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Full Length Article

ESG practices and corporate financial performance: Evidence from Borsa Istanbul

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Abstract

The purpose of this paper is to determine whether environmental, social, and governance (ESG) practices affect corporate financial performance (CFP) indicators at Turkish listed companies. The impact of ESG disclosures on the firm-level CFP of companies listed on the Borsa Istanbul Corporate Governance Index (XKURY) over the period 2007–2017 is investigated using the corporate governance principles of the Capital Markets Board and Global Reporting Initiative (GRI) environmental indicators. The contribution of this study is that it explores the influence of twenty independent ESG variables, comprising company disclosures, on CFP in an emerging market. The results of the study reveal a negative effect of environmental disclosures on CFP. Stakeholder involvement in management contributes to operational efficiency in the social dimension of ESG. Provisions related to shareholder rights and the board of directors has a positive impact on CFP in the governance dimension.

JEL classification: G34; L25; M40; Q56

Keywords: Corporate financial performance; ESG disclosures; Turkish listed companies

1. Introduction

Turkey has a strategic geopolitical location, and it is the largest developing country to join the European Union (EU), attracting global investment attention. It is referred to as a satellite market. EU serves as an anchor for Turkey's environmental, social, and governance (ESG) standards and institutional evolution, aligning the economic and political options of Turkey with those of Europe (Ararat et al., 2011). In the 2018 Environmental Performance Index (EPI, 2018), Turkey ranked 108th of 180 countries, with a score of 52.96 (0 = worst, 100 = best) compared to a score of 60.4 in 2010. Among the issue categories, the highest score was in water resources (score: 92.21; rank: 41) and the lowest in biodiversity and habitat (score: 25.16; rank: 172). ESG in Turkey is driven by internal and external drivers, as set out in Appendix S1 (available online). The internal drivers are corporate governance (CG) and financing institutions, regulating bodies and laws, corporations, civil society organizations, and the media. The external triggers are conventions and organizations that are internationally recognized (UNDP, 2008). Recently, an increasing number of firms are listed in the Borsa Istanbul CG Index and Sustainability Index. The number of sustainability reports based on the Guidelines of the Global Reporting Initiative (GRI) and Corporate Social Responsibility (CSR) reports has risen significantly.

Many studies report a positive relationship between ESG and corporate financial performance (CFP) (Brooks & Oikonomou, 2018), but ambiguous and conflicting findings are also given (Hussain et al., 2018). Rahdari (2016) claims that these observations may be of some interest to developed countries, but

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exploring such a relationship in emerging markets (EM) could make a significant contribution to the literature, because little research has been conducted on the topic so the level of awareness of strengths and weaknesses is lower. According to Alshehhi et al. (2018), a gap is found in the literature on the issue of ESG in EM for CFP. The leading countries in the papers on emerging markets are Taiwan, China, India, and Malaysia, but very few studies have been done on Turkey. Consequently, the objective of this study is to examine the influence of ESG practices on the financial performance of firms indexed on the Borsa Istanbul (BIST) Corporate Governance Index (XKURY) during the period 2007–2017.

The article is organized as follows. Section 2 provides insights into the literature and background. Section 3 discusses the selected variables, data structure, methodology, and findings. Finally, the article ends with concluding remarks.

2. Literature review and hypotheses development

2.1. Literature insights

Early research related to CSR emerging from stakeholder theory provides the basis for the ESG framework. Stakeholder theory suggests that its relationship with its stakeholder groups determines the potential of a company to build sustainable wealth (Garcia et al., 2017). Firms must therefore be transparent in disclosing corporate data, which reduces information asymmetry and lead to a higher trust by investors. The ESG framework is a broad dynamic concept, including activities related to corporate governance (CG), sustainability, and CSR. The review conducted by Friede et al. (2015) indicates that capital markets have shown no strong learning impacts in the ESG–CFP relationship so far, and primary studies since the 1990s have shown a positive correlation trend. At companies in developed countries, Garcia and Orsato (2020) find a positive and statistically significant relationship between ESG performance and CFP, but a negative correlation between ESG and CFP at firms in EM. Similarly, a study conducted in EM in Latin America reported that ESG scores are negatively associated with CFP at Latin American multinational companies (Duque-Grisales & Aguilera-Caracuel, 2019).

