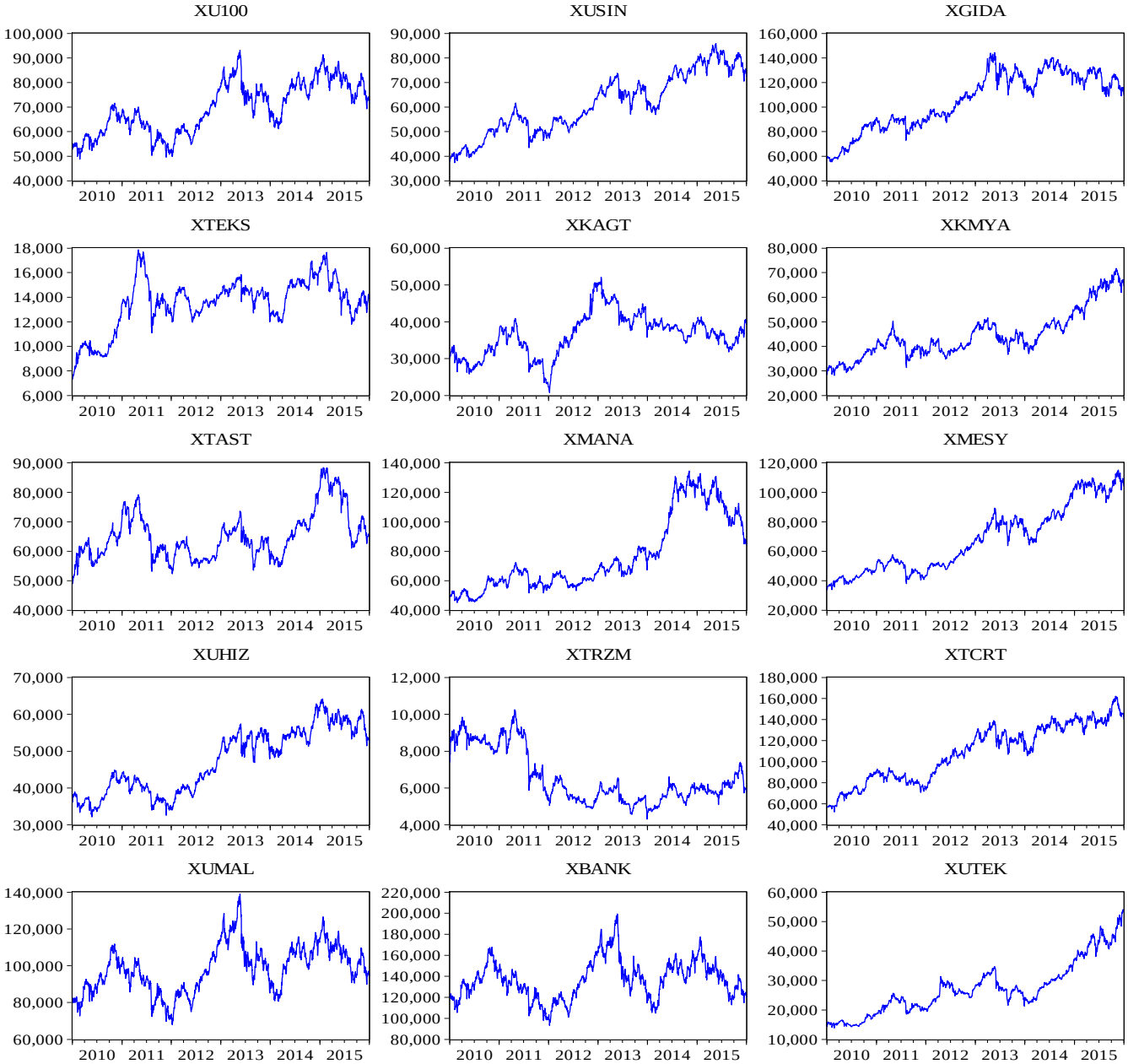

Figure 1 Graphical representation of price series

Explanations on the sectors used in the analysis and descriptive statistics are shown in Table 1. While the highest return is seen in the Technology sector, the lowest return is seen in the Tourism sector. The banking sector has the highest volatility while the lowest is seen in the industrial sector. The BIST 100 index and all sector indices are not normally distributed according to the Jarque-Bera test. Autoregressive conditional heteroscedasticity (ARCH) effect is also seen in all indices..

