Market Reactions Following Corporate Governance Rating Changes: Evidence from the Istanbul Stock Exchange

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Abstract: This study investigates the market reaction to the increases and decreases in corporate governance ratings of public firms quoted at the Borsa Istanbul (BIST), as well as the market reaction to the increases and decreases in the scores for the subcomponents of the total ratings. The findings suggest that investors react negatively to the announcements of decreases in the overall corporate governance ratings and the scores for the four subcomponents. On the other hand, the findings surprisingly suggest that investors also react negatively to the announcements of increases in the overall corporate governance ratings and the scores for the subcomponents of these ratings. These findings contradict the expectation that investors would value improvements in governance ratings highly based on the assumption that increases in these ratings would imply improved corporate governance that would lead to decreased agency costs and therefore, increased firm value. The findings are robust to various econometric specifications and tests.

Keywords: Corporate Governance, Corporate Governance Ratings, Market Reaction

Kurumsal Yönetim Derecelendirme Notu Değişiklikleri Sonrası Piyasa Tepkisi: Borsa İstanbul Örneği

Öz: *Bu çalışmada, Borsa İstanbul (BIST)'da işlem gören halka açık şirketlerin kurumsal yönetim derecelendirme notlarında ve ayrıca toplam derecelendirme notunu oluşturan alt bileşen puanlarında meydana gelen artışlara ve azalışlara yönelik piyasanın tepkisi incelenmiştir. Çalışma bulguları, yatırımcıların toplam kurumsal yönetim derecelendirme notlarındaki ve dört alt bileşenin puanlarındaki düşüşlere olumsuz tepki verdiklerini göstermektedir. Diğer taraftan, bulgular beklenenin aksine, yatırımcıların toplam kurumsal yönetim derecelendirme notlarındaki artışların ve bu notu oluşturan alt bileşen puanlarındaki artışlara da olumsuz tepki verdiklerine işaret etmektedir. Bu sonuçlar, yatırımcıların kurumsal yönetim derecelendirme notlarındaki artışların kurumsal yönetimi geliştirdiği ve vekalet maliyetlerini düşürerek, firma değerinin artmasına yol açacağı varsayımına dayanan beklentisiyle çelişmektedir. Bulguların doğruluğu çeşitli ekonometrik yöntemler ile test edilmiştir.*

Anahtar Kelimeler: *Kurumsal Yönetim, Kurumsal Yönetim Derecelendirme Notu, Piyasa Tepkisi*

I. Introduction

Ararat and Dallas (2011) make the following statement regarding the state of corporate governance research in emerging markets:

"For the past three years, approximately 1,000-1,200 papers have been published each year on the Social Sciences Research Network with the term "corporate governance" appearing as a key word in the abstract. However, fewer than 1 percent of these papers focus on emerging markets."

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This is a very important observation highlighting the importance given to corporate governance in emerging markets, such as Turkey. Fortunately, corporate governance is receiving more attention in the recent years, especially following the effectiveness of the new Turkish Commercial Code (TCC) and the Principles of Corporate Governance (PCG). Aware of the importance of improved corporate governance, managers and boards of directors of public firms are striving to improve the corporate governance environment and the quality of corporate governance related mechanisms in their firms. One of the attempts towards this goal is to be rated by accredited agencies based on firms' compliance with the PCG, which could signal to the markets the importance given to corporate governance principles that exist in the benefit of small shareholders. Therefore, one could expect firms that have high corporate governance ratings to be valued highly in stock markets. In this study, we provide evidence that would provide additional insight into understanding how investors in Turkish capital markets perceive corporate governance ratings of public firms. More specifically, we investigate the market reaction surrounding corporate governance rating changes, and how the market reaction changes based on the increases and decreases in the scores for the subcomponents of these ratings.

Corporate governance rating reports are prepared by agencies accredited by the Capital Markets Board of Turkey (CMB). These agencies are authorized to evaluate firms' compliance with the PCG in an objective and fair manner. Based on this evaluation, they report ratings that state to which extend firms comply with the PCG. The ratings that firms receive are determined as a weighted average of the scores that firms receive for the four subcomponents: (i) shareholders, (ii) public disclosure & transparency, (iii) stakeholders, and (iv) board structure. Based on the weighted average of these scores, firms are assigned ratings between 1 and 10. In these ratings, 1 is the lowest and 10 is the highest in terms of firms' compliance with the PCG. A high rating is important in terms of signaling investors how much the firm is willing to (i) protect shareholders' rights, (ii) value public disclosure of information in a transparent manner, (iii) guarantee the rights of stakeholders, and (iv) establish an effectively functioning board of directors. It should be noted that every firm is not obligated to be rated by these accredited agencies, however firms that are rated and have ratings over 7 are included in the corporate governance index (XKURY) at the Borsa Istanbul (BIST) and these firms are subject to various discounts in terms of annual listing and registration fees.

