

CORPORATE SOCIAL PERFORMANCE SCORES OF THE FIRMS IN SUSTAINABILITY INDEX*

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Araştırma Makalesi / *Research Article*

Muhasebe Bilim Dünyası Dergisi
Mart 2021, 23(1), 48-60

ABSTRACT

This study examined the link between the membership of the Borsa Istanbul Sustainability Index (BIST SI) and corporate social performance proxied by the overall environmental, social, and governance (ESG) scores. Based on this purpose, panel data methods were used to analyze the data of the listed firms in Borsa Istanbul for the years between 2014 – 2018. The main results suggest that compared to their counterparts, the firms included in the BIST SI have higher performance in ESG issues even when controlling for the firm size, financial risk, profitability, and capital expenditures.

Keywords: Sustainability Index, Corporate Social Performance, ESG Performance Scores

JEL Classification: M14, M40


SÜRDÜRÜLEBİLİRLİK ENDEKSİNDEKİ FİRMALARIN KURUMSAL SOSYAL PERFORMANS SKORLARI

ÖZ

Bu çalışma, Borsa İstanbul Sürdürülebilirlik Endeksi (BIST SI) üyeliği ile genel çevresel, sosyal ve yönetim (ESG) puanlarının temsil ettiği kurumsal sosyal performans arasındaki bağlantıyı incelemiştir. Bu amaçla, Borsa İstanbul'da listelenen firmaların 2014-2018 yıllarına ait verilerini analiz etmek için panel veri yöntemleri kullanılmıştır. Araştırma sonuçları, BIST SI üyesi olan firmaların, BIST SI üyesi olmayan firmalara kıyasla, firma büyüklüğü, finansal risk, karlılık ve sermaye harcamaları değişkenleri kontrol altında tutulduğunda dahi, daha yüksek ESG performans puanlarına sahip olduklarını göstermiştir.

Anahtar Kelimeler: Sürdürülebilirlik Endeksi, Kurumsal Sosyal Performans, ESG Performans Skorları

* Makale Gönderim Tarihi: 28.05.2020; Makale Kabul Tarihi: 01.12.2020

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Atf (Citation): Ates, S. (2021). Corporate Social Performance Scores of the Firms in Sustainability Index. *Muhasebe Bilim Dünyası Dergisi*, 23(1), 48-60. <https://doi.org/10.31460/mbdd.744584>

JEL Sınıflandırması: M14, M40

1. INTRODUCTION

Due to the increasing importance of sustainable development worldwide, all stakeholders as well as investors request to be informed about the sustainability efforts of the companies. Hence, the disclosure of corporate social responsibility (CSR) activities and the measurement of corporate social performance (CSP) has become an outstanding issue. CSP also called environmental, social, and governance (ESG) performance, measures the level of integration of sustainable development goals into the daily business activities of the company (Labuschagne et al. 2005). On the other hand, CSR disclosure means providing data with regards to environmental, social, and governance effects of business activities through various forms of reports such as annual reports, stand-alone sustainability reports, or integrated reports.

In response to the need for reliable information about CSR disclosure and/or CSP, some rating agencies have emerged in recent years. The term “*ESG rating agencies*” was used by Avetisyan and Hockerts (2017, 318) to refer all the organizations which serve this purpose. Sustainalytics Thomson Reuters ASSET4, MSCI ESG Research, RobecoSAM, and Vigeo Ethical Investment Research Services (EIRIS) are just a few of the rating agencies which are the global providers of ESG data. These rating agencies have a key role in the development of socially responsible investing (SRI) since their assessments and ESG ratings are used by the sustainability indices (Muñoz-Torres et al. 2019, 440).

SRI was defined as “*the process of integrating personal values and societal concerns into investment decision-making*” by Schueth (2003, 190). Sustainability indices aim to encourage SRI through serving as a benchmark for sustainable investment, increasing awareness of both investors and companies on sustainability issues, creating a competitive environment for companies based on sustainability performance (Ararat and Süel 2014).

