THE RELATIONSHIP BETWEEN CORPORATE GOVERNANCE AND STOCK RETURNS

Gülüzar Kurt Gümüş[1]

Bener Güngör[2]

Yusuf Gümüş[3]

Abstract

This study investigates the relationship between corporate governance and stock returns both at index and firm-level for the period between 2007 and 2013. The index-level analysis focuses on the long-run relationship between Borsa İstanbul Corporate Governance Index and Borsa İstanbul 100 Index. The firm-level analysis examines the effect of corporate governance ratings on stock returns. The firm-level analysis includes twelve companies which have been listed on Corporate Governance Index from 2007 till 2013. The index-level analysis employs co-integration analysis, while the firm-level analysis calculates cumulative abnormal returns. The results indicate that there is a long-run index-level relationship and also corporate governance rating announcements have an effect on stock returns.

Keywords: Borsa İstanbul, corporate governance, stock return, Corporate Governance Index.

Jel Classification: G10, G30, G34

KURUMSAL YÖNETİM VE HİSSE SENEDİ GETİRİSİ ARASINDAKİ İLİŞKİ

Öz

Bu çalışma, kurumsal yönetim ve hisse senedi getirisi arasındaki ilişkiyi 2007 ve 2013 arasındaki dönem itibariyle endeks ve firma düzeyinde incelemektedir. Endeks düzeyindeki analiz, Borsa İstanbul Kurumsal Yönetim Endeksi ile Borsa İstanbul 100 Endeksi arasındaki ilişkiye odaklanmaktadır. Firma düzeyindeki analiz ise, kurumsal yönetim performansının 2007 ve 2013 yılları arasında Kurumsal Yönetim Endeksi'nde listelenen oniki firmanın hisse senedi getirileri üzerindeki etkisini incelemektedir. Endeks düzeyindeki ilişki, eşbütünleşme analizi ile incelenmiştir ve firma düzeyindeki ilişki ise birikimli normal dışı getirileri hesaplamaktadır. Sonuçlara göre, endeks düzeyinde uzun dönemli bir ilişki bulunmaktadır ve ayrıca kurumsal yönetim performansı hisse senedi getirisi üzerinde etkilidir.

Anahtar Kelimeler: Borsa İstanbul, kurumsal yönetim, hisse senedi getirisi, Kurumsal Yönetim Endeksi.

Jel Sınıflandırması: G10, G30, G34

Introduction

1 Assoc. Prof. Dr., Dokuz Eylül University, guluzar.kurt@deu.edu.tr
2 Prof. Dr., Atatürk University, bgungor@atauni.edu.tr
3 Assoc. Prof. Dr. , Dokuz Eylül University, yusuf.gumus@deu.edu.tr

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Corporate governance has gained more importance after scandals in the early 2000s. OECD is the first institution that issues the corporate governance principles. In Turkey, Capital Markets Board released Turkey's Corporate Governance Principles in 2004. While OECD's corporate governance criteria comprise of two main criteria and twelve categories; Capital Markets Board of Turkey's corporate governance criteria comprise of four main criteria and twenty-seven categories. Although there are considerable developments in Turkey, forty-seven companies out of 405 traded on Borsa İstanbul (BIST) are included in BIST Corporate Governance Index (BISTK).

This study aims at analyzing the relationship between corporate governance and stock returns for the period between 2007 and 2013 from two perspectives: the relationship between corporate governance index and stock market index, and the relationship between corporate governance performance and stock return.

The paper is structured as follows: the first section summarizes the selected previous studies. The second section explains the methodology and provides the analysis results. The final section concludes the paper.

1. Literature

The relationship between corporate governance and company performance is a popular topic in finance literature. Some of the studies in the literature which are directly related to corporate governance and stock returns are discussed below and other studies are summarized in the table in the Appendix 1 part.

Drobetz et al. (2003) find a strong relation between the quality of governance and company value in their study and a negative correlation between corporate governance levels and stock returns. Beiner et al. (2004) state that there is a positive relation between corporate governance and Tobin's Q value. Kowalewski (2012) uses Tobin's Q and return on assets ratios as performance criterion and stated that both of the variables gained higher values by active corporate governance applications. Similarly, Brown and Caylor (2004) prove that there is a direct proportion between return on assets and corporate governance. Black (2001) defends that this effect on performance shows up more specifically in developing countries and the reason for that is the countries are generally the ones with less number of rules. Also, in the mentioned study, it is pointed out that there are many differences between corporate governance applications of companies that operate in such countries. Churaev (2003) takes into consideration such as return of capital, net return margin and stock performance in his study which is about BIST 30 companies. In the study, it is revealed that corporate governance applications have a positive effect on performance.