In developed countries, various versions of such corporate governance ratings or indices exist as well. The most well-known one of these indices is probably the GIM index (Gompers, Ishii and Metrick, 2003), which is constructed based on the existence of 24 corporate governance rules such as the existence of golden parachutes or poison pills. In this seminal study, Gompers et al. (2003) show that investors could earn 8.5% abnormal returns via an investment strategy that buys firms with the strongest shareholder rights based on this index and sells

firms with the weakest shareholder rights. Motivated by the findings of Gompers et al. (2003), Bebchuk et al. (2008) construct another corporate governance index that they call the entrenchment index (e-index). The e-index contains six of the provisions that are included in the GIM index and the authors show that with the level of the e-index, where a high level represents weaker shareholder protection, firm value significantly reduces. Both indices could be considered similar to the corporate governance rating since both of them are used to evaluate a firm based on the level of shareholder protection.

In empirical studies, Cremers and Nair (2005) provide evidence suggesting that firms with stronger shareholder rights, proxied by the GIM index, and high level of ownership by institutional investors have high levels of positive abnormal stock returns, compared to firms with weaker shareholder rights. Core et al. (2006) provide evidence suggesting that firms with weaker shareholder rights, again proxied by the GIM index, have greater abnormal stock returns than firms with stronger shareholder rights. On the other hand, in support of the findings of Bebchuk et al. (2006), Brown and Caylor (2006) show that only some components of the GIM index are related to firm value. The overall evidence in these studies suggests that firms with higher scores in terms of the level of corporate governance in the form of improved shareholder protection generate higher abnormal returns. However, in contradiction with the evidence in these studies, Lehn et al. (2007) show that the level of shareholder protection, proxied by the GIM index, does not lead to higher firm valuations. The authors argue that causation runs from firm valuation to governance, where firms with lower valuations are more likely to adopt the provisions that are the components of the GIM index.

On the other hand, studies such as Renders et al. (2010) and Arora and Bodhanwala (2018) provide evidence of positive relationships between corporate governance ratings and firm performance. In addition, various studies (such as Mitton (2004), Klapper and Love (2007), Garay and Gonzalez (2008), Morey et al. (2009), and Balasubramanian et al. (2010), Bauer et al. (2008)) provide evidence of various corporate governance ratings and indices, and firm value for emerging markets. In terms of corporate governance ratings and research on Turkey, there are also a handful of studies by various researchers (some examples include Dagli et al. (2010), Saldanli (2012), Dincer and Dincer (2013), Ege et al. (2013), Yenice and Dolen (2013), Kula and Baykut (2015), Ararat et al. (2017)), which provide mixed results in terms of the relationship between firms' corporate governance ratings and the corporate governance Index at the BIST, and firm value and firm performance, even though the majority of the evidence is suggestive of a positive relationship.

Based on these arguments and the empirical evidence from Turkey, other emerging countries and more developed countries, one can argue that investors would value corporate governance ratings of public firms, and that their investment behavior would be altered as a result of a rating implying improved

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shareholder protection. In addition, based on agency theory, one would expect shareholders to react positively to certain events that would be in their benefit and decreases the amount of agency costs as a result of increased shareholder rights protection. Therefore, an increase (decrease) in the corporate governance rating of a firm would be surrounded by a positive (negative) market reaction based on the assumption that higher corporate governance ratings imply improved shareholder protection. This is what we test in this paper.

In addition to the general corporate governance rating, it is possible that investors would value the scores for the subcomponents of these ratings differently. Therefore, we also investigate how investors react to increases and decreases in the scores of each subcomponent. Previous studies show that each of these components could directly or indirectly have effects on firm performance or firm value as well as other various corporate issues.