Unlike in other emerging markets that use global indicators, as reported by MSCI ESG Metrics (2020), in Turkey, ESG performance does not provide a particular indication. Previous studies on Turkey explore CSR and CG issues at listed companies and offer mixed evidence about the direction of the impact of CSR and CG practices on CFP. A statistically significant relationship was not found between CSR and CFP at firms listed on the Borsa Istanbul (Ozcelik et al., 2014). In a comparison of the CFP of XKURY firms before and after being listed in the CG index, no major improvement is noted in the CFP of XKURY firms, during the first year of the index (Sengur, 2011). Kara et al. (2015) find a positive relationship between the average CG scores reported by XKURY companies and the Tobin's Q value, and accounting-based CFP was not related significantly. However, because average CG scores were used, the study does not indicate the CG subindices that positively affect the Tobin's Q value. Among the subindices developed for a customized CG index for public Turkish firms, the disclosure practices predict higher market value and profitability (Ararat et al., 2017).

Although some studies examine the effect of CSR or corporate governance on CFP in Turkey, almost no research investigates the relationship between ESG and CFP. Therefore, this paper examines the implications of each ESG pillar on corporate financial performance. In line with previous research, this study distinguishes between market-based and accounting-based indicators of CFP (Endrikat et al., 2014). The sample is chosen from the companies listed in XKURY index.

2.2. Theoretical background and hypotheses development

2.2.1. Environmental responsibility

Globally, businesses develop green practices to reduce their impacts on the environment and enhance their financial results (Miroshnychenko et al., 2017). Great research attention has been paid to the relationship between environmental performance (EP) and CFP, and the findings are still conflicting. The adoption of ISO 14001 seems to have an adverse financial effect, according to the cross-country analysis conducted by Miroshnychenko et al. (2017). Similarly, Verbeeten et al. (2016) report the negative impact of EP on CFP at German companies. Although some studies have suggested a neutral or even negative relationship, most studies have shown that EP enhances financial performance. The main environmental drivers of CFP are internal green practices (pollution prevention and green supply chain management), while external green practices (green product development) are a secondary determinant of CFP. Qiu et al. (2016) report comparatively better disclosures were made by large public corporations in the FTSE350 index. The meta-analytical results of Endrikat et al. (2014) indicate a positive relationship between EP and accounting and market-based CFP. Environmental policies that are cost cutting, such as a green building policy, sustainable packaging, and supply chain are positively related to accounting-based and market-based CFP (Xie et al., 2019). Therefore, the following hypothesis is proposed:

H1. *Environmental practices have a significant positive impact on the CFP of XKURY companies.*

2.2.2. Social responsibility

A large amount of literature has been devoted to the empirical study of the relationship between CSR and CFP though without any clear consensus. According to Flammer (2015), successful CSR activities lead to announcements of positive returns and superior accounting performance. According to Blasi et al. (2018), in US stock markets, market-based measures are related to CSR more than accounting-based measures are. Lower financial risk is observed at companies with better CSR activities. According to Adegbite et al. (2019), medium levels of CSR activities reduce financial performance whereas low and high CSR

levels increase financial performance. Several papers report that companies that make more disclosures on social responsibility have higher market value. Investors value social disclosures by firms listed on the FTSE 350 Index, the Brazilian Stock Exchange, and selected German companies (Miralles and Quros et al., 2018; Qiu et al., 2016; Verbeeten et al., 2016). A positive relationship is found between CSR and accounting-based CFP at companies on the Dow Jones Sustainability Index (Byus et al., 2010). These arguments suggest the following hypothesis:

H2. *Socially responsible practices have a significantly positive impact on the CFP of XKURY companies.*

2.2.3. Corporate governance

The empirical research on the relationship between CG measures and various accounting and market-based CFP indicators has not generated a consistent set of findings. Many researchers have confirmed that a positive association is found between CG indicators and market-based CFP at companies listed on the US stock markets (Gompers et al., 2001). Investing in companies with higher levels of CG provided investors with higher returns than investing in companies with lower levels of CG (Gompers et al., 2001). Bebchuk et al. (2009), by contrast, report that CG has a negative effect on CFP. Different results were obtained in studies on the influence of the board structure on CFP. The benefits and remuneration of the board, board members' business experience, and the presence of female directors were significant in improving accounting-based CFP (Vo & Phan, 2013). Board independence has a positive impact on accounting-based CFP in Iran (Mashayekhi & Bazaz, 2008). Amba (2014) finds that CEO duality has a negative effect on CFP in Bahrain.