Contrarily, Wei and Yuejun (2007) present the importance of appropriate corporate governance mechanism in terms of company profitability, operating efficiency and growth potential. They state that the control of shareholders on company management does not have a statistically significant effect on company value or performance.

2. Methodology and Results

This paper investigates the relationship between corporate governance and return at firm-level and index-level. Thus, the long-term relationship between BIST Corporate Governance Index and BIST 100 Index and also the effect of corporate governance rating of companies on stock prices are analyzed.

The study period is between 01.01.2007 and 31.12.2013. Twelve companies[4] that are continuously in the scope of corporate governance index between 2007, when the index has been started to be calculated, and 2013 are taken into consideration.

The data set is gathered from different sources: BIST-100 index and BISTK data from BIST official web site, company CG ratings from Turkey Corporate Governance Association, and stock prices from Denizbank.

Eviews 7 econometrical analysis packaged software and Microsoft Office Excel program are used in the analysis.

The research on the relationship between corporate governance and return is conducted in two parts: determination of the long-term relationship between BISTK and BIST 100 Index, and the determination of the effect of corporate governance ratings on stock return.

2.1. Corporate Governance and Return Relationship: Index-Level Analysis

The determination process of the long-term relationship between BIST Corporate Governance Index and BIST 100 Index has three steps:

1. Conducting the stationary tests of BIST Corporate Governance Index and BIST 100 Index,

2. Determining the most suitable time lag and the most suitable model for the Co-integration Test,

3. Determining the long-term relationship between the variables by using the Johansen Jusellius Cointegration Test.

Augmented Dickey-Fuller (ADF) unit root test is used in order to determine the stationary of BIST and BISTK variables. The results of stationary test are given in Table 1. BIST-100 and BISTK variables are not stationary at the level and stationary at 1% significance level in first difference value.

4 Anadolu Efes Biracılık ve Malt Sanayi A.Ş. (AEFES), Asya Katılım Bankası (ASYAK), Dentaş Ambalaj ve Kağıt Sanayi A.Ş. (DENTS), Doğan Yayın Holding (DYAY), Hürriyet (HURGZ), Otokar Otobüs Karoseri Sanayi A.Ş. (OTKAR), Tofaş Türk Otomobil Fabrikası (TOASO), Türk Traktör ve Ziraat Mak. A.Ş. (TTRAK), Tüpraş Türkiye Petrol Rafinerileri A.Ş. (TUPRS), Vestel Elektronik (VESTL), Yeşil Gayrimenkul Yatırım Ortaklığı (YGYO), Yapı ve Kredi Bankası A.Ş. (YKBNK).

Table 1: *ADF Unit Root Test Results*

Variables	Value of Level		Value of Difference	
	Constant	Constant and trend	Constant	Constant and trend
BİST	-1,193	-2,317	-4,777 (1)[a]	-4,823 (1)[a]
BİSTK	-1,048	-2,256	-5,170 (0)[a]	-5,170 (0)[a]
Critique values				
a=%1	-3,432	-3,96	-3,432	-3,96
b=%5	-2,862	-3,411	-2,862	-3,411
c=%10	-2,567	-3,127	-2,567	-3,127

Note: a shows significance of %1 significance level. The results inside parenthesis show minimum time lag which do not include autocorrelation according to Akaike and Schwartz Information Criterion.

After testing for the stationarity of the variables and making the variables stationary, appropriate time lag will be decided for BIST 100 Index and BISTK variables. In order to do this, time lag from 1 to 12 are used and the lag durations, which give the lowest values of Akaike Information Criterion (AIC) and Schwartz Information Criterion (SC), are decided. The information criteria are presented in Table 2. The most appropriate time lag for the co-integration analysis between BIST and BISTK is determined as 3, which is the time lag in which Philips Perron and AIC are minimal.

Table 2: *Philips Perron and Akaike Information Criterion*

Time Lag	Philips Perron Information Criterion	Akaike Information Criterion
0	1,98	40,898
1	2,46	29,604
2	2,45	29,597
3	***2,43****	***29,590****
4	2,44	29,593
5	2,44	29,594
6	2,44	29,596
7	2,44	29,594
8	2,44	29,592
9	2,44	29,592
10	2,44	29,594
11	2,44	29,594

12	2,44	29,595

In Johansen-Juselius Cointegration test, eigen value of the parameter was used to prove whether the series are co-integrated with other series. The first degree vector autoregressive time series is given below.

$$Y = A_{\sim t-1}^{Y} + {}_{\sim t}^{e} \qquad (t = 1, 2, 3,\ldots,n) \qquad (1)$$

In the first equation (1) matrix A is k-dimensional parameter matrix and ${}_{\sim t}^{e}$ shows white noise process of which variance and covariance matrix is V. Π= A-I and, if the rank of Π matrix is zero then the series are not co-integrated. Johansen Test, here, is based upon the Likelihood Ratio which is also called Trace Statistics. Static and Trend models were used to make the analysis for Johansen Jusellius Cointegration Test.