ESG rating agencies and sustainability indices share a common objective that is to promote sustainable development through measuring ESG performance and informing investors about the sustainability performance of the companies. However, in the extant literature, ESG rating agencies and sustainability indices have been criticized for their diverse assessment methods (Chatterji et al. 2015; Dorfleitner et al. 2015; Escrig-Olmedo et al. 2010). This study contributes to the relevant literature by investigating the correlation between two different assessment methods of CSP. More clearly, this study investigates whether the membership of a sustainability index is positively correlated with the companies’ ESG performance which is measured by another ESG rating agency. To this end, the correlation between ESG scores of Thomson Reuters ASSET4 and the membership of

the Borsa Istanbul Sustainability Index (BIST SI) which is based on another rating agency, namely Vigeo EIRIS was examined by panel data methods in this study. Through this investigation, this study provides support for the superior social performance of the companies indexed in BIST SI compared to their counterparts which are not a member of BIST SI.

The remaining part of the paper proceeds as follows: The next section includes the literature on ESG rating agencies and sustainability indices. The research methodology is presented in the third section. In the fourth section, empirical results are reported and discussed. Finally, concluding remarks are given in the last section.

2. LITERATURE REVIEW

According to the Global Sustainable Investment Review 2018 which covers the research of sustainable investing in Europe, the United States, Canada, Japan, Australia and New Zealand, the sustainable investment market has been growing considerably. The total amount of assets devoted to sustainable investing in these five major markets has reached \$30.7 trillion as of early 2018 with a 34% increase in the last two years (GSIA 2018, 8).

This significant growth in the market share of SRI has drawn attention to the assessments of the rating agencies and sustainability indices which constitute a basis of SRI decisions of investors. “Rate the Raters 2020: Investor Survey and Interview Results” report of the SustainAbility, which is a think-tank and advisory firm, reported that as of 2018, there have been more than 600 ESG ratings and rankings worldwide. Conducting a survey and interviews with investors from different regions of the world, this report provides data about how these ESG ratings are used by investors. The most frequently used sources of ESG data by investors were identified as corporate ESG ratings, direct engagement with companies, and corporate sustainability reports. Most of the investors surveyed indicated that they use more than one ESG rating for their analyses and evaluate these ratings to select the best one based on the criteria such as broad coverage, quality and transparency of methodology, the credibility of data, and experience of the research team (SustainAbility 2020).

The consistency between different ESG rating agencies and/or sustainability indices have also been explored by academic literature. Testing the convergent validity of six well-known rating agencies, Chatterji et al. (2015) indicated that the assessments of CSR of these rating agencies do not converge. Similarly, Dorfleitner et al. (2015) compared three ESG rating agencies in terms of their rating approaches and revealed a lack of consistency based on the results of both qualitative and quantitative analyses of ESG data of these agencies. The research which had a relatively larger sample consisting of ten ESG rating agencies and six sustainability indices showed that there is a lack of transparency of

valuation criteria and process and standardization of methodology used by these agencies and indices (Escrig-Olmedo et al. 2010).

Another research question that has been discussed through some academic studies is whether ESG rating agencies contribute to sustainable development through their assessment methods. One of the studies examining this research question concluded that although the assessment criteria of ESG rating agencies have changed from 2008 to 2018 in accordance with the global requirements, the integration level of sustainability principles into the assessment process is not enough to foster sustainable development (Escrig-Olmedo et al. 2019). A similar conclusion was made by Muñoz-Torres et al. (2019) who revealed that the assessment methods of ESG rating agencies are not able to drive more sustainable business models.