The effect of shareholder issues varies across capital markets. Concentrated ownership has a negative relationship with the return on assets in Bahrain (Amba, 2014). A significant relationship is seen between firms' announcements of dividends and payments and the value of the shares (Rizwan et al., 2016). Although the results differ, depending on the metrics used for corporate governance and CFP, good CG practices have a positive impact on corporate financial performance in general. Hence, the following hypothesis is formulated:

H3. *Corporate governance practices have a significantly positive impact on the CFP of XKURY companies.*

ESG practices have been steadily aligned with the needs of stakeholders. However, corporate crises and financial crises and academic research conducted over the past twenty years show that the effect of ESG practices on financial performance are not completely positive, as some practices are not related to CFP, and some of them even affect CFP negatively. Therefore, the purpose of this research is to determine whether ESG practices affect financial performance indicators and how they affect them.

3. Methodology

3.1. Data and variables

The objective of this study is to identify the relationship between the ESG practices of Turkish listed firms and indicators of CFP. In 2007 XKURY began to list corporations with the best CG practices on a voluntary basis. Independent rating agencies assess the CG activities of the listed corporations and issue annual CG rating reports. The listed companies score more than 70 out of 100 on annual CG ratings and represent a model of best practice and accountability for the Turkish stock markets. The research sample consists of nonfinancial companies in the XKURY. Data were manually coded using information from CG rating reports, annual reports, sustainability reports, CSR reports, and corporate websites. Independent variables and indicators of these variables were determined using the principles set out in the Communiqué on CG published in the Official Gazette in 2014. The variable for the environmental disclosure score (EDS) was determined by using the environmental category of GRI specific standard disclosures (GRI, 2013). The list and coding of provisions we used are set out in Table 1. For each company, the presence of each provision was coded as 1 (present) or 0 (not present) if it does (not) represent the minimally acceptable ESG disclosure. Environmental disclosures are not mandatory in Turkish capital markets, so most companies do not issue regular sustainability reports or amend environmental provisions. Therefore, the most recent provisions related to EDS are included in the analysis. We have a unique panel of data derived from the CG rating reports and the sustainability disclosures of thirty-six public companies over the period 2007–2017. It is an unbalanced panel because not all the companies issue these reports and disclosures for all the years considered. The measures of imbalance suggested by Ahrens and Pincus (1981) show that γ is 0.71 and η is 0.80.

Tobin's Q (TQ) and the return on assets (ROA) are commonly used financial measures of CFP. TQ, a market-based CFP indicator, and ROA, an accounting-based CFP indicator, are used as independent variables in this analysis. Control variables—such as the free float percentage (FFP), company size (LNSIZE), listing status on the BIST 30 (BIST30), and the presence of foreign ownership (FOP)—are used to model TQ and ROA. In addition, in the estimation of ROA, DuPont analysis indicators such as net profit margin (NPM) and asset turnover (ATO), and the ratio of debt to equity (DTE) are used as control variables. Dividend yield (DY), also known as the dividend-price ratio, is used as a control variable to estimate TQ. Variable definitions and the number of underlying provisions are presented in Table 1 and Table S1 (see the Supplementary Materials, available online). The variables LNSIZE and EDS are time invariant; the remaining variables vary across companies and over time, of which four— shareholder information rights (SIR), transfer of shares (TS), FOP, and BIST30—are binary variables. Table 2 presents the descriptive statistics for the variables. Annual report (AR), relations with customers and suppliers (RCS), ethical rules and social

Table 1
Definitions of the variables.

Variables	Definitions	No. of sub-items
Dependent variables		
ROA	Return on assets, defined as income after taxes divided by the average total assets for the fiscal year	1
TQ	Sum of the book value of debt, preferred stock, and market value of outstanding common shares at the end of the reporting period, divided by book value of total assets	1
Independent variables[a]		
EDS	Environmental Disclosure Score	15
SP	Stakeholder policy	5
SPM	Stakeholder participation in management	2
HRP	Human resources policy	9
RCS	Relations with customers and suppliers	4
ERSR	Ethical rules and social responsibility	2
ESR	Exercise of shareholder rights	2
SIR	Shareholder information rights	1
GAR	General assembly right	11
VR	Voting rights	3
MR	Minority rights	2
DR	Dividend rights	4
TS	Transfer of shares	1
CW	Corporate website	4
AR	Annual report	2
BDF	Board of directors' functions	2
BDA	Board of directors' activities	8
BDS	Board of directors' structure	10
BDM	Board of directors' meetings	7
BDC	Board of directors' committees	13
BDR	Board of directors' remuneration	5
Control variables		
LNSIZE	Company size; natural logarithm of the number of employees in 2020	1
FFP	Free float percentage of the company	1
FOP	Binary variable that equals 1 if the firm has foreign partners, 0 otherwise	1
BIST30	Binary variable that equals 1 if the firm is on the BIST30, 0 otherwise	1
DY	The ratio of cash dividends per share to market price per share	1
NPM	The ratio of net income to sales	1
ATO	The ratio of sales to average total assets	1
DTE	The ratio of total liabilities to shareholders' equity	1