Tablo 1. Descriptive Statistics

Code	Definiation	Mean	Max.	Min.	Stdn. Dev.	Jarque-Bera	ARCH F Stat.
XU100	BIST100	0.020	6.895	-11.064	1.468	1153.139*	29.206*
XUSIN	BIST INDUSTRIALS	0.042	6.455	-11.401	1.233	7000.671*	70.798*
XGIDA	BIST FOOD, BEVERAGE	0.039	6.121	-11.796	1.473	2983.563*	66.787*
XTEKS	BIST TEXTILE, LEATHER	0.041	8.994	-13.986	1.489	10746.95*	134.636*
XKAGT	BIST WOOD, PAPER, PRINTING	0.017	7.380	-11.552	1.560	2325.828*	108.380*
XKMYA	BIST CHEMISTRY, PETROL, PLASTIC	0.052	7.019	-9.370	1.526	1012.224*	44.713*
XTAST	BIST NONMETAL MIN. PRODUCT	0.018	6.196	-10.773	1.305	3925.307*	102.933*
XMANA	BIST BASIC METAL	0.035	9.212	-10.622	1.607	1375.227*	22.332*
XMESY	BIST METAL PRODUCTS MACH.	0.072	9.029	-14.181	1.553	5342.075*	56.867*
XUHIZ	BIST SERVICES	0.024	6.203	-9.699	1.244	1749.795*	50.472*
XTRZM	BIST TOURISM	-0.016	8.993	-14.725	1.748	4615.123*	69.291*
XTCRT	BIST TRADE (W. AND RETAIL)	0.058	7.245	-9.398	1.494	641.070*	28.169*
XUMAL	BIST FINANCIALS	0.011	7.715	-11.295	1.731	497.483*	19.124*
XBANK	BIST BANKS	0.000	9.478	-11.862	1.980	309.616*	15.125*
XUTEK	BIST TECHNOLOGY	0.084	9.125	-12.921	1.678	2703.579*	208.723*

Note: * indicates 1%, significance level respectively.

Descriptive statistics for the days of the week are given In Table 2. There are 313 observations per day. Generally, in the series the highest returns are seen on Mondays and Tuesdays, while the lowest returns are on Thursdays and Fridays. The highest volatility is realized on Monday.

Table 2. Descriptive Statistics for the Days of the Week

	Monday		Tuesday		Wednesday		Thursday		Friday	
	Mean	Stdn. Dev.	Mean	Stdn. Dev.	Mean	Stdn. Dev.	Mean	Stdn. Dev.	Mean	Stdn. Dev.
XU100	0.065	1.654	0.092	1.454	0.004	1.355	-0.031	1.549	-0.031	1.306
XUSIN	0.108	1.490	0.129	1.209	0.037	1.047	-0.020	1.279	-0.046	1.088
XGIDA	0.063	1.693	0.119	1.375	0.076	1.393	0.006	1.428	-0.068	1.454
XTEKS	0.111	1.885	0.109	1.401	-0.035	1.214	0.106	1.461	-0.087	1.397
XKAGT	0.126	1.781	0.085	1.579	-0.062	1.497	-0.047	1.487	-0.018	1.435
XKMYA	0.131	1.597	0.170	1.534	0.001	1.359	-0.016	1.627	-0.025	1.497
XTAST	0.056	1.600	0.154	1.273	-0.009	1.118	-0.065	1.301	-0.045	1.173
XMANA	0.101	1.889	0.073	1.658	0.014	1.481	0.017	1.572	-0.033	1.394
XMESY	0.175	1.854	0.174	1.579	0.096	1.365	-0.038	1.558	-0.048	1.347
XUHIZ	0.037	1.406	0.086	1.253	-0.073	1.154	0.002	1.267	0.067	1.123
XTRZM	0.154	2.204	0.004	1.674	-0.157	1.469	0.007	1.697	-0.088	1.600
XTCRT	0.077	1.712	-0.001	1.355	-0.031	1.456	0.077	1.460	0.166	1.463
XUMAL	0.052	1.913	0.078	1.701	0.024	1.642	-0.047	1.824	-0.052	1.558
XBANK	0.047	2.142	0.069	1.978	0.045	1.911	-0.067	2.077	-0.093	1.781
XUTEK	0.267	2.055	0.136	1.614	-0.014	1.516	0.020	1.596	0.010	1.545