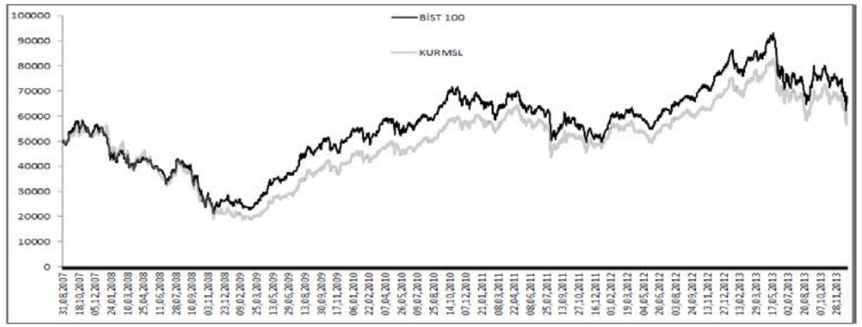
Table 3: *Johansen Jusellius Cointegration Test Results*

Variables	Hypothesis		Trace Statistic	%1 Critique Value	%5 Critique Value
	Ho	H_1			
BİST100	r = o	r = 1	23,528 [a]	23,152	18,398
BİSTK	r ≤ 1	r = 2	6,730 [a]	6,635	3,841

Note: a shows significance at %1 significance level.

H_o hypothesis, which shows there is not a long-term relationship between variables, is rejected and H_1 hypothesis, which states that BIST-100 and BISTK variables are co-integrated at 1% significance level, is accepted (Table 3). There is a long-term relationship between BIST 100 Index and BIST Corporate Governance Index. Graphical presentation also shows that there are similarities in both of the index activities and there is a relation between these two indices (Figure 1).

Figure 1: *BIST-100 and BISTK Indices*



2.2. Corporate Governance and Return Relationship: Firm-Level Analysis

Detection of the effect of corporate governance ratings on stock returns has three steps:

1. Calculation of abnormal returns of the companies with regression analysis,

2. Calculation of accumulated abnormal returns of the companies (five days before and after the announcement date),

3. Graphical representation of the accumulated abnormal returns for five days before and after the announcement of corporate governance rating of the subjected companies in 2010, 2011, 2012 and 2013, and indication of the effects on stock returns.

Abnormal returns of the companies listed on BISTK are calculated with Market Return Method (MRM). According to this method, expected return of any stock is equal to the expected return of the market. If so, abnormal return (AR_{it}), is the difference between realized return of "i" stock on "t"th day (R_{it}) and realized return of the market (R_{mt}). According to MRM abnormal returns are calculated by the formula given below (Özer, 1996:129).

$$AR_{it} = R_{it} - R_{mt} \qquad (2)$$

In order to calculate abnormal returns, stock prices of each company are chosen as independent variable and BIST 100 Index, which represents the market, is chosen as dependent variable and regression models are set according to these variables[5]. The model calculates the residuals and achieves the abnormal returns.

Before the regression analysis, in order to solve the stationarity problem, stationarity of the return series is tested with ADF. The results of stationary test are presented in Table 4. The results indicate that only EFES is stationary at %5 significance level in constant and trend mode. All other variables are not stationary at significance levels. For this reason, for all the variables, Constant and Constant-Trend Tests are conducted on the first level and it is determined that all the variables are stationary in the first degree difference values at 1%

5 Sample regression model for DYAY: $BIST=\alpha+\beta_1 DYAY$

significance level.

Table 4: *ADF Unit Root Test Results*

VARIABLES	Value of Level		Value of First Difference	
	Constant	Constant and Trend	Constant	Constant and trend
BİST	-1,391 (0)	-2,029 (0)	-42,315 (0) [a]	-42,304 (0) [a]
AEFES	-1,547 (0)	-0,3887 (0) [b]	-23,350 (3) [a]	-23,345 (3) [a]
ASYAK	-1,701 (1)	-2,225(1)	-37,562 (0) [a]	-37,571 (0) [a]
DENTS	-0,652 (3)	-2,257 (3)	-27,804 (2) [a]	-27,815 (2) [a]
DYAY	-1,901 (0)	-1,592 (0)	-40,361 (0) [a]	-40,367 (0) [a]
HURGZ	-1,556 (0)	-1,692 (0)	-41,843 (0) [a]	-41,833 (0) [a]
OTKAR	-0,587 (3)	-1,997 (3)	-23,581 (2) [a]	-23,588 (2) [a]
TOASO	0,134 (0)	-1,669 (1)	-46,661 (0) [a]	-46,691 (0) [a]
TUPRS	-1,048 (0)	-2,725 (0)	-40,263 (0) [a]	-40,252 (0) [a]
TTRAK	0,437 (0)	-1,672 (0)	-40,175 (0) [a]	-40,211 (0) [a]
VESTL	-2,248 (0)	-2,205 (0)	-40,090 (0) [a]	-40,082 (0) [a]
YGYO	-2,091 (0)	-2,091 (0)	-41,577 (0) [a]	-41,566 (0) [a]
YKBNK	-2,008 (0)	-2,213 (0)	-41,625 (0) [a]	-41,621 (0) [a]
Critique Values				
a=%1	-3,434	-3,963	-3,434	-3,963
b=%5	-2,862	-3,412	-2,863	-3,412
c=%10	-2,568	-3,128	-2,568	-3,128