Social responsibility disclosures: SP, SPM, HRP, RCS, ERSR.
Governance disclosures: SIR, GAR, VR, MR, DR, TS, CW, AR, BDF, BDA, BDS, BDM, BDC, BDR.
[a] Environmental responsibility disclosures: EDS.

responsibility (ERSR), and board of directors' functions (BDF) do not vary across the sample, so they are not used in the following econometric analysis.

Fig. S1 (see the Supplementary Materials, available online) presents the correlation matrix for the variables used in the regression analysis. The highest correlation coefficient in the sample is 0.70, which is well below the threshold for suspecting multicollinearity.

4. Results and discussion

Estimation results and appropriate diagnostic tests for the pooled ordinary least squares (OLS) model, fixed-effects model, random-effects model, and the Hausman-Taylor (1981) model for TQ and ROA are considered to ensure that the correct model is selected. The Hausman-Taylor (1981) estimator was chosen as the best of the four options considered. It also has the advantage of obtaining coefficient estimates for the time-invariant variables and providing estimates that are robust to possible endogeneity issues. A succinct presentation of the underlying econometric theory and the details of these estimation techniques are in Wooldridge (2010). Table 3a presents the Hausman-Taylor (1981) estimation results, whereas Table 3b shows the diagnostics for the TQ model. The TQ model passes the overall significance test. Honda (1985) tests for individual effects and time effects indicate the presence of significant individual effects but no time effects. The F-test for significant effects verifies this finding. The result of the Hausman (1978) test indicates that the individual effects are exogenous, and the estimators are consistent in the Hausman-Taylor model. The Breusch (1978) and Godfrey (1978) for serial correlation in panel models suggests the presence of serial correlation in the error. The Baltagi and Li (1991) test verifies this finding. Lastly, the Peseran (2004) test for cross-sectional dependence in panels is conducted, and the result suggests that no such

Table 2
Descriptive statistics.

Variable	N	Min.	Mean	Median	Max	Std. Dev.	Skewness	Kurtosis
ROA	201	−14.21	6.96	7.25	33.29	7.29	0.17	1.08
TQ	201	0.28	2.39	1.66	16.49	2.31	3.31	14.56
EDS	201	0.07	0.64	0.67	1	0.31	−0.64	−1.02
ESR	201	0.5	0.98	1	1	0.11	−4.11	14.97
SIR	201	0	NA	1	1	0.49	−0.33	−1.9
GAR	201	0.82	0.97	1	1	0.04	−1.11	−0.13
VR	201	0.33	0.82	0.67	1	0.18	−0.17	−1.32
MR	201	0	0.39	0.5	1	0.26	−0.25	−0.19
DR	201	0.75	0.99	1	1	0.05	−5.04	23.48
TS	201	0	NA	1	1	0.43	−1.18	−0.6
CW	201	0.5	0.87	1	1	0.14	−0.44	−0.95
AR[a]	201	1	1	1	1	0	NA	NA
SP	201	0.8	0.98	1	1	0.07	−2.33	3.45
SPM	201	0	0.91	1	1	0.22	−2.25	4.42
HRP	201	0.67	0.98	1	1	0.05	−3.01	10.95
RCS[a]	201	1	1	1	1	0	NA	NA
ERSR[a]	201	1	1	1	1	0	NA	NA
BDF[a]	201	1	1	1	1	0	NA	NA
BDA	201	0.5	0.93	1	1	0.11	−1.68	3.35
BDS	201	0.7	0.93	1	1	0.08	−0.96	0.06
BDM	201	0.86	0.99	1	1	0.04	−2.66	5.08
BDC	201	0.62	0.81	0.85	1	0.07	−0.37	0.8
BDR	201	0.4	0.75	0.8	1	0.1	−1.8	2.85
FFP	201	0.03	0.29	0.27	0.69	0.11	0.47	0.76
FOP	201	0	NA	0	1	0.49	0.48	−1.78
LNSIZE	201	3.91	7.62	7.62	10.38	1.87	−0.38	−0.65
BIST30	201	0	NA	0	1	0.47	0.77	−1.41
DY	160	0.3	5.32	4.36	32.24	4.24	2.2	9.62
NPM	199	−243.73	12.88	6.96	333.5	50.91	2.24	19.44
ATO	201	0	99.15	90.66	343.78	68.89	0.99	1.1
DTE	201	0.36	52.08	53.68	96.93	21.36	−0.31	−0.61

[a] These variables do not show any variation across the sample, so they are not included in the regression analysis.