Just as ESG rating agencies, sustainability indices also aim to contribute to sustainable development by highlighting the companies having a good performance in ESG issues thereby diverting the funds of investors to those companies which may pave the way for the sustainable development of the world. Based on the results of a review study of International Finance Cooperation, Vives and Wadhwa (2012) reported that most of the companies that joined the survey indicated that they experienced increases in ESG performance due to the inclusion in the sustainability index. Continuous progress in sustainability performance was determined as the most important factor for the inclusion of companies in the Dow Jones Sustainability Index (Hsu and Chang 2017).

The studies mentioned thus far provide important insights into the assessment methods of ESG rating agencies and/or sustainability indices and the views of companies and investors regarding the influence of sustainability indices on the improvement of the sustainability performance of companies. Although both the ESG rating agencies and sustainability indices aim at measuring ESG performance reliably, the comparison of their assessment methods of CSP has shown that they do not follow a convergent method.

3. RESEARCH METHODOLOGY

In order to investigate the correlation between the membership of BIST SI and ESG performance of the companies derived from Thomson Reuters Datastream ASSET4 database, a regression model was developed and estimated by panel data methods. The variables in the regression models were measured utilising various databases which were explained in the next part: "Sample and Data". In the section of "Research Model and Variables", dependent, independent and control variables in the regression model were explained in detail.

3.1. Sample and Data

The universe of this study is all the listed companies in the Borsa Istanbul Stock Exchange. A sample of companies from this universe was selected based on data availability. The data necessary for the research model of this study was constructed from three different sources. The ESG performance scores of the BIST companies were derived from the Thomson Reuters Datastream ASSET4 database. This ESG data was matched with the financial data of the companies gathered from Datastream. Finally, membership of BIST SI was determined using the announcements made in the web site of Borsa Istanbul. Since the BIST SI was launched in November 2014, the beginning of the sample period was specified as 2014. The most recent financial data for the study belonged to the year 2018, hence it was the end of the sample period. Based on these restrictions, the final sample of the study consisted of 150 firm-year observations. Table 1 presents these firm-years based on the classification by both industry and BIST and NON-BIST grouping. While BIST SI firm-years cover observations of firms included in BIST SI, NON-BIST SI firm-years represent the observations of firms not a member of BIST SI. As seen in Table 1, most of the total firm-years belonged to the following industries: financial (24%), industrials (15.33%), consumer discretionary (15.33%), and consumer staples (14%).

Table 1. Sample Classification by Industry

INDUSTRY	BIST SI		NON-BIST SI		ALL	
	firm-years		firm-years		firm-years	
	N	%	N	%	N	%
Basic Materials	11	10,28	6	13,95	17	11,33
Consumer Discretionary	20	18,69	3	6,98	23	15,34
Consumer Staples	12	11,21	9	20,93	21	14,00
Energy	9	8,41	-	-	9	6,00
Financials	30	28,04	6	13,95	36	24,00
Health Care	-	-	3	6,98	3	2,00
Industrials	13	12,15	10	23,26	23	15,33
Real Estate	-	-	5	11,63	5	3,33
Telecommunications	10	9,35	-	-	10	6,67
Utilities	2	1,87	1	2,33	3	2,00
TOTAL	107	100	43	100	150	100

Notes: (NON) BIST SI firm-years include the observations of the firms (not) included in the BIST SI.

3.2. Research Model and Variables

The model developed to test the correlation between the ESG scores of the companies and the membership of BIST SI is as follows:

$$ESGSCORE_{it} = \beta_0 + \beta_1 BISTSI_{it} + \beta_2 X_{it} + a_i + u_{it} \quad (1)$$

where *ESGSCORE* represents the overall ESG score, *BISTSI* is a dummy variable that takes the value of “1” if the company is included in BIST SI, “0” otherwise, *X_{it}* covers the control variables. β_0 represents the constant term. $(a_i + u_{it})$ is the composite error term. The subscripts *i* and *t* refer to the company and year, respectively.

