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Climate Change: Accountancy & Good Governance



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MUHASEBE ÖĞRETİM ÜYELERİ BİLİM VE DAYANIŞMA VAKFI
TURKISH ACCOUNTING ACADEMICIANS' COLLABORATION & RESEARCH FOUNDATION

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Bilkent University

Assoc. Prof. Dr. Nevzat Güngör
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Climate Change: Accountancy & Good Governance

Bilkent University - Ankara
September 20, 2023

PROGRAM

08:30 - 09:00	**Registration**
09:00 - 09:05	**Moment of Silence & National Anthem**
09:05 - 10:15	**Welcome & Opening** **Prof. Dr. Kürşat AYDOĞAN,** Bilkent University Rector **Prof. Dr. Selim AKTÜRK,** Bilkent University Faculty of Business Administration Dean **Prof. Dr. Nuran CÖMERT,** MODAV Chair **Orhun YURTVERMEZ,** UNDP Projects Manager **Dr. Hasan ÖZÇELIK,** Public Oversight Accounting and Auditing Standards Authority (KGK) Chair
10:15 - 10:30	**Coffee break**
10:30 - 11:00	**Prof. Dr. M. Levent KURNAZ** (Boğaziçi University, Director of İklimBU): ***Climate Change***
11:00 - 11:30	**Prof. Dr. İsmail ADELOPO** (UWE Bristol)***: Governance and Sustainable Finance***
11.30 - 12:00	**Seçil SAYIN KUTLUCA** (Deputy Head of Capital Markets Board (SPK): ***Challenges of Integrating Climate Change within Capital Markets and Implications for Accounting***
12:00 - 13:00	**Lunch**
13:00 - 13:25	**Doç. Dr. Güzhan GÜLAY** (BIST Vice President): ***Sustainability Reporting*** (ZOOM)
13:25 - 13.50	**Filiz DEMİRÖZ** (Head of The Association of Chartered Certified Accountants – (ACCA): ***Migration to Sustainable Economies and Businesses: Green Finance Skills***
13:50 - 14:00	**Break**
14:00 - 15:30	**Parallel Sessions**
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15:30 - 15:45	**Coffee Break**
15.45 - 16:10	**Ebru Dildar EDİN** (Chair of the Board of Directors of Turkish Business Council for Sustainable Development): ***Climate Crisis and Green Transformation***
16:10 - 16:40	**Prof. Dr. Charles H. CHO** (York University): **Hijacking 'Sustainability' (Accounting): The Case of 'ESG' and the IFRS Foundation,** ZOOM
16:40 - 17:00	**Gülşah GÜNAY** (Public Oversight Accounting and Auditing Standards Authority (KGK) Sustainability Department Head): **Recent Developments in Sustainability Reporting and Assurance in Türkiye**
17:00 - 17:10	**Break**
17:10 - 18:20	**Parallel Sessions**
Session 3 (Bilkent Otel İstanbul Hall 1)	**Chair: Prof. Dr. İrem NUHOĞLU (Boğaziçi University)** • ***IFRS S2 Climate-Related Disclosures: A Research on BIST Cement Companies*** Assist. Prof. Dr. Tuba BORA KILINÇARSLAN • ***Industry Specific Sustainability Reporting Issues*** Lecturer Alperen ÇIKIKÇI - Prof. Dr. Seçil SİGALI - Prof. Dr. Çağnur BALSARI • ***Corporate Conscience in Preventing Risks Created: Internal Audit*** Prof. Dr. Deniz Umut DOĞAN - Prof. Dr. Ali HALICI - Asst. Prof. Dr. Burçak KIZILTAN • ***Science-Based Targets in Environmental Reporting: Explanations from E7 Countries and Turkey*** Dr. Destan Halit AKBULUT - Hilal Merve ALAGÖZ
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18.35 - 18:50	**Closing Remarks – Dr. Banu SULTANOĞLU (Bilkent University)**

GOVERNANCE AND SUSTAINABLE FINANCE

Ismail ADELOPO[1]

ABSTRACT

This speech focuses on global governance and the levels of governance mechanisms in the recent climate finance discourse. It addresses global governance concerns, the roles of national governance in developing appropriate climate finance strategy and providing enabling arrangement for transition to net zero regime and circular economy agenda. It explores the role of non-state actors and the impacts of regulations and regulatory capture and the ways in which they truncate global climate risk solutions and climate finance policies. The speech also established the link between global governance mechanisms and corporate level governance, teasing out their similarities, opportunities and challenges. In doing these, the speech unpacked the dimensions and actions of the various actors within corporate governance agenda. The speech then highlights the emerging lines of research and used recent studies to illustrate the relevant points. The speech provides insights into how the different social actors may engage with the emerging governance architecture.