Table 3 shows the results of the unit root test of the series. The series must be stationary in order to establish the GARCH model. All series are stationary at a level value based on both the fixed, and fixed and trended results of the ADF and PP unit root tests..

Table 3. Unit Root Test Results

	Constant		Trend and Constant	
	ADF	**PP**	**ADF**	**PP**
XU100	-27.117*	-40.688*	-27.119*	-40.687*
XUSIN	-13.206*	-39.017*	-13.230*	-39.030*
XGIDA	-16.921*	-41.620*	-17.030*	-41.877*
XTEKS	-39.587*	-39.592*	-39.644*	-39.644*
XKAGT	-10.823*	-38.310*	-10.818*	-38.298*
XKMYA	-18.052*	-38.355*	-18.047*	-38.340*
XTAST	-12.160*	-38.455*	-12.177*	-38.462*
XMANA	-39.159*	-39.168*	-39.158*	-39.169*
XMESY	-13.235*	-39.262*	-13.234*	-39.255*
XUHIZ	-40.960*	-40.945*	-40.953*	-40.938*
XTRZM	-39.730*	-39.758*	-39.718*	-39.745*
XTCRT	-40.460*	-40.663*	-40.471*	-40.697*
XUMAL	-27.389*	-40.866*	-27.389*	-40.863*
XBANK	-41.082*	-41.131*	-41.077*	-41.128*
XUTEK	-29.903*	-39.247*	-29.901*	-39.237*

Note: * indicates 1%, significance level respectively.

ARCH effect is found in the series. Therefore, to model the mean and variance of the series, the GARCH model is decided to be the appropriate model. The stationarity of the series, which is a precondition to form the GARCH model, is also provided. In order to form the mean equation of the series, appropriate AR and MA processes are first calculated. Optimal AR and MA processes are added to the mean equation. To incorporate the effects of asymmetric information on the markets in the study, the variance equation of the series is modeled by exponential GARCH (EGARCH). Dummy variables are created for each day to measure the effect of the day of the week. For example, the observation for dummy variable for Monday will be 1 on Mondays and 0 on other days. To avoid dummy variable trap, no dummy variable for Wednesday is added to the model.

In the analysis 3 types of models are formed. In the first model, the dummy variables for days are added only to the mean equation, in the second model the dummy variables for days are added only to the variance equation and in the third model the dummy variables for days are added to both the mean and variance equations. In the models errors are not normally distributed. Therefore, the GED distribution is used in the models.

The outputs for the three models are summarized in Table 4, Table 5 and Table 6 respectively. The EGARCH parameter being significant and negative indicates that asymmetric information exists in that market. Accordingly, the effect of negative information on the market on volatility is higher than that of positive information (Kılıç and Buğan, 2016b; 172). Existence of asymmetric information is observed in all other sectoral stock markets except for XTRZM and XUMAL sectors. Therefore, the XTRZM and XUMAL sectors are modeled with GARCH and the other sectors are modeled with EGARCH. When the results of the first model are examined, no findings are found implying the day of the week effect in the Turkish stock market. In XKAGT, XTAST and XUTEK sectors, it is observed that Mondays have a positive effect on the average return. It can be said that the day of the week anomaly is valid in these sectors. According the outputs of the second model, it is observed that Monday has enhancive effect on volatility in all markets except for the XGIDA, XKMYA, XTCRT and XBANK. For the XTCRT sector, Tuesday has depressing effect, for the XKMYA Thursday has enhancive effect, and for XUSIN Friday has depressing effect on volatility. The outputs of the third model, provide similar results with those in the first and second models.