Table 3a
Hausman-Taylor estimation results for TQ.

Variable	All		Large		Small		High		Low	
	TQ		TQ		TQ		TQ		TQ	
	coef.	s.e.	coef.	s.e.	coef.	s.e.	coef.	s.e.	coef.	s.e.
(Intercept)	−18.42**	8.59	−0.63	8.75	−35.48***	6.83	−1.76	4.29	−22.85***	6.82
EDS	−3.10	2.85	−2.89**	1.17	2.16	3.87	−0.66	0.99	−4.86*	2.90
ESR	1.59**	0.79	0.53	1.69	2.34***	0.38	−1.58	1.09	2.71***	0.70
SIR	−0.18	0.52	0.30	0.25	0.42	0.73	0.20	0.22	−0.19	0.68
GAR	1.92	3.45	5.90	3.83	1.13	2.94	−2.62	3.84	0.77	3.77
VR	1.85	1.58	−0.08	0.87	1.84**	0.85	−0.48	0.40	4.23**	1.76
MR	−0.36	1.14	−1.47	1.53	−0.89	0.70	0.45	0.47	−0.98	1.40
DR	6.29	5.65	−3.26*	1.82	12.90***	1.94			4.78	5.35
TS	0.25	0.55	−0.56	0.50	1.01*	0.58	−0.32	0.27	0.18	0.66
CW	0.03	1.74	1.35**	0.60	6.42	5.75	2.95	1.92	−0.32	2.49
SP	−3.18	2.91	−8.90**	3.95	2.60	2.18	0.96	1.05	−6.90	4.94
SPM	0.49	0.60	0.98***	0.21	1.28	0.95	−3.99***	0.69	1.09*	0.63
HRP	2.18	3.60	1.00	2.99	−2.52	2.00	2.31	1.95	10.79**	5.39
BDA	−3.09*	1.79	−1.36	1.51	−5.02*	2.81	−2.32***	0.58	−3.55*	1.89
BDS	0.34	2.93	1.71	2.28	1.68	2.50	3.06**	1.22	−0.82	2.67
BDM	−0.89	3.15	0.63	5.27	2.44**	1.12	3.01**	1.31	−6.10	5.77
BDC	5.23*	2.88	1.86	2.60	6.44	4.30	0.33	1.16	8.34**	3.43
BDR	5.39**	2.39	5.84**	2.40	2.43	1.98	3.84***	1.26	5.29*	2.93
FFP	38.27***	10.17	6.39	3.85	14.61	21.38	−4.63***	1.13	48.66***	10.71
FOP	3.48***	1.23	−0.95	0.67	4.25***	1.24	0.69**	0.31	4.14***	0.81
LNSIZE	−0.93**	0.47					0.06	0.26	−0.75	0.54
BIST30	6.83***	0.69	0.88	1.07	6.40***	0.35	−0.08	0.92	6.65***	0.74
DY	−0.05*	0.03	−0.08***	0.01	−0.03	0.03	−0.02	0.01	−0.10***	0.03

Note: DR does not exhibit any variation in the high governance quality subsample, so it was not included in that model.

Table 3b
Diagnostic tests for the TQ models.

Diagnostics	All	Large	Small	High	Low
R-Squared	0.59	0.49	0.87	0.49	0.69
Adj. R-Squared	0.53	0.33	0.81	0.20	0.60
N	160	104	70	58	102
Overall Significance	199.10***	65.27***	311.34***	35.28**	173.52***
Honda (1985) (cs)	3.21***	−0.67	2.25**	−1.11	−0.60
Honda (1985) (time)	−0.38	−1.12	0.31	−1.41	1.75
F test for sig. effects	10.92***	4.59***	8.88***	3.76***	9.25***
Hausman (1978)	12.93	2.38	1.07	2.57	7.43
Breusch-Godfrey test	23.21***	5.66**	0.10	0.08	14.18***
Baltagi and Li (1991)	21.36***	3.45*	13.56***	1.68	16.01***
Pesaran (2004)	−0.24	−0.78	−0.37	−0.26	−0.42

*, ** and *** indicate the rejection of the null hypothesis at the 0.10, 0.05, and 0.01 levels of significance, respectively.

dependence exists. We base our tests on Arellano (1987) -type standard errors, which are robust to both heteroskedasticity and serial correlation.