[1] Prof. Dr., College of Business and Law University of the West of England, Ismail.Adelopo@uwe.ac.uk

CHALLENGES OF INTEGRATING CLIMATE CHANGE WITHIN CAPITAL MARKETS AND IMPLICATIONS FOR ACCOUNTING

Seçil SAYIN KUTLUCA[1]

ABSTRACT

Climate change poses increasing risks to people and the ecosystems we are part of. In parallel these risks are also threatening economics, financial stability and corporates. Against this reality, the backdrop of the Paris Agreement and closer scrutiny by governments and regulators, globally corporates and private finance stakeholders are increasingly adapting their business models, governance, reporting structures and factoring climate risk into their risk and capital allocation decisions. In this conjuncture, capital markets characterised with long term, large volume investment with high transparecy requirements have an essential mission shifting corporates and financial services industry towards the UN Sustainable Development Goals by "Mobilisation – Alignment – Impact" stages. The conference presentation argues "mobilisation of private finance" via innovative/thematic debt instruments (i.e green bonds, blue bonds, sustainability linked bonds, transition bonds), "SDG alignment" tools such as sustainability reporting, responsible investment management, taxonomies, assurance and impact measurement, accounting.

Within this setting, developing country challenges for greening the financial markets in other words, integration of climate change, UN SDGs to to capital markets are discussed with reference to recently published global standards on sustainability reporting (IFRS S1, IFRS S2) and corporate governance (Revised G20/OECD Corporate Governance Principles)

[1] Deputy Head of Capital Markets Board (SPK)

CLIMATE CRISIS AND GREEN TRANSFORMATION

Ebru DİLDAR EDİN[1]

ABSTRACT

Our planet has been engaged in an existential struggle due to the climate crisis for a long time. Global warming, which is the most fundamental effect of climate change, is making its impact felt worldwide through record-breaking temperatures and severe weather events. Within the scope of the Climate Crisis and Green Transformation, Turkey, under the framework of the European Union's EU Green Deal, has announced its goal to achieve net-zero emissions by 2053 by preparing the 'Green Deal Action Plan.'

The Green Deal Action Plan, published by the Ministry of Trade, includes various initiatives in areas such as combating climate change, green financing, EU border carbon adjustments, a green and circular economy, clean, economical, and secure energy supply, sustainable agriculture, sustainable smart transportation, and diplomacy.

Additionally, banking and investment processes that encompass all sectors have a significant role to play in transitioning to a green and circular economy. The development of Environmental, Social, and Governance (ESG) criteria in the sustainable finance field aims to implement investments by comprehensively considering the risks and opportunities.

As BCSD Turkey, we emphasize the increasing importance of ESG criteria in sustainable business processes and encourage companies to work diligently on environmental, social, and governance practices as they embark on their green transformation journey. We conduct activities to ensure that companies include this topic on their agendas to accelerate this transformation.

[1] Chair Person of The Board, BCSD Türkiye

HIJACKING 'SUSTAINABILITY' (ACCOUNTING): THE CASE OF 'ESG' AND THE IFRS FOUNDATION

Charles H. CHO[1]

ABSTRACT

'Sustainability' has recently become ubiquitous – so ubiquitous that this movement has led to possible misconceptions and misunderstandings of its very mean meaning, at least in the context that it should be embraced. Of higher concern is the now apparent (mis)appropriation – and hijacking – of the entire concept and field, with the advent of trendy keywords and acronyms such as 'ESG' and initiatives such as the creation of the International 'Sustainability' Standard Board by the IFRS Foundation. This presentation will delve into these concepts and insights and provide a clearer, broader and a more complete and accurate picture of this space.

[1] Prof. Dr., York University.

RECENT DEVELOPMENTS IN SUSTAINABILITY REPORTING AND ASSURANCE IN TÜRKİYE

Gülşah GÜNAY[1]

ABSTRACT

Governments, private sector entities, and society have been diligently addressing the repercussions of a disruption that they initiated several centuries ago. Regrettably, the onset of remedial efforts occurred only relatively recently, leading to the myriad crises that now pervade our collective awareness.

Given the global nature of this crisis, it is evident that effective solutions cannot be solely orchestrated by a handful of countries or economic consortiums. True sustainability hinges on a multi-tiered approach involving comprehensive global regulations, complementary local statutes harmonized with the overarching global framework, and the seamless integration of these local regulations.

In this intricate landscape, the role of the KGK (Public Oversight, Accounting and Auditing Standards Authority) becomes pivotal as it formulates regulations governing sustainability reporting for private sector organizations, encompassing environmental, social, and governance aspects. This process is seamlessly woven into the broader tapestry of Türkiye's sustainability regulations and is meticulously aligned with global reporting standards.

It is incontrovertible that businesses bear a substantial responsibility in the climate crisis, but they also possess the potential to serve as catalysts for its mitigation. Consequently, the sustainability reports they generate, addressing environmental, social, and governance concerns, serve not only as litmus tests for their adherence to legal mandates but also as blueprints for their transformation into entities characterized by environmentally and socially conscious governance structures. The regulatory framework surrounding reporting ultimately leads to a mutually beneficial equilibrium.