For instance studies such as La Porta et al. (2000), Reese and Weisbach (2002), Fahlenbrach (2009) and Cheung et al. (2018) highlight the importance of investor protection. Based on the arguments in these and other studies, one can discuss how the level of the protection of shareholder rights could affect investor behavior since when investors invest in stocks, they face the risk of wealth expropriation by controlling shareholders or managers of firms. This concern would be pronounced even more in countries such as Turkey, where controlling families are very common. The fact that firms raise more funds in some countries compared to others (La Porta et al., 2000) supports these arguments. Therefore one could expect that an increase (decrease) in the score for the shareholders component of the corporate governance rating of a firm would be surrounded by a positive (negative) market reaction since this component represents how well shareholders' rights are protected in a company.

Another subcomponent of the total corporate governance rating is the public disclosure and transparency, which is a score determined based on the extent that investors are informed about various corporate issues. Studies such as Huddart (2001), Qu and Leung (2006), Kelton and Yang (2008), and Hermalin and Weisbach (2012) highlight the importance of transparency and the disclosure of information to the public in terms of potential effects on investor behavior as well as various corporate issues. Yet, Hermalin and Weisbach (2012) argue that improved disclosure could lead to some additional costs. Based on the arguments in these studies, one could argue that investors would react positively (negatively) to an increase (a decrease) in the score for the public information and transparency component of the corporate governance rating of a firm. This expectation would be an outcome of improved transparency and disclosure of public information leading to improved benefits for shareholders as a result of decreased asymmetric information.

The other subcomponent of the corporate governance rating is stakeholders, which is a score based on the extent that the rights of the stakeholders of a firm are protected. Luoma and Goodstein (1999), Huse and Rindova (2001), Kang et al. (2007), and Brennan and Solomon (2008) discuss the importance of stakeholders of firms. The relationship of the firm with various stakeholders would affect the operational performance and consequently value of firms. Thus, it would affect shareholders as well. Based on these arguments, one would expect to observe a positive (negative) market reaction to an increase (a decrease) in the score for the stakeholder subcomponent of the governance rating.

The last subcomponent of the corporate governance rating is board of directors, which would have direct and indirect effects of firm value (there is a vast amount of literature on the importance of the structure of board of directors. Readers can refer to numerous survey papers that summarize these studies), and therefore one could expect investors to value the structure of the board of a firm when making an investment behavior. Thus, one would expect to observe a positive market reaction to an increase in the score for the board of directors subcomponent of the governance rating, and a negative market reaction to a decrease in the score of this subcomponent.

Based on these expectations regarding increases and decreases in the overall corporate governance rating and the scores for its subcomponents, we investigate the market reaction surrounding the announcements of these rating and score changes. However, before we proceed with the rest of the study, we would like to emphasize that even though there are a limited number of studies investigating the market reaction surrounding corporate governance ratings of public firms in Turkey, we believe that this study can make additional contribution to the literature. In order to highlight the importance of this contribution, we believe that the samples and methodologies of those studies should be briefly discussed.

The study by Bozcuk (2010) investigates the market reaction to the corporate governance rating report announcements between 2006 and 2009, with a sample of 20 announcements. The author employs the market model for expected return estimation and tests the significance of abnormal returns via a one-tailed z-test. In addition, the author tests the distribution of the abnormal returns via a 2-tailed Kolmogorov-Smirnov test. The author finds significantly positive abnormal returns on the announcement days of the reports. In another study, Sakarya (2011) investigates abnormal returns surrounding corporate governance rating announcements in 2009, with a sample of 11 announcements. The author calculates abnormal returns as the difference between the daily stocks return for firm i and the return of the market on the same day. The author suggests that there is a positive relationship between stock returns and corporate governance rating report announcements, based on the sign of the abnormal returns around the event days even though the author does not specify how the significance of these returns are tested. Additionally, Kandir (2013) investigates

the market reaction to the announcement of corporate governance rating reports of 6 banks in 2011. The author uses the market model for expected return estimations since his sample covers financial firms, and tests the significance of abnormal returns via the parametric t-test. The author cannot find evidence of abnormal returns surrounding corporate governance rating report announcements. Lastly, Sakarya, Yazgan and Yildirim (2017) examine the relationship between the announcement of the companies' corporate governance rating notes and the return of the stocks between 2010 and 2015, via 58 companies traded in the corporate governance index. The authors state that there is no relationship between the announcement of the corporate governance rating notes and the return of the stocks.