Note: a and b mean statistically significant at %1 and %5 levels, respectively. The results presented inside parenthesis show minimum time lag which do not include autocorrelation according to Akaike and Schwartz Information Criterion.

After the stationarity phase, models are set again with the stationary variables by adjusting regression models[6]. All regression models and variable coefficients are statistically significant at %1 level (Table 5). After running regression estimations, abnormal returns of all the companies are determined.

6 Sample regression model for DYAY: $\Delta BIST=\alpha+\beta_1\Delta DYAY$

Table 5: *Estimation Results for the Models*

Model	R^2	DW	F
$BİST_{AEFES}$ = 9,18 + 924,89 * AEFES (0,44) (17,76)a	0,15	2,05	315,31 a
$BİST_{ASYAK}$ = 19,60 + 9351,59 ASYAK (1,13) (35,61)a	0,42	2,09	1267,74 a
$BİST_{DENTS}$ = 19,43 + 24,32 * DENTS (0,17) (23,25)a	0,24	1,95	540,62 a
$BİST_{DYAY}$ = 20,06 + 8878,37 * DYAY (1,60) a (22,43)a	0,22	2,05	503,23 a
$BİST_{HURGZ}$ = 30,14 + 10497,26 * HURGZ (1,53) (23,96)a	0,25	2,05	574,06 a
$BİST_{OTKAR}$ = 3,41 + 509,14 * OTOKR (0,17) (23,25)a	0,24	1,95	540,62 a
$BİST_{TOASO}$ = 17,29 + 3422,27 * TOFAS (0,77) (7,76)a	0,03	2,07	60,260 a
$BİST_{TUPRS}$ = -0,67 + 985,64 * TPRAS (-0,03) (35,09)a	0,41	2,04	1227,73 a
$BİST_{TTRAK}$ = -1,806 + 587,22 * TTRAK (-0,08) (20,49)a	0,19	1,93	419,94 a
$BİST_{VESTL}$ = 26,59 + 10349,59 * VESTL (1,43) (29,33)a	0,33	2,04	860,03 a
$BİST_{YGYO}$= 17,29 + 3422,26 * YGYO (0,77) (7,76)a	0,02	1,84	14,27 a
$BİST_{YKBNK}$ = 7,89 + 9206,47 YKREDİ (0,68) (70,79)[a]	0,74	2,01	5010,74 a

Note: “a” shows meaningfulness on %1 significance level.

In order to analyze abnormal returns and corporate governance ratings of companies, the cumulative returns are calculated with Cumulative Abnormal Return (CAR) method of Fama, Fisher, Jensen and Roll (1969). Cumulative Abnormal Returns are calculated for each company for the period between 01.01.2007 and 31.12.2013 and for five days before and after the announcement day, using the formula given below (Özer, 1996:132):

$$BAG_{it} = \sum_{t=1}^{t} AG_{it} \qquad (3)$$

In order to deeply analyze the changes of cumulative abnormal returns on the announcement dates of corporate governance ratings, the cumulative abnormal returns of each company on five days before and after the announcement dates of ratings are shown on a graphic for the years 2011, 2012 and 2013[7]. The day on which corporate governance rating is announced, is shown as "0" on the (X) axis and the days before and after are listed according to this. The days which are shown as "-" in the figures represent the days before the announcement dates of ratings and the days represented as "+" in the figures show the days after the announcement date.

The indications are summarized in the table below (Table 6).