The dependent variable of Equation (1), that is overall ESG score of the company, was gathered from the Thomson Reuters Datastream ASSET4 database. The overall ESG score is an aggregated score of the firm's individual environmental, social, and governance scores which are called “the three pillars of ESG”. The individual environmental score represents the company’s performance in resource use, emissions, and environmental innovation. The social pillar score of the company is calculated based on its category scores of workforce, human rights, community, and product responsibility. The company’s performance in the categories of management, shareholders, and corporate social responsibility strategy forms its governance score (Refinitiv 2020).

The main interest of the variable among the independent variables is *BISTSI* which represents whether the company *i* is the member of BIST SI in the year *t*. Based on the assessments of EIRIS (the so-called Vigeo Eiris after the merger in 2015), Borsa Istanbul announces the list of companies to be included in the BIST SI for the index period of November-October in every year.

Based on the relevant literature, several control variables which may affect the ESG performance of the companies were also added to Equation (1). These control variables are the size (*SIZE*) which was calculated by the natural logarithm of total assets, the financial risk (*LEV*) proxied by the ratio of total liabilities to total assets, the profitability measured by return on equity (*ROE*), and the ratio of total capital expenditures to sales (*CAPEX*) of the company. Industry and year-specific effects were also controlled by including industry (*IND*) and year (*YEAR*) dummies in the regression model.

4. RESULTS AND DISCUSSION

Panel data methods were utilized in this research due to their superiority in measuring and identifying the effects that cannot be easily identified using only cross-section or only time series data. In addition, panel data methods offer advantages such as controlling the unobservable effects of cross-section units and reducing the problem of multicollinearity (Baltagi 2005, 5-6).

4.1. Descriptive Statistics & Univariate Analyses

Before estimating Equation (1), all financial variables in the model (*SIZE*, *LEV*, *ROE*, and *CAPEX*) were winsorized at 5% - 95% interval to remove the possible effects of outliers on the results. Table 2 provides the descriptive statistics of the ESG scores and the winsorized control variables for BIST SI firm-years and NON-BIST SI firm-years in Panel A and B, respectively. In Panel C, the results of two-sample t-test and Mann-Whitney tests, which were applied to test the equality of means and mean ranks of variables for BIST SI and NON-BIST SI groups, were reported. Both two-sample t-test and Mann-Whitney tests resulted in negative and significant test statistics for the equality of means and mean ranks of *ESGSCORE*, *SIZE*, and *LEV* which means that the NON-BIST SI firm-years have significantly lower mean values of *ESGSCORE*, *SIZE*, and *LEV* than BIST SI firm-years. On the other hand, the test statistics for *ROE* and *CAPEX* are not significant according to both two-sample t-test and Mann-Whitney tests. This means that the mean values of *ROE* and *CAPEX* do not differ significantly between the groups of BIST SI and NON-BIST SI firm-years.

Table 2. Descriptive Statistics & Univariate Tests

VARIABLE	N	Mean	S.D.	Min	Max
Panel A: BIST SI firm-years					
<i>ESGSCORE</i>	107	63,57	13,66	30,39	88,98
<i>SIZE</i>	107	15,93	1,52	13,45	18,25
<i>LEV</i>	107	0,68	0,18	0,21	0,91
<i>ROE</i>	107	17,80	11,34	-2,58	41,26
<i>CAPEX</i>	107	5,92	4,67	0,86	17,07
Panel B: NON-BIST SI firm-years					
<i>ESGSCORE</i>	43	44,03	15,20	12,27	81,21
<i>SIZE</i>	43	14,90	1,23	13,45	18,25
<i>LEV</i>	43	0,51	0,23	0,21	0,91
<i>ROE</i>	43	16,86	11,87	-2,58	41,26
<i>CAPEX</i>	43	5,68	4,94	0,86	17,07
PANEL C: Univariate tests					
	Two-sample t-test			Mann-Whitney test	
	t-stat	p-value		z-stat	p-value
<i>ESGSCORE</i>	-7,33***	0,000		-6,26***	0,000
<i>SIZE</i>	-4,31***	0,000		-3,72***	0,000