Table 4. The Day of the Week Effect in the Mean Equation

	XU100	XUSIN	XGIDA	XTEKS	XKAGT	XKMYA	XTAST	XMANA	XMESY	XUHIZ	XTRZM	XTCRT	XUMAL	XBANK	XUTEK
Mean Equation															
Constant	0.026	0.085*	0.045	-0.003	-0.049	0.080	0.040	0.032	0.072	0.000	-0.048	-0.016	0.019	0.049	0.050
AR1		0.035	-0.319***		1.204***	0.735***	0.571		0.848*		0.004			-0.432***	-0.186***
AR2		0.027	0.074		-0.795***	-0.004	0.368		0.500		0.014			0.302***	-0.746***
AR3		0.895***	0.828***			-0.038*			-0.374					0.906***	
MA1		-0.009	0.291***		-1.221***	-0.715***	-0.534		-0.840*		-0.004			0.418***	0.207***
MA2		-0.030	-0.095		0.831***		-0.385		-0.506		-0.014			-0.307***	0.705***
MA3		-0.931***	-0.861***		0.006		-0.003		0.365					-0.927***	
Monday	0.137	0.066	0.087	0.104	**0.246*** **	0.038	**0.127** **	0.142	0.105	0.107	0.048	0.121	0.150	0.110	**0.195** **
Tuesday	0.032	0.038	0.016	0.003	0.098	0.097	0.080	0.014	0.057	0.056	0.048	0.021	0.039	-0.011	0.054
Thursday	-0.001	-0.036	0.004	0.058	0.034	0.004	-0.003	0.040	-0.056	0.041	0.048	0.151	0.034	-0.051	0.005
Friday	-0.003	-0.076	-0.004	0.028	0.022	-0.077	-0.007	-0.029	-0.056	0.047	0.020	0.098	-0.017	-0.076	-0.061
Variance Equation															
Constant	-0.053**	-0.108***	-0.068**	-0.186***	-0.214***	-0.073**	-0.214***	-0.022	-0.103***	-0.085***	0.179***	-0.042*	0.221***	0.032	-0.167***
ARCH	0.140***	0.156***	0.235***	0.350***	0.413***	0.220***	0.328***	0.194***	0.220***	0.148***	0.133***	0.131***	0.088***	0.151***	0.365***
EGARCH	-0.141***	-0.215***	-0.146***	-0.079***	-0.082**	-0.123***	-0.097***	-0.113***	-0.146***	-0.155***		-0.111***		-0.110***	-0.106***
GARCH	0.914***	0.887***	0.832***	0.883***	0.868***	0.871***	0.892***	0.857***	0.902***	0.899***	0.815***	0.923***	0.838***	0.886***	0.873***

Note: ***, ** and * indicates 1%, 5% and 10% significance level respectively.