The main difference between these studies and this one is that we investigate the market reaction to changes in corporate governance ratings compared to previous periods, rather than the announcements themselves. A potential drawback of investigating how the market reacts to the announcements is that it ignores the possibility that some firms' ratings could have decreased compared to previous periods' ratings. In this case, it is assumed that the market would react in the same direction both to increases and decreases in corporate governance rating of firms. Concerned by this very possible drawback, we investigate the market reaction to decreases and increases in corporate governance ratings separately, which could point out to whether or not investors value improvements or declines in the quality of corporate governance applications in firms. In addition, these three studies prefer to employ the market model to estimate expected returns. However, previous studies provide evidence suggesting that the 3 Factor Model and the 4 Factor Model cope with the misspecification of the standard capital asset pricing models and outperform them, generating abnormal returns that are less skewed (Ahern, 2009; Fama and French, 2012). Therefore we employ these two models in expected return estimations. Also, even though Bozcuk (2010) employs both a parametric and non-parametric tests to test the significance of abnormal returns, Sakarya (2011) and Kandir (2013) employ only parametric tests. As discussed in Basdas and Oran (2014), the employment of non-parametric tests could help overcome potential problems with parametric tests that would be arise as a result of event-induced volatility in returns. We employ two parametric and one non-parametric test to provide findings that are robust to various significance tests. Lastly, these studies investigate the market reaction to the announcements of the total corporate governance ratings of companies. However, the total rating comprises of four subcomponents. It is possible that investors in Turkish capital markets would value the rating for a specific component higher than the rating for the other component of the same firm. Therefore, we do not only investigate the market reaction surrounding the increases and decreases in corporate governance ratings of firms compared to previous periods' ratings, but also investigate the

market reaction to the increases and decreases in the subcomponents of the total corporate governance rating separately.

II. Data and Methodology

Our initial sample included the announcements of all the corporate governance rating reports prepared by the rating agencies for public firms quoted Borsa Istanbul (BIST) between the years 2010 and 2014. Data regarding corporate governance ratings were gathered manually from the official web pages of the rating agencies. These agencies are authorized by the Capital Markets Board of Turkey (CMB) to rate firms based on the corporate governance rating methodology determined by the CMB. Announcements of corporate governance ratings that were the same as the previous ratings were excluded from the initial sample. This is because we investigate the market reaction surrounding the announcements of changes in corporate governance ratings. In addition, announcements of corporate governance ratings of financial firms were excluded from the sample since the expected return estimation models employed in the study do not include financial firms. Lastly, if any other announcements were submitted to the Public Disclosure Platform of Turkey (PDP) on the same day as the announcement of the corporate governance rating, those announcements were excluded from the sample to prevent any potential confounding events effects. As a result, our final sample includes the announcements of 67 corporate governance rating reports, in which the rating for a firm was not the same as the rating for the same firm in the previous report.

Data necessary for the calculation of cumulative average abnormal returns (CAARs) and the test of the significance of these returns were gathered from the official webpage of the BIST and various official data providers authorized by the BIST. Monthly and daily returns that were employed in the portfolio construction phase, which is required for expected return estimation models, and in the abnormal return (AR) calculation phase, as well as the CAAR significance test phase were calculated based on adjusted price series.

The market reaction to the announcements of changes in the ratings was analyzed via a standard event-study, the details of which are discussed in Basdas and Oran (2014). As opposed to previous event studies (Yilmaz and Gunay (2006), Aygoren and Uyar (2007), Uludag and Gulbudak (2010), and Kaya (2012)) conducted on Turkish capital markets, we employ the 4Factor Model (4FM) of Carhart (1997) in the estimation of expected returns. For robustness tests, we also employ the 3 Factor Model (3FM), which was developed in Fama and French (1993). Previous studies provide evidence suggesting that these two models outperform standard capital asset pricing models, generating abnormal returns that are less skewed (Ahern, 2009; Fama and French, 2012). In addition, Unlu (2012) shows that these models are also capable of capturing the variation in the stock returns of Borsa Istanbul firms. Therefore, we prefer to employ these two models in expected return estimations, which could be stated as below:

$$R_{i(m)} - Rf_{(m)} = \alpha_i + b_i\left(RM_{(m)} - Rf_{(m)}\right) + s_i SMB_{(m)} + h_i HML_{(m)} + e_{i(m)} \qquad (1)$$

$$R_{i(m)} - Rf_{(m)} = \alpha_i + b_i\left(RM_{(m)} - Rf_{(m)}\right) + s_i SMB_{(m)} + h_i HML_{(m)} + m_i MOM_{(m)} + e_{i(m)} \qquad (2)$$

Since we estimate CAARs for short event windows, we utilize daily returns for stocks following MacKinlay (1997) in these models. RM stands for the daily returns for the average daily return for all the firms quoted at BIST. For robustness tests, we also present our findings based on a model that employs the average daily return for the BIST100 index. RF stands for risk-free rates of returns. The SMB, HML, and MOM are the returns for size, value and momentum factors, respectively. The details of the construction of these factors can be found in Unlu (2012) and Kandir and Arioglu (2014).