The estimation results show that disclosures related to exercise of shareholder rights (ESR), board of directors' committees (BDC), board of directors' remuneration (BDR), FFP, FOP, and BIST30 have significant positive effects on TQ, and board of directors' activities' (BDA), LNSIZE, and DY have significant negative effects on TQ. The findings, except for those on the control variables, are supported by the current literature on the positive influence of good CG practices in terms of shareholder rights and the board of directors on the market performance of companies (Gompers et al., 2001). For instance, previous studies (Rizwan et al., 2016; Vo & Phan, 2013) also found that the board of director (BoD) committees and the compensation of BoD members have a positive effect. Governance is the most important ESG variable for foreign investors in emerging markets, followed by environmental issues, according to Ararat et al. (2011).

To check the robustness of these findings, we estimated the model using different subsamples. In line with the convention in the literature on using the firm size as a proxy for information asymmetry, large firms are expected to have low information asymmetry, and small firms are expected to face high information asymmetry, so they are considered separate samples. Thus the subsample of large firms comprises eighteen firms with more than 2000 employees, and the subsample small firms consists of eighteen firms with fewer than 2000 employees. Tables 3a,b show the estimation results for these subsamples as well as the relevant diagnostics. The results for the large firm subsample suggest that BDR and DY are significant and EDS has a significant negative impact on TQ. Additional significant variables include dividend rights (DR), corporate website (CW), stakeholder policy (SP), and stakeholder participation in management (SPM). Initial findings on the significance of the ESR, BDA, FOP, and BIST30 are confirmed in the Small subsample while voting rights (VR), DR, TS and board of directors' meetings (BDM) emerge as additional variables.

The second set of subsamples considered consists of firms with high governance quality and firms with low governance quality. Thus, the subsample of firms with high governance quality (GQ) comprises nineteen firms whose average governance rating scores are above 90 over the sample period, whereas the subsample of firms with low governance quality comprises seventeen firms whose average governance rating scores are between 70 and 89. Because all the firms in this study are eligible for the XKURY index, none of them have a score below 70, implying that none have "poor governance" *per se*. Our initial results regarding the significance of BDA, BDR, FFP and FOP are replicated in the high GQ subsample while SPM, board of directors' structure (BDS), and BDM are additional significant variables. In the low GQ subsample, all the initial findings are replicated, and EDS, VR, SPM, human resources policy (HRP), and BDA are additional significant variables. Except for a few instances of possible multicollinearity, the results of the subsamples are similar to those of the full sample, as shown in Table 3b.

Table 4a presents the Hausman-Taylor (1981) estimation results, and Table 4b presents the diagnostics for the ROA model. The model for ROA also passes the test for overall significance. The individual effects are significant but not the time effects. The individual effects are exogenous according to the Hausman (1978) test. This model has some serial correlation but no evidence of cross-sectional dependence. The tests are based on robust standard errors, as before.

The individual tests of significance indicate that SIR, BDS, and LNSIZE have significant negative effects on ROA whereas SPM, NPM, and ATO have significant positive effects. The findings on our variables of interest are consistent with the literature. Corporations encourage stakeholder participation in corporate management, which leads to operational efficiency in a number of ways. The BDS includes board member evaluation criteria, the minimum number of independent members, and the minimum number of female members. A number of studies have reported the positive effect of board independence on CFP, though Vo and Phan (2018) found no effect and Ambra (2014) found a negative effect of BoD independence on CFP. In addition, substantially poorer performance was observed in firms with foreign independent directors (Masulis et al., 2012) and gender diversity on the BoD (Adams & Ferreira, 2009). Shareholder rights to request information and special audits can be exercised either in general assembly or by filing a lawsuit in court. The expenses from doing so may lead to operational inefficiency because they reduce the funds available for that year.

In the large firm subsample, none of our results for the full sample are replicated, except for NPM and ATO, but ESR, CW, SP, and BDM turn out to be significant determinants of ROA. In the small firm subsample, BDS, NPM, and ATO are significant, as in the full sample, and so are ESR, BDC, and FOP. In the high GQ subsample, none of our results for the full sample are the same except for NPM, and SP, BDC, FFP, and BIST30 are also significant. SIR, SPM, NPM, and ATO are all significant in the low GQ subsample, just as in the full sample. ESR, HRP, BDM, and FOP in the Low GQ subsample are also significant.