Table 5. The Day of the Week Effect in the Variance Equation

	XU100	XUSIN	XGIDA	XTEKS	XKAGT	XKMYA	XTAST	XMANA	XMESY	XUHIZ	XTRZM	XTCRT	XUMAL	XBANK	XUTEK
Mean Equation															
Constant	-0.156**	0.077***	0.064***	0.009	0.024	0.085***	0.078***	0.062**	0.078***	0.043*	0.000	0.048	0.052	0.046	0.080***
AR1		-0.300	-0.337***		0.220	0.738***	0.536		-0.308***		0.010			-0.439***	-0.142**
AR2		-0.302	0.053		-0.118	-0.003	0.396		0.371***		0.003			0.298***	-0.765***
AR3		0.602***	0.816***			-0.042*			0.825***					0.909***	
MA1		0.367*	0.304***		-0.233	-0.719***	-0.517		0.297***		-0.010			0.427***	0.151**
MA2		0.352*	-0.080		0.095		-0.400		-0.366***		-0.003			-0.304***	0.725***
MA3		-0.583***	-0.852***		0.064***		0.004		-0.849***					-0.929***	
Variance Equation															
Constant	-0.155	-0.109	-0.044	-0.330**	-0.207*	-0.255*	-0.271*	-0.125	-0.292**	-0.224	0.060	0.046	-0.076	-0.031	-0.265*
ARCH	0.147***	0.154***	0.239***	0.359***	0.415***	0.234***	0.337***	0.199***	0.229***	0.148***	0.134***	0.130***	0.093***	0.164***	0.367***
EGARCH	-0.143***	-0.228***	-0.145***	-0.079**	-0.079**	-0.127***	-0.094***	-0.110***	-0.147***	-0.151***		-0.113***		-0.113***	-0.096***
GARCH	0.910***	0.899***	0.827***	0.878***	0.874***	0.860***	0.890***	0.849***	0.894***	0.899***	0.808***	0.924***	0.823***	0.875***	0.871***
Monday	**0.338***	**0.366***	0.093	**0.620*****	**0.304***	0.259	**0.549*****	**0.465****	**0.523*****	**0.401****	**1.117****	0.266	**1.049****	0.276	**0.321***
Tuesday	0.093	-0.121	-0.203	-0.120	-0.070	0.201	-0.132	0.009	0.208	0.107	-0.478	**-0.447***	0.180	0.077	-0.022
Thursday	0.294	0.201	0.003	0.206	-0.074	**0.425***	0.124	0.146	0.333	0.234	0.155	-0.146	0.752	0.231	0.102
Friday	-0.233	**-0.444***	-0.018	-0.010	-0.221	0.010	-0.301	-0.097	-0.127	-0.046	-0.126	-0.113	-0.340	-0.254	0.085

Note: ***, ** and * indicates 1%, 5% and 10% significance level respectively.

Table 6. The Day of the Week Effect in Mean and Variance Equations

	XU100	XUSIN	XGIDA	XTEKS	XKAGT	XKMYA	XTAST	XMANA	XMESY	XUHIZ	XTRZM	XTCRT	XUMAL	XBANK	XUTEK
Mean Equation															
Constant	0.024	0.080*	0.047	-0.007	-0.050	0.073	0.048	0.033	0.072	-0.001	-0.048	-0.017	0.018	0.048	0.051
AR1		0.001	-0.323***		1.217***	0.735***	0.995		0.285		0.003			-0.434***	-0.177***
AR2		0.073**	0.071		-0.806***	-0.001	-0.041		0.431		0.020			0.303***	-0.749***
AR3		0.862***	0.826***			-0.039*			-0.310					0.908***	
MA1		0.024	0.293***		-1.236***	-0.717***	-0.970		-0.277		-0.004			0.420***	0.196***
MA2		-0.070**	-0.094		0.843***		0.007		-0.431		-0.021			-0.307***	0.707***
MA3		-0.906***	-0.860***		0.003		0.021		0.314					-0.929***	
Monday	0.137	0.094	0.090	0.113	**0.245*** **	0.046	**0.125***	0.145	0.113	0.110	0.049	0.133	0.152	0.111	**0.199****
Tuesday	0.035	0.054	0.014	0.015	0.099	0.104	0.079	0.022	0.066	0.063	0.044	0.022	0.043	-0.010	0.055
Thursday	0.010	-0.030	0.001	0.062	0.043	0.013	-0.001	0.042	-0.056	0.044	0.069	**0.151***	0.048	-0.034	0.005
Friday	-0.006	-0.070	-0.005	0.032	0.019	-0.070	-0.017	-0.032	-0.067	0.040	0.020	0.095	-0.018	-0.078	-0.066
Variance Equation															
Constant	-0.156	-0.123	-0.046	-0.335**	-0.228*	-0.255*	-0.272*	-0.126	-0.308**	-0.234*	0.050	0.047	-0.085	-0.027	-0.265*
ARCH	0.148***	0.161***	0.238***	0.360***	0.420***	0.228***	0.338***	0.198***	0.229***	0.151***	0.133***	0.128***	0.093***	0.162***	0.366***
EGARCH	-0.145***	-0.220***	-0.145***	-0.077**	-0.084**	-0.126***	-0.094***	-0.110***	-0.138***	-0.150***		-0.112***		-0.115***	-0.102***
GARCH	0.909***	0.883***	0.830***	0.877***	0.869***	0.862***	0.890***	0.854***	0.903***	0.899***	0.808***	0.927***	0.825***	0.876***	0.872***
Monday	**0.340***	**0.428****	0.095	**0.619*****	**0.300***	0.273	**0.554*****	**0.466****	**0.573*****	**0.410****	**1.123****	0.263	**1.052****	0.275	**0.313***
Tuesday	0.090	-0.164	-0.201	-0.117	-0.005	0.197	-0.141	0.002	0.187	0.108	-0.470	**-0.454***	0.186	0.069	-0.010
Thursday	0.297	0.231	0.005	0.209	-0.048	**0.431***	0.124	0.145	0.331	0.252	0.170	-0.140	0.766	0.224	0.099
Friday	-0.230	**-0.452****	-0.017	-0.009	-0.215	0.008	-0.295	-0.105	-0.102	-0.038	-0.119	-0.118	-0.353	-0.259	0.084