Utilizing these models, we estimate expected returns, which are needed to calculate ARs as the difference between expected returns and realized returns for each stock I on each day m. These ARs are used to calculate cumulative abnormal returns (CARs) and CAARs over various event windows. The event windows are (-1,+1) and (0). We did not extend the event windows due to concerns of potential confounding events effects. The estimation windows are 240 previous trading days that do not intersect with the event windows. The significance of the CAARs is investigated by two parametric and one non-parametric tests: (i) the cross- sectional t-test, (ii) the BMP test, and (iii) the non-parametric sign test. The significance of CAARs is tested via the cross-sectional t-test is tested with the test statistic shown below as:

$$t_{CAAR} = \sqrt{N}\,\frac{CAAR}{S_{CAAR}}$$

Where S_{CAAR} is the standard deviation of cumulative average abnormal returns. The test statistic to test the significance of CAARs via the BMP tests, which could cope with event-induced variance, is shown below as:

$$Z_{BMP} = \sqrt{N}\,\frac{\overline{SCAR}}{S_{\overline{SCAR}}}$$

where:

$$S^2_{\overline{SCAR}} = \frac{1}{N-1}\sum_{i=1}^{N}\left(SCAR - \overline{SCAR}\right)^2 \quad \text{and} \quad \overline{SCAR} = \frac{1}{N}\sum_{i=1}^{N} SCAR_i$$

Finally, the significance of CAARs is tested via the sign test is tested with the test statistic shown below as:

$$t_{sign} = \sqrt{N}\,\frac{p - 0.5}{\sqrt{0.5(1 - 0.5)}}$$

III. Empirical Findings

Our first set of results is presented in Table 1. The Table shows that the CAAR on the day of the overall rating increases is -0.37, whereas the CAARs in the three days surrounding the increases is -0.54% (throughout the rest of the study, the phrases "an increase" or "a decrease" stand for the announcements of an increase of a decrease in the overall corporate governance rating and the scores for the subcomponents of the rating). Even though the CAAR(0) is not statistically significant, the CAAR (- 1,+1) is statistically significant at 90% level according to the cross-sectional t-test. Parallel significance levels are observed according to the BMP test. On the other hand, both CAARs are statistically significant according to the non-parametric sign test.

Table 1: *CAARs Surrounding Corporate Governance Rating Changes*

	CAAR (0)	Number of Events	Cross- Sect. t-test	BMP t-test	Sign Test
Rating Increase	-0.374%	59	-1.43	-1.08	-2.47
Rating Decrease	-1.112%	8	-2.27	-2.53	-1.41
	CAAR (- 1,+1)	Number of Events	Cross- Sect. t-test	BMP t-test	Sign Test
Rating Increase	-0.546%	59	-1.68	-1.69	-2.21
Rating Decrease	-1.890%	8	-3.03	-3.60	-2.12

4 Factor Model is employed to estimate expected returns for stocks. The return for the XTUM (the index that includes all the stocks traded at the BIST) is employed as the market return. The sample includes all the firms traded at the BIST.

These figures, even though they are mostly statistically significant according to various test statistics, are surprising since the signs of the CAARs are negative. The negative CAARs suggest that investors react negatively to increases in the overall corporate governance ratings. This contradicts the expectation of positive investor market reaction to increases in the overall corporate governance ratings, based on the assumption that investors in Turkish capital markets would value corporate governance practices of firms and increases in corporate governance ratings would imply improved corporate governance practices. Our findings are not supportive of this expectation.

Table 1 also presents the market reaction surrounding decreases in the overall corporate governance ratings. The CAAR on the announcement day is -1.11% and the CAAR for the three days surrounding the announcement is -1.89% (readers should consider the fact that the number of observations is only 8 for rating decrease announcements and therefore should be cautious when deriving conclusions based on these observations). Both of these CAARs are statistically significant at 90% and 95% levels according to various significance tests. These negative CAARs are supportive of the expectation that investors would react negatively to decreases in the overall corporate governance ratings of firms based on the assumption that decreases in corporate governance ratings would imply weakened corporate governance practices.