<i>LEV</i>	-4,24***	0,000		-4,02***	0,000
<i>ROE</i>	-0,44	0,659		-0,64	0,522
<i>CAPEX</i>	-0,28	0,782		-0,49	0,627

Notes: (NON) BIST SI firm-years include the observations of the firms (not) included in the BIST SI. *ESGSCORE* is the overall environmental, social, and governance score of the company. *SIZE* is the natural logarithm of total assets. *LEV* is the ratio of total liabilities to total assets. *ROE* is the return on equity and *CAPEX* is the ratio of total capital expenditures to total sales. *, **, *** refer to significance levels of <0,10, <0,05, <0,01, respectively.

Pairwise correlations between the variables of the regression model were given in Table 3. Based on the correlation coefficients in Table 3, it is possible to claim that there is no high correlation between the variables in the model, hence the regression model formulated by Equation (1) does not suffer from multicollinearity problem. Calculated variance inflation factors (VIF) also confirmed the absence of multicollinearity problem.

Table 3. Pairwise Correlations

VARIABLE	<i>ESGSCORE</i>	<i>BISTSI</i>	<i>SIZE</i>	<i>LEV</i>	<i>ROE</i>	<i>CAPEX</i>
<i>ESGSCORE</i>	1					
<i>BISTSI</i>	0,5333**	1				
<i>SIZE</i>	0,3860***	0,3081***	1			
<i>LEV</i>	0,3327***	0,3581***	0,5399***	1		
<i>ROE</i>	-0,1052	0,0371	-0,2957***	0,0092	1	
<i>CAPEX</i>	-0,1756**	0,0233	-0,1792**	-0,2642***	-0,1614**	1

Notes: *ESGSCORE* is the overall environmental, social, and governance score of the company *BISTSI* is a dummy variable that takes the value of “1” if the company is included in BIST SI, “0” otherwise. *SIZE* is the natural logarithm of total assets. *LEV* is the ratio of total liabilities to total assets. *ROE* is the return on equity and *CAPEX* is the ratio of total capital expenditures to total sales. *, **, *** refer to significance levels of <0,10, <0,05, <0,01, respectively.

4.2. Regression Results and Discussion

Equation (1) was estimated using ordinary least squares (OLS), random and fixed effects estimators to determine the most reliable estimation method. After OLS and random effects estimation of Equation (1), the Breusch-Pagan LM test was used to decide between OLS and random effects estimators. The significant test statistic of the Breusch-Pagan LM test caused to reject the null hypothesis of zero random effects, hence random effects estimator was preferred to the OLS estimator.

Finally, the robust Hausman test which has the null hypothesis that “the difference in coefficients of random and fixed effects estimators are not systematic.” produced an insignificant test statistic. Based on these results, random effects estimator was determined as the preferred estimator (Baltagi 2005). The results of the estimation of Equation (1) with random effects estimator and standards errors that are robust to heteroskedasticity and autocorrelation were reported in Table 6.

According to Table 4, the variables *BISTSI* and *SIZE* have positive and significant coefficients. This means that the companies which are included in the BIST SI have higher ESG scores than the companies which are not. The positive and significant coefficient of *SIZE* indicates that bigger firms have better performance in ESG issues than smaller ones. The positive correlation between company size and ESG scores is in line with the previous literature on this issue (Drempetic et al. 2019; Garcia et al. 2017). Since there has been no similar study investigating the correlation between the ESG scores of the rating agency Thomson Reuters ASSET4 and the membership of a sustainability index which is based on the assessments of another rating agency Vigeo EIRIS, it is not possible to compare the relevant finding of this study with the literature. However, it would not be wrong to state that the finding indicating a positive correlation between the membership of BISTSI and ESG scores do not confirm the previous literature which has criticized the ESG rating agencies for having inconsistent assessment methods (Chatterji et al. 2015; Dorfleitner et al. 2015; Escrig-Olmedo et al. 2010).