Note: ***, ** and * indicates 1%, 5% and 10% significance level respectively.

4. CONCLUSİON

One of the frequently studied topics in the literature is the anomaly of the day of the week. As these studies generally covers stock markets of countries, the number of studies focusing on the day of the week anomaly on the sectoral basis is limited. Therefore the aim of the study is to examine the anomaly of the day of the week on a sectoral basis by using the sectoral stock indexes calculated and published within the Borsa Istanbul. In this sense it is expected that the study will contribute to the literature.

The analysis results show that the day of the week anomaly is valid for the Turkish market. However, it is observed that this effect is more felt volatility rather than the average return. In particular, the enhancive effect of Mondays on variance is observed in all markets except a few sectors. Except Food and Banking sectors, in all sectors, findings were obtained on the existence of the day of the week anomaly. As a distinctive sector-based study in terms of the scope of the data set used and the method, it is expected that it will contribute to the related literature.

REFERENCES

Abdioglu, Z., & Degirmenci, N. (2013). İstanbul Menkul Kıymetler Borsasında Mevsimsel Anomaliler Seasonal Anomalies in Istanbul Stock Exchange. *Business and Economics Research Journal*, *4*(3), 55–73.

Agrawal, A., & Tandon, K. (1994). Anomalies or Illusions - Evidence From Stock Markets in 18 Countries. *Journal of International Money and Finance*, *13*(1), 83–106. Retrieved from <Go to ISI>://A1994MY59300006

Akbalık, M., & Özkan, N. (2016). Haftanin GünEtkisi: Bist 30Endeksi PaylariÜzerineBir Araştirma. *Finansal Araştırmalar ve Çalışmalar Dergisi*, *8*(14), 1. https://doi.org/10.14784/jfrs.07606

Atakan, T. (2008). İstanbul Menkul Kıymetler Borsası ' nda haftanın günü etkisi ve Ocak ayı anomalilerinin ARCH-GARCH modelleri ile test edilmesi. *Istanbul University Journal of the School of Business Administration*, *37*(2), 98–110.

Aybar, C. B. (1993). Day of the Week Anomaly: A Contrary Evidence from Istanbul Stock Exchange. *İ.Ü. İşletme Fakültesi Dergisi*, *22*(1), 157–168.

Balaban, E. (1995). Day of the week effects: new evidence from an emerging stock market. *Applied Economics Letters*, *2*(5), 139–143. https://doi.org/10.1080/135048595357465

Başdaş, U. (2011). The day-of-the-week effect for Istanbul stock exchange : a stochastic dominance approach. *Journal of Applied Finance and Banking*, *1*(4), 223–238.

Berument, Hakan; İnamlık, Ali; Kıymaz, H. (2004). Borsa değişkenlğinde haftanın gün etkisi: İstanbul Menkul Kıymetler Borsası. *İktisat İşletme ve Finans*, *19*(223), 91–102.