7 Figures are in the part Appendix 2.

Table 6: *Summary of the Findings*

Company	Findings		
	2011	**2012**	**2013**
AEFES	CARs move negatively before the announcement and start to move positively after the announcement	CARs are negative on days -5 and -4, they start to increase towards the announcement and although there are rises and falls trend is positive after the announcement	CARs decrease in a certain trend before the announcement and they stay on a negative level with an almost downward trend on all the following days
ASYAK	Before and after the announcement, CARs decrease in a certain trend, and are generally positive.	There are sharp decreases in CARs on days -4 and -3, then this decrease slows down and a positive increase after the announcement date is observed	CARs are commonly negative during the whole analyzed period except days 0, +2 and +3.
DNTAS	CARs are totally negative on all days before and after the announcement. CARs decrease continually before the announcement and start to move in a positive direction after the announcement.	CARs are negative in general except on day -5 and they follow a downward trend during the whole analysis period.	CARs are negative on all of the days before and after the announcement except on day -5. Sharp decreases are observed after the announcement
DYAY	CARs are positive until two-day before the announcement and show a sharp decrease after that. It continues until day +2.	CARs are positive on all days except on day +5. No change in returns on days -5, -4, -3; an upward trend till the announcement, and downward trend after that.	CARs are negative till day +1 and then positive. They ordinarily follow an upward trend. The lowest return is recorded on day -3.
HURGZ	An important increase is seen in CARs before the announcement. After that, there is a decrease which continues until day +3 and then increase starts.	CARs are negative except the return on day +4. After day -2, there is an upward trend in returns.	CARs are continually positive until day +3 and returns on the following days are negative. Trend is downward during the analysis period.
OTKAR	CARs decrease sharply from day -3 until day +2. After that CARs follow an upward trend.	CARs are continually positive for the eleven-day period. The highest return belongs to day +1 and then sharp decreases are recorded.	CARs are positive on days -5 and -4. Then returns follow a downward trend till day +1 and start to increase by a certain trend starting from day -1.
TOASO	Returns follow an upward trend starting from negative return level, till day +4	All returns are negative and have a downward trend. The lowest return recorded on day +4.	CARs are on the negative level and reaches to positive level on day +5
TTRAK	CARs increase continuously from day -5 to day +2, then decline. Returns are negative on the whole.	Returns are generally positive except days -4, -3, -2. Downward and then upward trend is seen.	CARs are on negative level until day +4. Although there is a sharp decline on day -2, an increase is seen starting from day -1. Returns reach to positive level on day +5.
TUPRS	All returns are negative except return on day +4 and follow an upward trend.	CARs are always on the positive level starting from day -4. Then a significant increase happens, it continues until day +3, and it decreases after that.	There is a continuous increase from day -5 to day +2, then it falls. However CARs are still on the positive level.
VESTL	CARs decrease till day -3, then increase. The increase accelerates after day +1, follows an upward trend, and returns reach positive level on day +4.	CARs-starting from negative level- increase till day 0, then decrease and follow an upward trend after day +1. CARs are negative at large.	CARs are principally positive and follow an upward trend. The highest return belongs to day +5.
YGYO	CARs decrease from day -5 to day -1, then follow an almost upward trend. Most of the returns are positive.	CARs are negative on all days. Falls are seen before the announcement, then trend is upward.	CARs have a continuous increase except from days -2 and +1, and are commonly positive.
YKBNK	Although there are increases and declines, CARs follow a downward trend in most cases. Returns are negative except on days -4 and -1.	There are increases on days -5 and -4, and sharp rises and falls on the following days. Generally CARs are positive except on day +2.	Although there are increases and decreases, trend is upward. CARs are negative till day 0, then positive.

3. Conclusion

Contemporarily, investors do not only focus on companies' financial statements, they also take the corporate governance into consideration. Hence, the corporate governance carries a great importance especially for the countries and also for companies which plan to derive long term funds from international capital markets.

This paper focuses on the relationship between corporate governance and stock returns both in index and firm-level. Index-level analysis investigates the long-term relationship between the stock market index and corporate governance index. On the other hand, firm-level analysis focuses on the effect of corporate governance rating on stock return.

Index-level results indicate that corporate governance index and stock market index are co-integrated and there is a long-term relationship between these indices. According to the firm-level analysis, corporate governance rating announcement has an effect on the cumulative abnormal returns of the companies and this effect is more apparent especially the day before the announcement day and the three-day process following the announcement date.

The results show that making investment decisions especially on the announcement dates of corporate governance ratings would result in an increased portfolio performance. The company executives should make plans and decisions to increase the corporate governance rating of the companies in order to develop both the company performance and the portfolio performance for investors.