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Table 2: *Corporate Governance Rating Changes: Shareholder Rights*

	CAAR (0)	Number of Events	Cross- Sect. t-test	BMP t-test	Sign Test
Rating Increase: Shareholder Rights	-0.589%	57	-2.36	-2.04	-2.78
Rating Decrease: Shareholder Rights	-0.344%	7	-0.59	-0.49	-0.37
	CAAR (-1,+1)	**Number of Events**	**Cross- Sect. t-test**	**BMP t-test**	**Sign Test**
Rating Increase: Shareholder Rights	-0.707%	57	-2.32	-2.19	-2.78
Rating Decrease: Shareholder Rights	-0.689%	7	-0.61	-0.18	-0.37

4 Factor Model is employed to estimate expected returns for stocks. The return for the XTUM (the index that includes all the stocks traded at the BIST) is employed as the market return. The sample includes all the firms traded at the BIST.

Next, we present our results regarding market reaction to increases and decreases in the scores for the shareholder rights subcomponent of the overall corporate governance ratings. The results are presented in Table 2. The Table shows that the CAARs on the rating increase days and the three days surrounding the increases for this subcomponent are -0.58% and -0.70%. These CAARs are statistically significant at 90% and 95% levels according to various significance tests. However, as it is the case with the CAARs for overall rating increases, the CAARs are negative. On the other hand, the CAARs for rating decreases for the shareholder rights subcomponent are -0.34% and -0.68% on the day of the decrease and the three days surrounding it, respectively. Yet, they are not statistically significant.

Table 3: *Corporate Governance Rating Changes: Public Disclosure & Transparency*

	CAAR (0)	Number of Events	Cross- Sect. t-test	BMP t-test	Sign Test
Rating Increase: Disclosure	-0.752%	45	-2.82	-2.52	-3.13
Rating Decrease: Disclosure	-0.090%	20	-0.21	-0.05	-0.44
	CAAR (-1,+1)	**Number of Events**	**Cross- Sect. t-test**	**BMP t-test**	**Sign Test**
Rating Increase: Disclosure	-0.553%	45	-1.66	-1.71	-2.53
Rating Decrease: Disclosure	-1.129%	20	-2.04	-1.67	-1.34

4 Factor Model is employed to estimate expected returns for stocks. The return for the XTUM (the index that includes all the stocks traded at the BIST) is employed as the market return. The sample includes all the firms traded at the BIST.

The figures for the CAARs surrounding both increases and decreases in the scores for the shareholder rights subcomponent contradict the expectations that investors would react positively to increases in the scores for this subcomponent, whereas they would react negatively to decreases in the scores. These expectations are formed based on the assumptions that increases in corporate governance ratings in terms of shareholder rights component would imply improved corporate governance practices regarding shareholder protection and that decreases in corporate governance ratings in terms of shareholder rights component would imply weakened corporate governance practices.

Table 4: *Corporate Governance Rating Changes: Shareholder Rights*

	CAAR (0)	Number of Events	Cross-Sect. t-test	BMP t-test	Sign Test
Rating Increase: Stakeholder Rights	-0.114%	33	-0.41	-0.20	-1.21
Rating Decrease: Stakeholder Rights	-0.867%	23	-1.89	-1.78	-1.87
	CAAR (-1,+1)	**Number of Events**	**Cross Sect. t-test**	**BMP t-test**	**Sign Test**
Rating Increase: Stakeholder Rights	0.249%	33	0.87	0.82	-0.17
Rating Decrease: Stakeholder Rights	-1.474%	23	-2.77	-2.63	-3.12

4 Factor Model is employed to estimate expected returns for stocks. The return for the XTUM (the index that includes all the stocks traded at the BIST) is employed as the market return. The sample includes all the firms traded at the BIST.

Next, we present our findings regarding CAARs surrounding the changes in scores for the public disclosure & transparency subcomponent in Table 3. What is observed in the Table is that the CAAR on the announcement day of increases in the scores for this subcomponent is - 0.75%, and the CAAR surrounding the three days around these announcements is -0.55%. In terms of the CAARs surrounding the announcements of decreases in the scores for this subcomponent, we observe that the CAAR is -0.09% on the announcement day, whereas it is - 1.12% for the three days surrounding the announcements of decreases. The CAARs are mostly statistically significant at 90% and 95% levels for rating increases, whereas a similar pattern is not observed for rating decreases according to various significance tests, except the significance of the CAAR(-1,+1) for rating decreases according to the cross-sectional t-test. Once again, the evidence in Table 3 does not support the expectation that investors would react positively to increases in the scores for this subcomponent, and that they would react negatively to decreases in the scores for this subcomponent.