Recent advancements in reporting methodologies empower businesses to unveil their sustainability-related risks and opportunities in a comprehensive, unbiased, and transparent manner, thereby facilitating data comparability. We stand at the threshold of a new era, one in which we can precisely gauge entities' compliance with both local and global sustainability regulations, as well as their contributions -positive or negative- to the realm of sustainability.

[1] Head of Sustainability Standards Department, Public Oversight, Accounting and Auditing Standards Authority

THE IMPACT OF CORPORATE GOVERNANCE ON CLIMATE CHANGE PERFORMANCE

Bekir GEREKAN[1]
Erdal YILMAZ[2]
Emre BULUT[3]

ABSTRACT

The purpose of this study is to test whether corporate governance performance has an impact on climate change ratings. The sample covers firms with climate change and corporate governance ratings in BIST from 2018 to 2022. The panel regression results show that corporate governance performance has a statistically significant effect on climate change performance. Accordingly, shareholders, board of directors, and public disclosure ratings, which are the elements of the corporate governance rating system, have statistically significant effects on the climate change disclosures of enterprises. Besides, the number of audit committee members, the number of female audit committee members, asset size, and the age of the firm have statistically significant effects on climate change disclosures.

Keywords: Climate Change, Corporate Governance, Carbon Disclosure Project

1. INTRODUCTION

Climate change, one of the most serious environmental problems directly affecting the economy and human life, requires urgent global, national, and local political, economic, and sociocultural actions to overcome or minimize its negative impacts (Peker et al., 2019). Strategic corporate actions to address climate change and environmental issues are often not among corporate governance priorities. In the short term, such decisions are often not consistent with executive incentives and are not considered profit-maximizing (Aggarwal & Dow, 2012). The dominant normative frameworks for corporate governance are primarily short-term, creating a temporal mismatch in corporate governance and climate change (Benjamin & Andreadakis, 2019). Recently, pollution from industrial development, scarcity of natural resources, deforestation, climate change, and social inequality have increased attention, albeit limited, to social and environmental externalities (Hummels & Argyrou, 2021).

In 2015, the 1992 UN Framework Convention on Climate Change signatories adopted the Paris Climate Agreement to combat climate change and ensure a low-carbon, resilient and sustainable future. The Paris Agreement aims to keep the global temperature increase that causes climate change below 2°C compared to the pre-industrial era (Özerhan & Sultanoğlu, 2020)

Reducing a company's carbon footprint can be associated with reducing costs and thus lead to higher profits (Granade et al., 2009). Indeed, research has shown that many actions to reduce carbon footprints have negative costs; that is, they save money (Aggarwal & Dow, 2012).

Many studies examine the relationship between corporate governance and climate change with variables such as financial performance, board of directors, and audit committee structure. However, there is no study in the literature examining the effect of corporate governance performance on climate change ratings. In this respect, this study contributes to the literature.

The purpose of this study is to test whether the firm's corporate governance performance impacts climate change ratings. For this purpose, the study first identifies the firms that regularly responded to the climate change survey conducted within the scope of the Carbon Disclosure Project (CDP) between 2018-2022 and that are rated. Moreover, firms with corporate governance ratings are included in the sample. Then, the impact of corporate governance ratings on climate change ratings is tested with a balanced panel regression analysis.

[1] Assoc. Prof., Ağrı İbrahim Çeçen University, bgerekan@agrı.edu.tr, orcid.org/0000-0001-6724-4729
[2] Prof. Dr., Ağrı İbrahim Çeçen University, eyilmaz@agri.edu.tr, orcid.org/0000-0002-1468-2175
[3] Asst. Prof., Ağrı İbrahim Çeçen University, ebulut@agri.edu.tr, orcid.org/0000-0002-1468-2175

2. HYPOTHESIS

Corporate governance mechanisms can resolve the divergence of interests between managers and stakeholders and bring the interests of managers closer to those of stakeholders, thereby encouraging them to meet stakeholders' environmental demands (Kock., Santaló & Diestre, L. (2012). According to Jaffar et al. (2018), a positive relationship exists between firms' corporate governance mechanisms and firms' environmental performance because companies with good governance have a clear strategic direction that assesses and improves companies' environmental performance to align with stakeholders' demands. Based on this information, this study develops the following hypothesis:

Hypothesis: Firms' corporate governance performance has a statistically significant effect on climate change assessments.