Bildik, R. (2004). Are Calendar Anomalies Still Alive ? : Evidence from Istanbul Stock Exchange, (90), 1–30. Retrieved from http://ssrn.com/abstract=598904

Bozkurt, İ. (2015). Gelişmiş ve Gelişmekte Olan Piyasalarda Anomali Varlığının İncelenmesi Investigation of the Anomaly Existence in the Advanced and Emerging Markets. *Business and Economics Research Journal*, *6*(4), 19–37.

Brahmana, R. K. (2012). Psychological factors on irrational financial decision making: Case of day-of-the week anomaly. *Humanomics*, *28*(4), 236–257. https://doi.org/10.1108/08288661211277317

Cinko, M., & Avci, E. (2009). Examining The Day Of The Week Effect In Istanbul Stock Exchange (ISE). *The International Business & Economics Research Journal*, *8*(11), 45.

Condoyanni, L., O'HANLON, J., & WARD, C. W. R. (1987). Day of the Week Effects On Stock Returns: International Evidence. *Journal of Business Finance & Accounting*, *14*(2), 159–174. https://doi.org/10.1111/j.1468-5957.1987.tb00536.x

Cross, F. (1973). The Behavior of Stock Prices on Fridays and Mondays. *Financial Analysts Journal*, *29*(6), 67–69. https://doi.org/10.2469/faj.v29.n6.67

Eken, M. H., & Üner, T. Ö. (2010). CALENDAR EFFECTS IN THE STOCK MARKET AND A PRACTICE RELATED TO THE ISTANBUL STOCK EXCHANGE MARKET (ISEM). *The ISE Review Volume*, *12*(45), 60–120.

Erdoğan, M., & Elmas, B. (2010). Hisse Senedi Piyasalarında Görülen Anomaliler ve Bireysel Yatırımcı Üzerine Bir Araştırma. *Atatürk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, *14*(2), 1–22.

Ergül, N., Akel, V., & Dumanoğlu, S. (2009). AN INVESTIGATION OF THE DAY-OF-THE- WEEK EFFECT PATTERNS ON SECTORAL IN- DICES. *World of Accounting Science*, *11*(2), 129–152.

Ergül, N., Dumanoğlu, S., & Akel, V. (2008). İMKB'de Günlük Anomaliler. *Marmara Üniversitesi İ.İ.B.F. Dergisi*, *25*(2), 601–629.

Fama, E. F. (1965a). Random Walks in Stock Market Prices. *Financial Analysts Journal*, *21*(5), 55–59. https://doi.org/10.2469/faj.v21.n5.55

Fama, E. F. (1965b). THE BEHAVIOR OF STOCK-MARKET PRICES. *The Journal of Business*, *38*(1), 34–105.

Fama, E. F. (1970). EFFICIENT CAPITAL MARKETS: A REVIEW OF THEORY AND EMPIRICAL WORK. *The Journal of Financ*, *25*(2), 383–417.

French, K. R. (1980). Stock returns and the weekend effect. *Journal of Financial Economics*, *8*(1), 55–69. https://doi.org/10.1016/0304-405X(80)90021-5

Gibbons, M. R., & Hess, P. (1981). Day of the week effects and assets returns., *54*(4), 579–596.

Güç, E., Saçan, E., & Yıldırım, R. K. (2016). BORSA İSTANBUL'DA HAFTANIN GÜNÜ ANOMALİSİNİN ARCH, GARCH VE OLS MODELLERİ İLE TEST EDİLMESİ. *Uluslararası Sosyal Araştırmalar Dergisi The*, *9*(44), 1084–1094.

Hamarat, B., & Tufan, E. (2008). IS THE TURKISH TOURISM SECTOR INDEX EFFICIENT ? *Anadolu Üniversitesi Sosyal Bilimler Dergisi*, *8*(2), 169–184.