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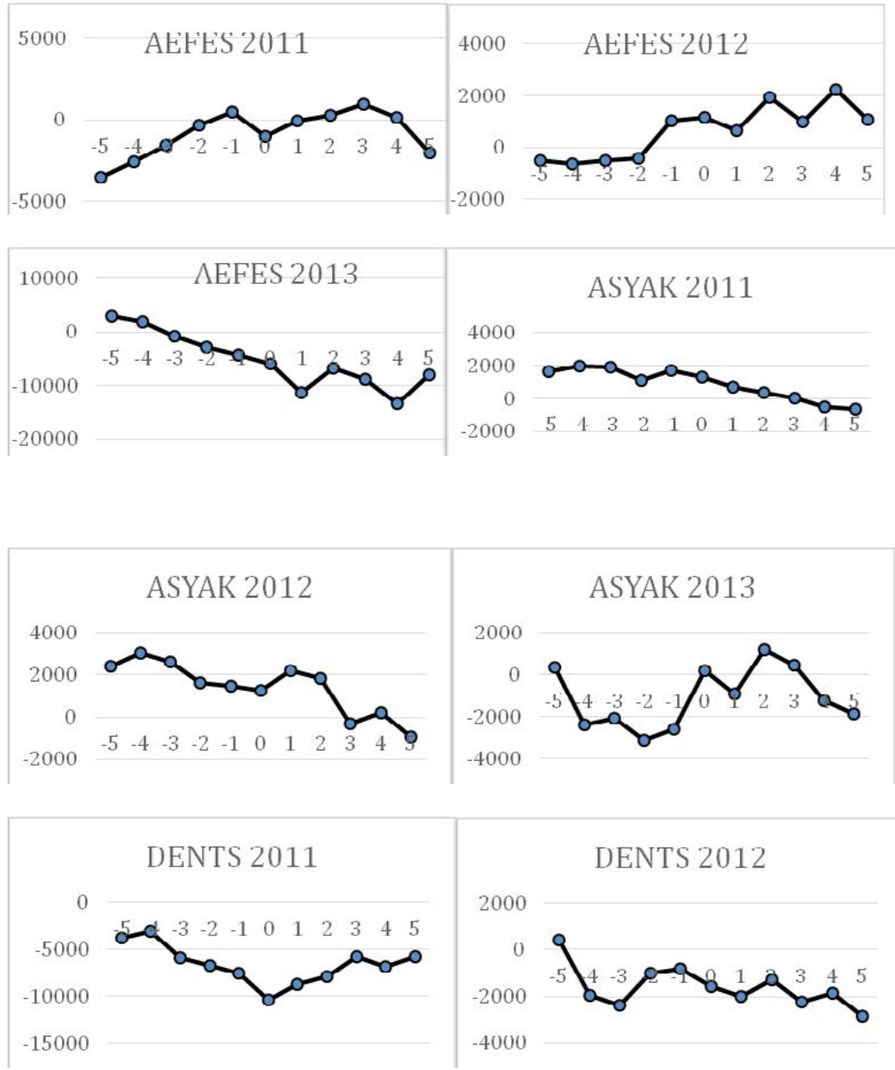
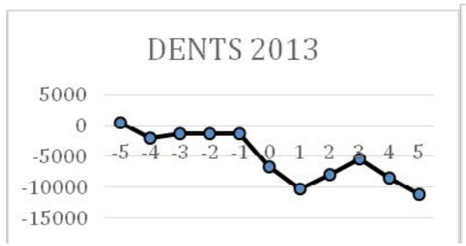
Appendix 1. Summary of the Previous Studies

Author	Findings
Albai (1998)	Found that ownership concentration is positively linked with leverage.
Wen et al (2002)	Found that the board composition and the CEO tenure are negatively linked with leverage of the firm.
Du and Dai (2005)	Found that controlling owners with little shareholding choose higher debt.
Abor (2007)	Found that capital structure is positively associated with board size, board composition, and CEO duality, and negatively associated with CEO tenure.
Antoniou et al. (2008)	Found that capital structure of a firm is heavily influenced by the corporate governance practices and capital markets.
Bodaghi and Ahmadpour (2010)	Found a negative relationship between board size and debt to equity ratio. Authors also found that CEO duality does not significantly influence corporate financing behaviour.
Saad (2010)	Found a negative relationship between CEO duality and capital structure, and a positive relationship between board size and capital structure.
Rehman et al. (2010)	Found a positive relationship between board size and capital structure.
Vakihfard et al. (2011)	Found a positive relationship between CEO duality and leverage, and a negative relationship between board size and leverage.
Pfeffer and Salancick (1978), Lipton and Liorsch (1992)	Found a significant relationship between capital structure and board size
Berger et al (1992)	Found that firms with larger board membership have low leverage or debt ratio.
Wen et al (2002) &Abor (2007)	Found a positive relationship between board size and financial leverage (capital structure).
Jensen (1986), Berger et al (1997) & Abor (2007)	Found that firms with higher leverage rather have relatively more outside directors, while firms with low percentage of outside directors experience lower leverage.
Kajola (2008)	-Examines four corporate governance mechanisms together. (Board size, board composition, chief executive status and audit committee). -Relationship between board composition and the two performance measures (Return on Equity and Profit Margin) is not statistically significant. -There is no relationship between the firm financial performance and the outside director sitting on the board.
Forsherg (1989), Weishach(1991), Bhagat and Black (2002), Sand et al. (2005)	There is no relationship between the firm financial performance and the outside director sitting on the board.
Aboret et al (2008)	Board skill and board size are negatively and positively linked, respectively, to the leverage position of the oil sector in Nigeria
Pfeffer and Salancick (1978) / Liton and Liorsch (1992)	Found a significant relationship between board size and capital structure
Driffieldet et al. (2007)	Contrasting result on the relationship between the leverage position of firms and the value of firm in four countries: Indonesia, Korea, Malaysia and Thailand. In Indonesia and Korea, he found a positive relationship but negative relationship in Malaysia and Thailand.
Berger et al. (1997) , Hasan and Butt (2009)	Found a negative association between board size and capital structure