3. MATERIALS & METHODS

The sample of this study consists of firms in Borsa Istanbul that have a corporate governance rating with Carbon Disclosure Project assessments. We analyze 15 firms for the years 2018-2022 by performing a balanced panel regression analysis. The equation of the model is given below.

$$CDP_{i,t} = \beta 0 + \beta 1\, SHR_{i,t} + \beta 2\, PD_{i,t} + \beta 3\, STH_{i,t} + \beta 4\, BoD_{i,t} + \beta 5\, ACM_{i,t} + \beta 6\, FEM_{i,t} + \beta 7\, AS_{i,t} + \beta 8 AGE_{i,t} + \beta 9\, \mathrm{BoDM}_{i,t} + \varepsilon_{i,t} \quad (1)$$

where the four elements of the corporate governance rating system, shareholders (SHR), public disclosure (PD), stakeholders (STH), and board of directors (BoD) ratings, are the independent variables. This data is retrieved from the firms' annual and corporate governance rating reports.

Furthermore, climate change assessments (CDP) are the dependent variable in the model. Data on this variable is obtained from CDP Turkey Climate Change and Water Reports. In these reports, the values of the firms are lettered as A, A-, B, B-, etc. Within the scope of the study, these letter values are used by scoring between 1-7. For example, A is 7, A- is 6, and C is 3.

On the other hand, the study also employs control variables. Accordingly, the number of board members (BODM), number of audit committee members (ACM), number of female audit committee members (FEM), asset size (AS), and age of the firm (AGE) are the control variables.

Table 1. Definition of Variables

Variable	Type of Variable	Source	Measurement of Variable
Climate Change Assessments (CDP)	Dependent	CDP Turkey Climate Change and Water Reports	In these reports, the values related to the firms are lettered as A, A-, B, B-, etc. These letter values are used by scoring between 1-7. For example, A is included in the model as 7, A- as 6, and C as 3.
Shareholders' Note (SHR)	Independent	Annual Reports and Corporate Governance Rating Reports of Enterprises, Logarithmized and Included in the Model.	Logarithmized and Included in the Model
Public Disclosure (PD)	Independent		Logarithmized and Included in the Model
Stakeholders' Note (STH)	Independent		Logarithmized and Included in the Model
Board f Directors2 Note (BoD)	Independent		Logarithmized and Included in the Model
Number of Board of Directors (BODM)	Control Variable	Annual Reports	The logarithm of the Total Number of Members on the Board of Directors.
Number of Audit Committee members (ACM)	Control Variable	Annual Reports	The logarithm of the Total Number of Audit Committee Members.
Number of female members of the audit committee (FEM)	Control Variable	Annual Reports	The logarithm of the Total Number of Female Members on the Audit Committee.
Asset size (AS)	Control Variable	Annual Reports	The logarithm of the Sum of Current and Fixed Assets in the Operating Period.
Firm's Age (AGE)	Control Variable	Public disclosure platform	Date of First Listing on the Stock Exchange- Base Year.

Table 1 provides summary explanations of the variables in the model. The calculation methods of dependent, independent, and control variables are also explained in the table.

4. RESULTS & DISCUSSION

Table 2. Autocorrelation, Heteroscedasticity, and Inter-Unit Correlation Tests Results

Test Type	Test Value		
Modified Bhargava et al., Durbin-Watson		1.796	
Levene, Brown, and Forsythe Test	W0:0.032	W50: 0.900	W10: 0.032
Pesaran CD test		0.380	

Table 2 displays the assumption tests of the model. First, we test autocorrelation in the Modified Bhargava et al. Durbin-Watson test. Since test values are less than 2 (Tatoğlu, 2016:238), the model has an autocorrelation problem. Subsequently, we examine heteroscedasticity with the Levene, Brown, and

Forsythe test. As a result, there is a heteroscedasticity problem in the l. Finally, we perform the Pesaran CD test to check the hypothesis of inter-unit correlation, and we find no inter-unit correlation in the model.

Table 3. VIF Values

Variable	VIF Value
SHR	1.91
PD	3.24
STH	3.37
BoD	1.96
ACM	1.49
FEM	2.33
BoDM	1.88
AS	3.45
AGE	2.21

A VIF (Variance Inflation Factor) value higher than 4 indicates a multicollinearity problem in the model (Açıkgöz-Uygurtürk et al., 2015: 433). Table 3 shows no variable with a VIF value above 4 in the research model. Therefore, there is no multicollinearity problem in the model.

Table 4. Regression Results

Variable	P>|t|	Katsayı
SHR	0.073***	-2.074
PD	0.036 **	4.889
STH	0.250	-2.886
BoD	0.074***	3.274
ACM	0.013**	0.499
FEM	0.016**	-0.207
BoDM	0.026**	0.529
AS	0.106	-0.053
AGE	0.002**	0.365
Cons.	0.273	-14.491
$R^2 = 0.30$	Wald chi2 (7) = 41.38	Prob > chi2 = 0.0000

*Note : * p < 0.01, ** p < 0.05, *** p < 0.10.*

Table 4 presents the results of the standard error-corrected panel regression analysis (PCSE) proposed by Beck and Katz (1995). The findings show that the entire model is statistically significant (*p < 0.01). Accordingly, shareholders' rating (SHR) has a statistically significant negative effect on climate change (CDP) assessments (**p < 0.05). On the other hand, public disclosure (PD) and board of directors (BoD) ratings have statistically significant positive effects on climate change assessments (**p < 0.05; **p < 0.05).