Table 5: *Corporate Governance Rating Changes: Board of Directors*

	CAAR (0)	Number of Events	Cross Sect. t-test	BMP t-test	Sign Test
Rating Increase: Board of Directors	-0.522%	53	-1.93	-1.61	-2.60
Rating Decrease: Board of Directors	-0.560%	14	-1.58	-1.52	-1.06
	CAAR (-1,+1)	Number of Events	Cross- Sect. t-test	BMP t-test	Sign Test
Rating Increase: Board of Directors	-0.488%	53	-1.45	-1.39	-1.78
Rating Decrease: Board of Directors	-1.538%	14	-3.74	-0.40	-2.67

4 Factor Model is employed to estimate expected returns for stocks. The return for the XTUM (the index that includes all the stocks traded at the BIST) is employed as the market return. The sample includes all the firms traded at the BIST.

Table 4 presents our findings regarding the market reaction to changes in the scores for the stakeholder rights subcomponent. The CAAR on the day of announcements for the increases in stakeholder rights subcomponent is -0.11%. The CAAR for the three days surrounding these announcements are 0.24%, which is positive. However, none of these CAARs are statistically significant. On the other hand, the CAARs surrounding the announcements of decreases in the scores for this subcomponent are -0.86% and -1.47% on the announcement days and the three days surrounding the announcements, respectively. They are statistically significant.

These figures do not support the expectation that investors would react positively to increases in the scores for the stakeholder rights subcomponent. However, they support the expectation that investors would react negatively to decreases in the scores for stakeholder rights subcomponent.

Table 6: *Robustness Tests*

PANEL A: 3 Factor Model with XTUM as Market Return					
	CAAR (-1,+1)	Number of Events	Cross-Sect. t-test	BMP t-test	Sign Test
Rating Increase	-0.522%	59	-1.75	-1.68	-2.21
Rating Decrease	-1.830%	8	-2.81	-3.30	-2.12
Rating Increase: Shareholder Rights	-0.662%	57	-2.24	-2.14	-2.78
Rating Decrease: Shareholder Rights	-0.800%	7	-0.70	-0.28	-0.37
Rating Increase: Disclosure	-0.581%	45	-1.81	-1.86	-2.53
Rating Decrease: Disclosure	-0.977%	20	-1.75	-1.44	-1.34

	CAAR (-1,+1)	Number of Events	Cross-Sect. t-test	BMP t-test	Sign Test
Rating Increase: Stakeholder Rights	0.255%	33	0.90	0.83	-0.17
Rating Decrease: Stakeholder Rights	-1.467%	23	-2.85	-2.70	-3.12
Rating Increase: Board	-0.442%	53	-1.36	-1.35	-1.78
Rating Decrease: Board	-1.600%	14	-3.80	-3.93	-2.67
PANEL B: 4 Factor Model with X100 as Market Return					
	CAAR (-1,+1)	**Number of Events**	**Cross-Sect. t-test**	**BMP t-test**	**Sign Test**
Rating Increase	-0.563%	59	-1.82	-1.73	-1.95
Rating Decrease	-1.915%	8	-3.06	-3.63	-2.12
Rating Increase: Shareholder Rights	-0.729%	57	-2.37	-2.24	-2.51
Rating Decrease: Shareholder Rights	-0.679%	7	-0.60	-0.17	-0.37
Rating Increase: Disclosure	-0.57%	45	-1.68	-1.74	-2.23
Rating Decrease: Disclosure	-1.157%	20	-2.08	-1.71	-1.34
Rating Increase: Stakeholder Rights	0.242%	33	0.84	0.79	0.17
Rating Decrease: Stakeholder Rights	-1.488%	23	-2.78	-2.65	-3.12
Rating Increase: Board	-0.508%	53	-1.49	-1.43	-1.51
Rating Decrease: Board	-1.558%	14	-3.78	-4.06	-2.67

Panel A presents findings based on the 3 Factor Model as the market return and the return of the XTUM index as the market return. Panel B presents findings based on the 4 Factor Model as the market model and the return of the X100 index as the market return. The sample includes all the firms traded at the BIST.