Cheng (2007)	There is a positive relationship between board size and proportion of outside directors with the performance of firm.
La Porta et al. (1996), Shleifer and Vishny (2007), Gürarda et al. (2016)	Analyzed the ownership structure.
Hsu et al. (2007), Ararat et al. (2010), Gürbüz et al. (2010)	Focused on ownership concentration.

Appendix 2. Sensitivity of Cumulative Abnormal Returns to Event Date

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-5 -4 -3 -2 -1 0 1 2 3 4 5


DYAY 2012
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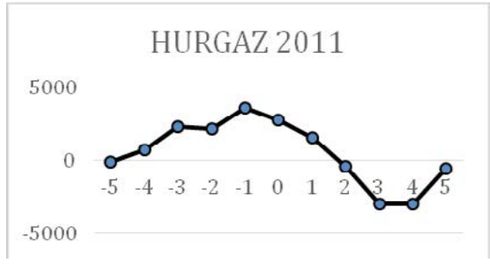
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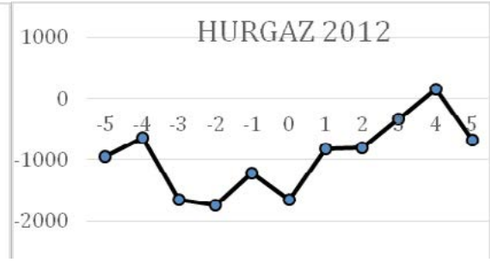
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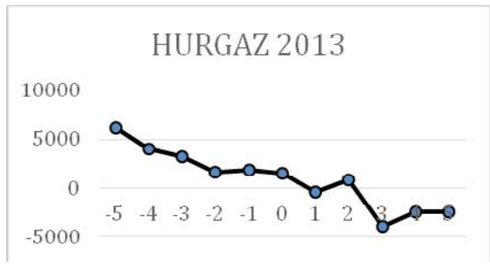
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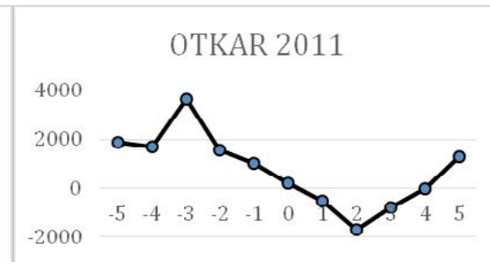
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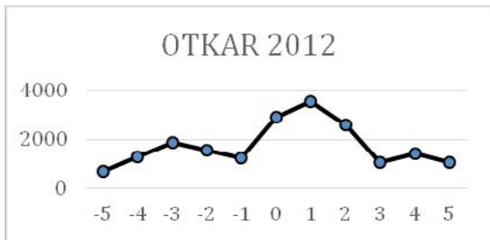
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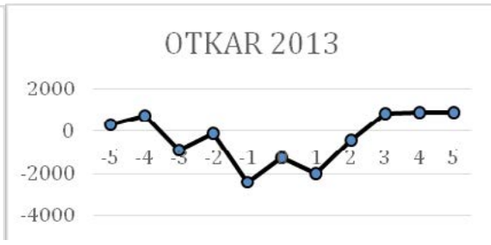
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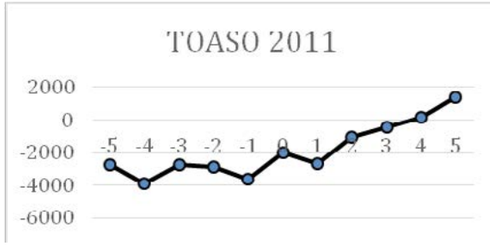
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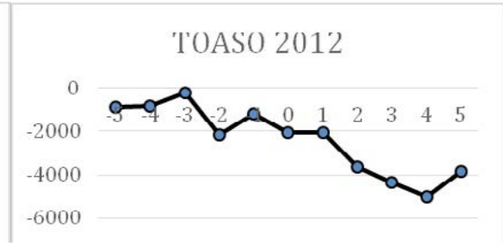