The results for the subsamples are consistent with those for the full sample, except for the high GQ subsample, for which the adjusted coefficient of determination is remarkably low, and the

Table 4a
Hausman-Taylor estimation results for ROA.

	All		Large		Small		High		Low	
	ROA		ROA		ROA		ROA		ROA	
	coef.	s.e.	coef.	s.e.	coef.	s.e.	coef.	s.e.	coef.	s.e.
(Intercept)	2.68	27.49	−6.66	9.17	22.86	43.30	−63.36	56.23	−25.78	26.80
EDS	0.01	4.04	−0.75	1.23	−31.38***	11.55	−13.85	11.59	−0.83	3.58
ESR	7.23	4.69	4.78***	1.45	5.56*	2.87	5.59	9.60	13.64*	7.93
SIR	−3.19**	1.56	−0.31	0.73	−3.69	3.90	−9.37	5.64	−6.55***	1.98
GAR	3.36	13.78	1.28	6.06	−33.70	24.02	−45.92	36.34	6.62	16.05
VR	7.10	4.43	3.86	3.50	9.71	8.54	5.32	14.25	−2.45	5.62
MR	0.16	3.57	−0.74	2.24	6.70	4.13	6.19	6.13	2.27	3.24
DR	−4.95	4.19	4.73	4.02	−17.21	11.03			−1.38	7.58
TS	1.86	1.54	−0.81	0.82	−0.28	2.95	8.63	5.28	2.57	1.59
CW	5.18	5.29	−5.15*	2.94	−6.13	14.96	15.19	22.32	4.64	5.99
SP	−15.00	12.37	−12.71**	6.01	−17.95	27.42	37.61*	19.47	5.67	11.41
SPM	7.12**	3.52	−1.24	0.91	5.70	4.19	0.62	8.02	13.19**	5.80
HRP	−14.87	11.41	3.54	4.71	3.84	23.54	3.58	24.83	−50.22***	16.11
BDA	9.98	7.95	−2.71	2.07	7.04	13.57	44.18	37.58	4.60	6.74
BDS	−14.15**	7.00	2.02	3.89	−34.94***	12.25	17.32	12.53	−9.65	8.83
BDM	15.15	12.98	7.97**	3.09	46.93	34.99	15.02	21.62	46.24***	14.81
BDC	2.87	10.29	0.03	5.83	22.00**	8.81	−27.56**	12.34	1.05	14.18
BDR	1.33	6.74	1.93	2.47	−6.36	7.14	15.68	15.51	3.59	7.70
FFP	−0.12	9.12	3.50	4.25	−7.68	8.09	−25.06**	10.14	19.62	12.98
FOP	5.68	3.56	−0.58	0.90	8.74***	2.94	−0.36	3.48	8.73***	2.72
LNSIZE	−1.39*	0.80					−0.75	1.41	−2.17	1.51
BIST30	3.47	3.05	0.61	0.87	−1.57	1.84	12.63**	5.97	2.04	2.82
DY										
NPM	0.05***	0.02	0.66***	0.06	0.00**	0.00	0.02*	0.01	0.07*	0.04
ATO	0.06***	0.03	0.02***	0.00	0.23***	0.04	0.08	0.05	0.07**	0.03
DTE	−0.05	0.06	−0.01	0.03	0.01	0.08	−0.12	0.08	−0.03	0.07

Note: DR does not exhibit any variation in the high governance quality subsample, so it was not included in the model.

Table 4b
Diagnostic tests for the ROA models.

Diagnostics	All	Large	Small	High	Low
R-Squared	0.59	0.49	0.87	0.49	0.69
Adj. R-Squared	0.53	0.33	0.81	0.20	0.60
N	160	104	70	58	102
Overall Significance	199.10***	65.27***	311.34***	35.28**	173.52***
Honda (1985) (cs)	3.21***	−0.67	2.25**	−1.11	−0.60
Honda (1985) (time)	−0.38	−1.12	0.31	−1.41	1.75
F test for sig. effects	10.92***	4.59***	8.88***	3.76***	9.25***
Hausman (1978)	12.93	2.38	1.07	2.57	7.43
Breusch-Godfrey test	23.21***	5.66**	0.10	0.08	14.18***
Baltagi and Li (1991)	21.36***	3.45*	13.56***	1.68	16.01***
Pesaran (2004)	−0.24	−0.78	−0.37	−0.26	−0.42