On the other hand, the number of board members (BoDM), the number of audit committee members (ACM), and the age of the company (AGE) have statistically significant positive effects on climate change assessments (**p < 0.10). In addition, the number of female audit committee members (FEM) has a statistically significant negative effect on climate change assessments (**p < 0.10).

5. CONCLUSION

Climate change is the most important factor affecting today's societies, businesses, and world order. To reveal and mitigate the negative effects of this situation, various studies are carried out on a global scale. One of these efforts is the Carbon Disclosure Project (CDP). CDP is an international platform that engages in and promotes various activities to prevent and mitigate the effects of environmental and natural resource destruction caused by the business world on climate change.

In this context, this study examines the impact of the corporate governance performance of firms on climate change assessments conducted within the Carbon Disclosure Project (CDP) scope. In the literature, there is no national study on the relationship between climate change assessments and the

corporate governance performance of enterprises. Therefore, this study contributes to the literature in this respect.

The study analyzes 15 firms in Borsa Istanbul with climate change and corporate governance ratings from 2018 to 2022. The findings of the panel regression analysis show that, in general, corporate governance performance has a statistically significant effect on climate change performance.

Using different aspects of corporate governance can help establish direct links between these aspects and environmental performance and disclosure (Cong, & Freedman, 2011). Quality environmental disclosures signal transparency and enhance managers' reputations and social profiles (Deegan et al., 2006; Simnett et al., 2009). The availability of effective corporate governance mechanisms is significantly related to the quality of environmental reporting because managers decide on the level of detail and relevance of the reported financial information (Claessens & Yurtoglu, 2013). Furthermore, the International Corporate Governance Network has pointed out that informative disclosures about the environment are important for investors when assessing a company's value and prospects, opportunities, and risks (Iatridis, 2013). Correspondingly, shareholders, board of directors, and public disclosure ratings, which are the elements of the corporate governance rating system, have statistically significant, negative, and positive effects on climate change disclosures of enterprises, respectively. On the other hand, the number of audit committee members, the number of female audit committee members, asset size, and the age of the firm have statistically significant effects on climate change disclosures.

Finally, this study has some limitations. In this context, sampling and time dimension are among these limitations. Future studies may conduct comparative results by increasing both sectoral diversification and the number of firms and year range. In addition, the relationship between variables might be discussed from different perspectives by including different business-specific variables in the research model.

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DOES THE INSTITUTIONAL ENVIRONMENT AFFECT SUSTAINABILITY REPORTING? WORLDWIDE EVIDENCE

Merve KILIÇ KARAMAHMUTOĞLU[1]

ABSTRACT

This study aims to examine whether and how the institutional environment is associated with the adoption of Global Reporting Initiative (GRI) guidelines. The research sample covers the largest 500 companies in the world, based on *Fortune* magazine's 2020 ranking. A logistic regression is conducted to analyze the association between the institutional environment and GRI adoption. The findings reveal that companies from countries with high environmental development and social progress and strong governance are more likely to release GRI-based sustainability reports. This study implies the significant role of country-level institutional factors in corporate reporting.

Keywords Institutional Environment, Institutional Factors, Sustainability Reporting, GRI

1. INTRODUCTION

As corporate stakeholders have become more conscious about social and environmental concerns, the presentation of credible and reliable sustainability information is now a significant factor in maintaining strong relations with stakeholders, enhancing corporate reputation, gaining public trust, and improving public image. Although firm-level factors can have a significant role in influencing companies' decisions to engage in sustainability reporting, the institutional environment could also impact companies' willingness to manage sustainability-related issues and report sustainability practices (Hahn & Kühnen, 2013; Kılıç et al., 2019; Rosati & Faria, 2019; Hamrouni et al., 2023). Corporate reporting practices can be associated with internal factors, including size, profitability, industry, board structure, etc. as well as external factors related to the company's country of origin.

Institutional theory provides an appropriate framework to understand how and why institutional forces drive sustainability practices (Campbell, 2006, 2007). According to this theory, companies tend to act in a more environmentally and socially responsible way when operating in an environment with a strong regulatory environment, institutionalized norms regarding acceptable corporate behavior, nongovernmental and other independent social movement organizations monitoring corporate activities and policies, and robust communication between companies and stakeholders (Campbell, 2007). Previous studies have demonstrated that the country of origin can affect sustainability reporting and performance because of differences in the institutional environments and characteristics (Kılıç et al., 2019; Rosati & Faria, 2019). Although there is no globally accepted framework for reporting sustainability practices, the Global Reporting Initiative (GRI) has become the most widely used and prominent framework for sustainability reporting (Legendre & Coderre, 2013). This study measures companies' sustainability reporting as the presence of a standalone sustainability report in compliance with GRI guidelines. Therefore, this study aims to analyze the impact of country-level institutional factors, namely environmental development, social progress, and institutional governance on the adoption of GRI guidelines.