Jaffe, J. F., & Westerfield, R. (1985). The Week-End Effect in Common Stock Returns: The International Evidence. *Journal of Finance*, *40*(2), 433–54. Retrieved from http://econpapers.repec.org/RePEc:bla:jfinan:v:40:y:1985:i:2:p:433-54

Karan, M. B. (2001). Istanbul Menkul Kiymetler Borsasi Anomalileri. *Ege Academic Review*, *1*(2), 83–94.

Karan, M. B., & Uygur, A. (2001). İstanbul Menkul Kıymetler Borsasında Haftanın Günleri ve Ocak Ayı Etkilerinin Firma Büyüklüğü Açısından Değerlendirilmesi. *Ankara Üniversitesi SBF Dergisi*, *56*(2), 103–115.

Kılıç, Y., & Buğan, M. F. (2016a). The Efficient Market Hypothesis: Evidence from Turkey. *International Journal of Academic Research in Business and Social Sciences*, 6(10), 262-272.

Kılıç, Y., & Buğan, M. F. (2016b). Are Islamic Equity Markets "Safe Havens"? Testing the Contagion Effect using DCC-GARCH. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 6(4), 167-176.

Kıyılar, M., & Karakaş, C. (2005). CALENDAR-BASED MARKET ANOMALIES IN ISTANBUL STOCK EXCHANGE. *Istanbul Universitesi Isletme Fakültesi Isletme Iktisadi Enstitüsü Yonetim Dergisi*, *16*(52), 17–25.

Konak, F., & Kendirli, S. (2014). ANALYSIS OF THE DAY-OF-THE-WEEK EFFECT DURING THE GLOBAL FINANCIAL CRISIS : EMPIRICAL EVIDENCE FROM BIST 100. *Süleyman Demirel Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, *19*(2), 275–286.

Korkmaz, T., Başaran, Ü., & Çevik, E. İ. (2010). Yaz Saati Uygulaması Anomalisinin İMKB 100 Endeks Getirisine Etkisinin Test Edilmesi, 1139–1154.

Lakonishok, J., & Levi, M. (1985). Weekend Effects on Stock Returns: A Reply. *The Journal of Finance*, *40*(1), 351–352. https://doi.org/10.1111/j.1540-6261.1985.tb04957.x

Muradoğlu, G., & Oktay, T. (1993). Hisse Senedi Piyasasında Zayıf Etkinlik: Takvim Anomalileri. *Hacettepe Üniversitesi İİBF Dergisi*, *11*, 51–62.

Oguzsoy, C. B., & Güven, S. (2003). Stock returns and the day-of-the-week effect in istanbul Stock Exchange. *Applied Economics*, *35*(8), 959–971. https://doi.org/10.1080/0003684032000050586

Özarı, Ç., & Turan, K. K. (2016). VADELİ İŞLEM PİYASALARINDA HAFTANIN GÜNÜ VE OCAK AYI ETKİSİ: KARŞILAŞTIRMALI ANALİZ (VİOB AND BİST). *Uluslararası Sosyal Araştırmalar Dergisi The*, *9*(42), 1604–1619.

Rogalski, Ri. J. (1984). New Findings Regarding Day-of-the-Week Returns over Trading and Non-Trading Periods: A Note. *The Journal of Finance*, *39*(5), 1603–1614. https://doi.org/10.1111/j.1540-6261.1984.tb04927.x

Smirlock, M., & Starks, L. (1986). Day-of-the-week and intraday effects in stock returns. *Journal of Financial Economics*, *17*(1), 197–210. https://doi.org/10.1016/0304-405X(86)90011-5

Tunçel, A. K. (2007). THE DAY OF THE WEEK EFFECT IN ISE. *Akdeniz İ.İ.B.F. Dergisi*, (13), 8–10.

Tunçel, A. K. (2008). A NEW APPROCAH TO THE DAY OF THE WEEK EFFECT: THE ISE CASE. *Trakya Üniversitesi Sosyal Bilimler Dergisi*, *10*(2), 246–271.

Zhang, J., Lai, Y., & Lin, J. (2016). The day-of-the-Week effects of stock markets in different countries. *Finance Research Letters*, *0*, 1–16. https://doi.org/10.1016/j.frl.2016.09.006