Lastly, we present the CAARs surrounding the announcements of changes in the scores for the board of directors' subcomponent in Table 5. The CAAR on the days of announcements for increases in the scores for this subcomponent is -0.52%, whereas the CAAR for the three days surrounding these announcements is -0.48%. These CAARs are statistically significant at 90% and 95% levels according to some significance tests, while they are statistically insignificant according to other tests. Regardless of the significance of the CAARs, these figures do not support the expectation that investors would react positively to increases in the scores for this subcomponent based on the assumption that an increase in the score for this subcomponent would imply improved corporate governance applications for firms, which would be expected to benefit shareholders and increase firm value.

On the other hand, the CAARs for decreases in this subcomponent are negative and the CAAR for the three days surrounding the announcements of decreases is statistically significant according to the cross-sectional t-test and the sign test. The CAAR on the event day is -0.56% and the CAAR(-1,+1) is -1.53%. Overall, these figures do not seem to support the expectation that investors would react positively to increases in the scores for the stakeholder rights subcomponent

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and partially support the expectation that investors would react negatively to decreases in the scores for stakeholder rights subcomponent.

In Table 6, we present results derived from two different expected return estimation models for robustness purposes. Panel A of Table 6 presents results derived from the 3 Factor Model in expected return estimation. Panel B of Table 6 presents results derived from the 4 Factor Model, where the market return in the expected return estimation is the return for the BIST100, rather than the return for the whole BIST index. The results in the Table 6 suggest that our findings are robust to various expected return estimation models.

IV. Conclusions

In this study, we investigate the market reaction to corporate governance rating changes, and how the market reaction changes based on the increases and decreases in the scores for the subcomponents of these ratings for firms quoted at the Borsa Istanbul between the years 2010 and 2014. Different than previous studies that investigate the market reaction to corporate governance rates for Borsa Istanbul firms, we investigate the market reaction to changes in corporate governance ratings compared to previous periods, rather than the announcements themselves. In addition, these three studies employ the market model to estimate expected returns, whereas we employ the 3 Factor Model and the 4 Factor Model for expected return estimations. Also, we investigate the market reaction to the increases and decreases in the subcomponents of the total corporate governance rating separately, as opposed to the other studies.

Our findings suggest that investors react negatively to the announcements of decreases in the overall corporate governance ratings and the scores for the four subcomponents of these ratings. Such behavior of investors is supportive of the expectation that investors would react negatively to decreases in governance ratings and their subcomponents based on the assumption that investors in Turkish capital markets would value corporate governance practices of firms and decreases in corporate governance ratings would imply weakened corporate governance practices, which would be costly for shareholders and therefore decrease firm value. However, the fact that the market reaction to decreases in the ratings and their subcomponents are statistically significant only for the overall rating and the stakeholder rights subcomponent.

On the other hand, our findings surprisingly suggest that investors in Turkish capital markets react negatively to the announcements of increases in the overall corporate governance ratings and the scores for the subcomponents of these ratings. Even though the market reactions to the overall ratings and their subcomponents are not statistically significant in all the cases, they are still negative. The negative sign of market reaction to these increases contradict the expectation that investors would react positively to increases in governance ratings and their subcomponents based on the assumption stated in the previous paragraph.

Based on these findings, one could argue that investors in Turkish capital markets do not value the increases in corporate governance ratings, whereas they appear to be concerned with the decreases in these ratings. One could argue that investors in Turkish capital markets do not value firms' attempts to comply with the PCG since they believe that these so called improvements are just attempts to comply with the requirements imposed on them by the PCG and would not be reflected to the common practices of firms that would concern small shareholders, and be reflected to firm value. After all, the corporate governance ratings are based on the evaluation of firms' compliance with various aspects of the PCG. If investors believe that the requirements imposed by the PCG on firms is not sufficient to protect them, then it would not be surprising to observe that they do not value increases in corporate governance ratings. In emerging markets such as Turkey, where ownership is not diffusely held and where ownership concentration by controlling groups such as families is very common, alternative requirements imposed on public firms by policymakers would be necessary. In the current setting, investors might not react to "improvements" in corporate governance applications in the same manner as those investors in developed markets do, and therefore one might not be surprised to observe that the market reaction to increases in corporate governance ratings are not positive.

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