The research sample references the 2020 list of Fortune Global 500 companies published by *Fortune* magazine. A logistics regression was performed to examine the association between institutional factors and GRI adoption by Fortune 500 companies. The research findings reveal that companies originating from countries with high environmental and social development and strong governance are more likely to publish GRI-based sustainability reports. The findings indicate that countries with low environmental and social development and weak governance should prioritize improving institutional quality to enhance corporate transparency related to sustainability commitments.

[1] Assoc. Prof., Samsun University, Department of International Trade and Business, merve.kilic@samsun.edu.tr, orchid.org/0000-0001-8480-2251.

This study contributes to the literature in three ways. First, it analyzes the relationship between institutional quality and sustainability reporting, while most previous research examines the impact of firm-level characteristics on sustainability reporting and performance. Second, it uses a worldwide sample to explore the association between institutional environment and sustainability reporting, whereas prior studies primarily focus on a single country or region. Third, it measures institutional quality with three dimensions, namely environmental development, social progress, and governance, providing comprehensive insights.

The remainder of this paper is structured as follows. Section 2 develops hypotheses and describes the sample and methodology. Section 3 discusses the results. The final section concludes the paper.

2. MATERIALS & METHODS

The institutional context in which companies operate impacts their environmental and social performance. A strong institutional environment may result in considerable regulatory pressure on companies, leading them to act in a more socially and environmentally responsible way and report sustainability accomplishments accordingly (Karmani & Boussada, 2021). Conversely, companies that operate in countries with weak institutional environments are less likely to engage in social and environmental reporting due to the lack of institutional pressure. Therefore, a strong institutional context is expected to prompt companies to publish standalone sustainability reports and adopt the GRI guidelines, whereas a weak institutional environment should diminish companies' willingness to engage in sustainability reporting. Thus, the following hypotheses are proposed:

Hypothesis 1: Companies from a jurisdiction with high environmental development are more likely to release a sustainability report using GRI guidelines.

Hypothesis 2: Companies from a jurisdiction with high social progress are more likely to release a sustainability report using GRI guidelines.

Hypothesis 3: Companies from a jurisdiction with strong governance are more likely to release a sustainability report using GRI guidelines.

The research model incorporates linear associations between a binary categorical dependent variable and independent variables. The research models are formulated in the following equation using logistic regression analysis.

$$Pr(Y = 1 \mid Xi1, Xi2) = F(\beta 0 + \beta 1.\ Xi1 + \beta 2.\ Xi2)$$

where F is the logistic distribution function $F(z) = \exp(z)/(1+\exp(z))$.

GRI is the binary dependent variable, denoted by Y term; ENVPI, SOCPI, and GOVPI are independent variables, denoted by Xi1; and SIZE, ROA, ENV_RISK, and LN_GDP are the control variables, denoted by Xi2. The list of variables and descriptions is presented in Table 1.

Table 1. Variable List

Variable	Description
GRI	A binary variable that is assigned a value of 1 if a company published a GRI-based sustainability report, and 0 otherwise
SR	A binary variable that is assigned a value of 1 if a company published a sustainability report, and 0 otherwise
ENVPI	A country's environmental performance score, ranging from 0 (lowest) to 100 (highest)
SOCPI	A country's social progress score, ranging from 0 (lowest) to 100 (highest)
GOVPI	A country's governance score, ranging from 0 (lowest) to 100 (highest)
SIZE	Natural logarithm of total assets
ROA	The ratio of net income after tax to total assets (%)
ENV_SENSITIVE	A binary variable that is assigned a value of 1 if a company operates in an environmentally sensitive industry, and 0 otherwise
LN_GDP	Natural logarithm of a country's Gross Domestic Product (at constant 2015 US$)

Note: ROA: return on assets; GDP: gross domestic product

The sample used in this study is the list of 2020 Fortune Global 500 companies ranked by total revenue (Fortune, 2020). The *Fortune* magazine list has been commonly used in previous studies to

investigate corporate sustainability performance and reporting (Shabana et al., 2017; Amini et al., 2018; Kılıç et al., 2021).

3. RESULTS & DISCUSSION

The research variables are subject to fundamental descriptive statistical and frequency analyses (Table 2). The mean value of ENVPI is 62.86, SOCPI is 79.81, and GOVPI is 69.23. The results reveal that the average SIZE is 11.58, ROA is 0.03, and LN_GDP is 15.55. Finally, the results show that 78% of the firms have the existence of GRI, and 86.80% have the existence of SR. In addition, 50.20% of the firms operate in environmentally sensitive industries while 49.80% operate in environmentally non-sensitive industries.