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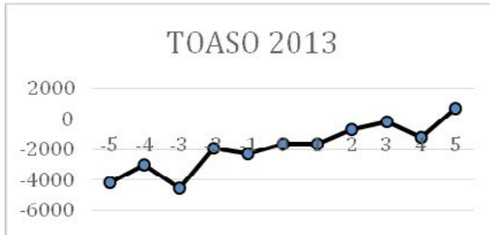
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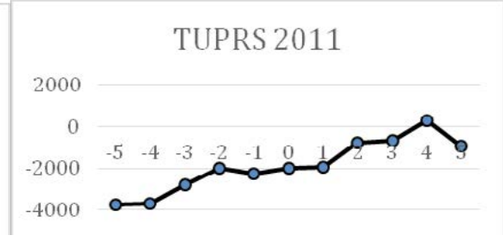
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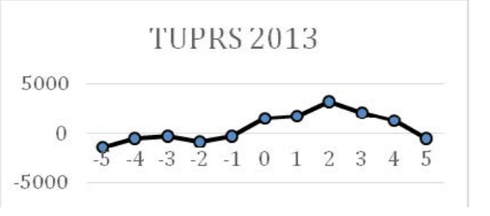
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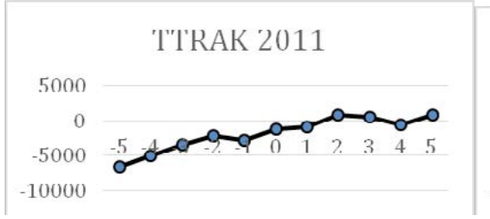
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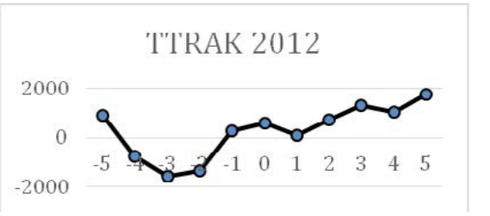
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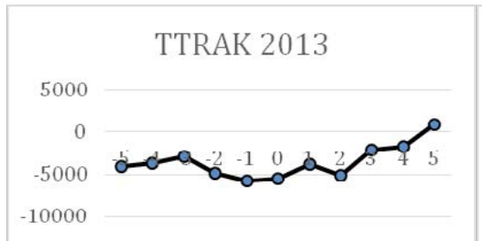
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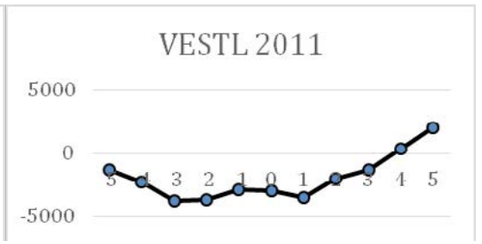
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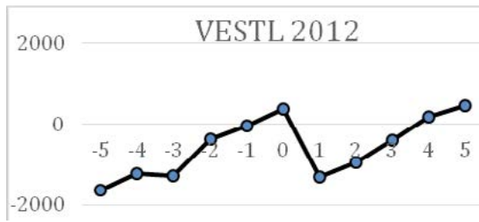
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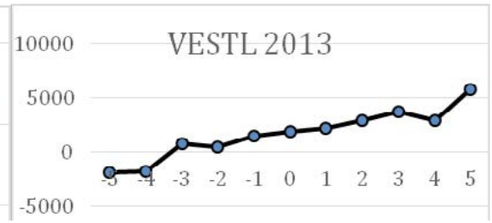
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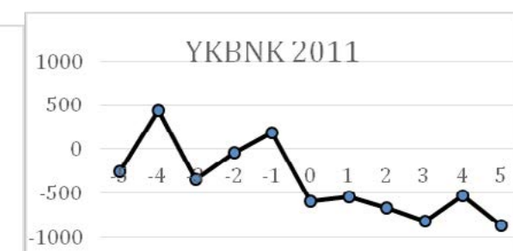
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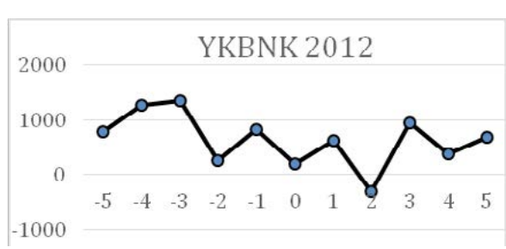
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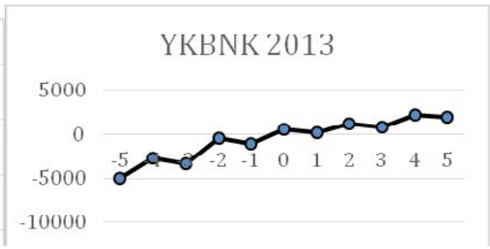
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