Table 4. Regression Results

	Coefficient	Robust standard errors
<i>BISTSI</i>	8,299***	(2,056)
<i>SIZE</i>	4,841***	(1,767)
<i>LEV</i>	-2,986	(10,679)
<i>ROE</i>	-0,037	(0,075)
<i>CAPEX</i>	0,182	(0,274)
<i>Constant</i>	-32,622	(25,333)
<i>YEAR</i>	YES	
<i>INDUSTRY</i>	YES	
N	150	
R ² _W	0,306	
R ² _O	0,434	
Wald chi2	441,52***	

Notes: *BISTSI* is a dummy variable that takes the value of “1” if the company is included in BIST SI, “0” otherwise. *SIZE* is the natural logarithm of total assets. *LEV* is the ratio of total liabilities to total assets. *ROE* is the return on equity and *CAPEX* is the ratio of total capital expenditures to total sales. The regression model includes *YEAR* and *IND* dummy variables. *N* stands for the number of observations. R^2_W and R^2_O are the squares of the within-group and overall correlation, respectively. Standard errors that are robust to autocorrelation and heteroskedasticity are given in parenthesis. *, **, *** refer to significance levels of <0,10, <0,05, <0,01, respectively.

4.3. Robustness Checks

The robustness of the empirical results was checked through several methods. The first robustness test is to winsorize the financial variables at 1% - 99% interval instead of 5% - 95%. Secondly, the empirical analyses were repeated for the sample without financial firms. Finally, the firms with negative *ROE* were excluded from the sample and empirical analyses were conducted using this sample. All the methods produced quantitatively similar results with the reported ones.

5. CONCLUSION

This study was designed to investigate the correlation between the membership of BIST SI and ESG performance scores. Investigation of this correlation sheds light on the consistency between the assessment methods of two different ESG rating agencies since the membership of BIST SI is linked to the assessments of the rating agency Vigeo EIRIS while ESG scores used in this study calculated by the rater Thomson Reuters ASSET4.

The results of this investigation show that the membership of BIST SI has a positive and significant correlation with ESG performance scores of Thomson Reuters ASSET4. More precisely, the firms included in the BIST SI have higher ESG scores than their counterparts. Firm size was also found to be positively correlated with ESG performance scores.

Taken together, these results suggest that the assessment methods of ESG rating agencies, Vigeo EIRIS and Thomson Reuters ASSET4 are consistent with each other. This finding validates the reliability of the assessments of Vigeo EIRIS and thereby BIST SI which uses the assessments of Vigeo EIRIS. This study also provides empirical evidence for sustainability indices on the achievement of their purpose of increasing the awareness of companies on sustainability issues and contributing to the sustainable development of the world.

The findings of this study has both some scientific and practical contributions. The result indicating the positive correlation between the membership of BIST SI which is based on the assessments of the rating agency Vigeo EIRIS and ESG scores of companies which is measured by Thomson Reuters

would mitigate the criticism about incompatible assessment methods of different CSP raters. From the stakeholders' point of view, this study provides assurance of superior social performance of the companies which are indexed in BIST SI.

The findings of this study cannot be generalized for developed and even all developing countries since its sample consisted of only one emerging market. Similarly, the findings may not be valid for other sustainability indices and rating agencies. These limitations should be considered for further research. More clearly, further research may investigate the correlation between different rating agencies and sustainability indices in other developing and also developed countries.

YAZARIN BEYANI

Bu çalışmada, Araştırma ve Yayın Etiğine uyulmuştur, çıkar çatışması bulunmamaktadır ve de finansal destek alınmamıştır.

AUTHORS' DECLARATION

This paper complies with Research and Publication Ethics, has no conflict of interest to declare, and has received no financial support.

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