Table 2. Descriptive Statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
ENVPI	500	62.86	16.70	27.60	82.50
SOCPI	500	79.81	15.91	0.00	92.63
GOVPI	500	69.23	16.33	26.19	96.75
SIZE	500	11.58	1.29	8.31	15.28
ROA	500	0.03	0.04	−0.06	0.17
LN_GDP	500	15.55	1.19	11.10	16.78
Variable	Category	Frequency	Percent		
GRI	Non-exist	110	22.00		
	Exist	390	78.00		
	Total	500	100.00		
SR	Non-exist	66	13.20		
	Exist	434	86.80		
	Total	500	100.00		
ENV_SENSITIVE	Sensitive	251	50.20		
	Non-Sensitive	249	49.80		
	Total	500	100.00		

The baseline research model is analyzed using logistic regression analysis (Table 3). The results reveal that ENVPI ($p < 0.05$), SOCPI ($p < 0.10$), and GOVPI ($p < 0.05$) have a significant positive relationship with GRI. Accordingly, Hypothesis 1, Hypothesis 2, and Hypothesis 3 are accepted, implying the significant role of three country-level institutional factors, including environmental development, social progress, and governance structure, on the adoption of GRI-based sustainability reporting.

Table 3. Logistic Regression Analysis

Independent variables	(1) GRI	(2) GRI	(3) GRI
ENVPI	0.016**		
	(2.19)		
SOCPI		0.010*	
		(1.69)	
GOVPI			0.016**
			(2.28)
SIZE	0.15	0.14	0.17*
	(1.60)	(1.52)	(1.82)
ROA	−2.20	−1.57	−1.84
	(−0.76)	(−0.55)	(−0.64)
ENV_SENSITIVE	0.35	0.27	0.38
	(1.50)	(1.16)	(1.61)
LN_GDP	0.085	0.012	0.063
	(0.83)	(0.13)	(0.65)
Constant	−2.85	−1.44	−2.88
	(−1.33)	(−0.74)	(−1.35)
N	500	500	500
Pseudo R^2	0.018	0.013	0.018
χ^2-stat.	9.33***	7.02***	9.65***

Note: t-statistics are in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

SR is introduced into the baseline research models as the alternative binary dependent variable (Table 4). The coefficients of the ENVPI, SOCPI, and GOVPI are significantly positive, confirming the baseline analysis results.

Table 4. SR as an Alternative Dependent Variable

Independent variables	(1) SR	(2) SR	(3) SR
ENVPI	0.018**		
	(2.10)		
SOCPI		0.0087*	
		(1.72)	
GOVPI			0.016*
			(1.84)
SIZE	0.0043	0.0026	0.024
	(0.04)	(0.02)	(0.21)
ROA	−4.45	−3.30	−3.77
	(−1.27)	(−0.96)	(−1.09)
ENV_RISK	0.016	−0.072	0.028
	(0.06)	(−0.25)	(0.10)
LN_GDP	−0.12	−0.22*	−0.17
	(−0.91)	(−1.76)	(−1.31)
Constant	2.76	4.72*	3.25
	(1.01)	(1.89)	(1.20)
N	500	500	500
Pseudo R^2	0.025	0.017	0.022
χ^2-stat.	9.78***	6.57***	8.69***

Note: t-statistics are in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

4. CONCLUSION

This study aims to examine the impact of the institutional environment on companies' willingness to engage in GRI-based sustainability reporting. The study measures countries' institutional quality using three indicators, including environmental development, social progress, and governance. In this sense, it analyzes whether and how institutional quality at the macro-level impacts corporate reporting practices at the micro-level.

The findings reveal that companies originating from countries with high environmental development and social progress and strong governance are more likely to publish sustainability reports using the GRI guidelines, implying that macro-level factors are significant drivers of corporate practices and subsequent reporting. This demonstrates that companies from jurisdictions with strong institutional mechanisms may encounter intense pressure to act more socially and environmentally responsible and be more accountable and transparent regarding sustainability performance. Consequently, a strong institutional environment may encourage companies to release credible and reliable sustainability information and adopt the GRI guidelines.

The findings of this research may bring some notable implications for policymakers and companies. As the results show that the institutional environment significantly enhances the transparency of companies' sustainability information, countries with weak institutions should improve their institutional context to motivate companies to be transparent regarding their sustainability performance. Countries with high environmental and social development and strong governance should continue to strengthen their institutional environment to induce companies to engage in sustainability reporting. Countries should develop, refine, and implement policies and strategies to enhance environmental and social development and improve institutional governance, which will prompt companies to adopt a credible sustainability reporting framework, like GRI guidelines. The three dimensions of the institutional environment examined in this study are highly correlated, implying that environmental performance, social progress, and governance quality support one another. Therefore, governments should develop policies and programs to improve these three dimensions simultaneously, which may ultimately enhance institutional quality. This study provides support for institutional theory, demonstrating the significant influence of institutional factors on companies' tendency to engage in sustainability reporting. Companies are encouraged to adopt GRI guidelines to maintain strong relations with stakeholders, enhance public image, and attract investors with growing social and environmental concerns.