*, **, and *** indicate the rejection of the null hypothesis at the 0.10, 0.05, and 0.01 levels of significance, respectively.

model has borderline overall significance. To ensure that the results are not misleading because of multicollinearity, VIFs for all the models estimated are presented in Table S2 (in the Supplementary Materials, available online). There is no indication of multicollinearity in our full sample, consistent with our earlier observations in Fig. S1. There are some instances of VIFs higher than 10 in the subsamples. Some collinearity is inevitable because sample quality deteriorates as the number of observations decreases. Because most of our main findings are replicated in the subsamples, we do not believe these models have any harmful multicollinearity.

Table 5 summarizes the empirical findings. The estimation results indicate that environmental disclosures have a significantly negative impact on CFP, therefore H1 is rejected. Stakeholder participation in corporate management (SPM) has a generally positive effect on CFP in the social pillar of ESG. But we obtain mixed findings on the effects of policy on stakeholder (SP) and human resources policy (HRP). H2 is confirmed because the majority of the findings indicate that socially responsible practices have a significantly positive impact on the CFP of the full sample and subsamples. In the governance pillar, ESR, VR, TS, BDM, BDC, and BDR all have a positive impact on CFP, but SIR and BDA have a negative influence on CFP. In the context of DR, CW, and BDS, however, we obtain mixed results. H3 is confirmed because of the broadly significant positive effect of governance practices on the CFP of the full sample and subsamples. Among the control variables, FFP, FOP, BIST30 listing, NPM, and ATO all have a positive effect on CFP, but CFP is negatively influenced by the LNSIZE and DY.

5. Conclusions

This study investigates the impact of ESG disclosures on CFP at Turkish companies listed on the Borsa Istanbul Corporate Governance Index (XKURY). The study makes a contribution to the literature by examining the impact of twenty independent variables, which are derived from company disclosures, on

Table 5
Summary of empirical results.

ESG Pillar	All (+)	All (−)	Large (+)	Large (−)	Small (+)	Small (−)	High quality (+)	High quality (−)	Low quality (+)	Low quality (−)
Environment										
EDS		TQ		TQ		ROA				
Social										
SP				TQ ROA			ROA			
SPM	ROA		TQ					TQ	TQ, ROA	
HRP									TQ	ROA
Governance										
ESR	TQ		ROA		TQ, ROA				TQ, ROA	
SIR		ROA								ROA
VR					TQ				TQ	
DR				TQ	TQ					
TS					TQ					
CW			TQ	ROA						
SP				TQ, ROA			ROA			
SPM	ROA		TQ					TQ	TQ, ROA	
HRP									TQ	ROA
BDA		TQ				TQ		TQ		TQ
BDS		ROA				ROA	TQ			
BDM			ROA		TQ		TQ		ROA	
BDC	TQ				ROA		ROA		TQ	
BDR	TQ		TQ				TQ		TQ	
Control										
FFP	TQ						TQ, ROA		TQ	
FOP	TQ				TQ, ROA		TQ		TQ, ROA	
LNSIZE		TQ, ROA								
BIST 30	TQ				TQ		ROA		TQ	
DY		TQ		TQ				TQ		
NPM	ROA		ROA		ROA		ROA		ROA	
ATO	ROA		ROA		ROA				ROA	

corporate financial results in an emerging market context. The findings indicate that environmental disclosures have a negative effect on CFP. In the social dimension of ESG, the participation of stakeholders in the management of corporations leads to operational efficiency. Provisions related to shareholder rights and board of directors have a positive impact on CFP in the governance dimension. These provisions include ESR, VR, TS, BoD meetings, committees formed within the BoD, and remuneration of the directors. The issues regarding the ESR are the investor relations department, update reports, and disclosures on the corporate website, according to the Turkish CG rules. These results provide a new perspective on the divergent results of existing research. The results of our analysis reveal that, among the dimensions of ESG, governance-related disclosures have a more substantial effect on CFP, which is consistent with the current literature (Velte, 2017).

The main limitation of the research is the availability of data. The governance reports for ESG disclosures are publicly available only for companies listed on the XKURY, and environmental disclosures are not released regularly. Future studies could broaden the ESG metrics and investigate practices in other groups of companies in Turkey as well as other emerging markets.

Conflict of interest

The authors certify that there is no conflict of interest.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.bir.2021.07.001.

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