There are several limitations to this study. First, the time frame of this research is limited to one year. Future studies can examine the association between the institutional environment and sustainability reporting using a large span of time. Second, as the Fortune Global 500 covered the largest companies based on total revenue, the findings of this research may not be generalizable to medium and small companies. Future studies could use international samples covering medium- and small-sized companies. Third, although this study uses three measures to assess the quality of the institutional environment, future studies could introduce other dimensions of the institutional environment, such as culture, legal origin, and investor protection rights.

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DO COMPANIES THAT ARE MORE SOCIALLY RESPONSIBLE OBTAIN MORE SUPPORT FROM CUSTOMERS?

Orhan AKISIK[1]
Graham GAL[2]

ABSTRACT

Our study documents customers' support for socially responsible firms using market measures of performance. The study examines B2B and B2C segments and three different approaches firms use to communicate the report's quality: external assurance, the auditor's review of the firm's internal controls, and the firm's advertising intensity. Data used in this study includes financial performance measures of North American firms for the years 2011-2021 and GRI data. The results indicate that the disclosure of socially responsible messages has a positive impact on financial performance and that this positive impact is enhanced by effective internal control over financial reporting and advertising.

1. INTRODUCTION

The central research is to examine what aspects of a firm's corporate social responsibility (CSR) reports affect customer's support and whether/how this support impacts the firm's financial performance. In addition there is evidence that assurance of internal control on financial reporting (ICFR) can have a "halo" effect and will enhance the quality of other types of disclosures (Global Reporting Initiative, 2013b). Using Ordinary Least squares (OLS) and Feasible Generalized Least Squares (FGLS), our results show that CSR reports that are assured by an independent assurance provider have a significant and positive effect on customer-based profitability.

2. MATERIALS AND METHODS

The study uses two main sources of data: 1) financial data from Compustat North America, 2) nonfinancial CSR data were extracted from GRI website (Global Reporting Initiative, 2013a). To test our hypotheses, we use the following models in consistent with prior research using cross-sectional OLS estimator (Kiessling et al., 2016; Servaes & Tamayo, 2013).

$$prof_{it} = \alpha_0 + \alpha_1\, csrrep_{it} + \alpha_2\, exas_{it} + \alpha_3\, csrrep_{it} \times exas_{it} + \alpha_4\, auopic_{it} + \alpha_5\, adv_{it} + \alpha_6\, capin_{it} + \alpha_7\, eff_{it} + \alpha_8\, lev_{it} + \alpha_9\, at_{it} + ind + year + \varepsilon_{it} \quad (1)$$

$$prof_{it} = \alpha_0 + \alpha_1\, csrrep_{it} + \alpha_2\, adv_{it} + \alpha_3\, csrrep_{it} \times adv_{it} + \alpha_4\, auopic_{it} + \alpha_5\, capin_{it} + \alpha_6\, eff_{it} + \alpha_7\, lev_{it} + \alpha_8\, at_{it} + \alpha_9\, currt_{it+} + ind + year + \varepsilon_{it} \quad (2)$$

Previous studies have examined the relationship between CSR activities and profitability using a variety of variables such as return on assets, return on equity, and return on sales as dependent variables. In this study, we use gross profit scaled by total assets (*gp*) as profitability measure (*prof*) (Ball et al., 2015; Novy-Marx, 2013). It is argued that gross profit is the cleanest accounting measure of true economic profitability, and the profitability becomes more polluted and less related to true economic profitability as one goes farther down the income statement (Novy-Marx, 2013). Accordingly, this profitability metric would be affected by the willingness of customers to pay more and/or to purchase more and is closely associated with profitability arising solely from sales. We also conducted several tests to check the robustness of our findings. In cross-

[1] Instructor, Isenberg School of Management University of Massachusetts, Amherst, akisik@isenberg.umass.edu
[2] Assoc. Prof. Dr., Isenberg School of Management University of Massachusetts, Amherst, gfgal@isenberg.umass.edu

sectional datasets, heteroskedasticity could be an issue, and therefore Feasible Least Squares Estimation (FGLS) is a suggested alternative to OLS (Wooldridge, 2006, p. 292). When we replicated our estimations using FGLS, our findings confirm the regression results using OLS. Our findings are important for a large group of stakeholders that external assurance, advertising, and effective ICFR moderate the impact of CSR reports on customer-based profitability positively.

3. RESULTS & DISCUSSION

Our results show that when CSR reports are assured by an independent assurance provider there is a significant and positive effect on customer-based measures of profitability. In addition, effective internal controls can also provide assurance for CSR reports as there is a positive impact on profitability. Moreover, when we replicated our analysis for companies that publish CSR reports in accordance with GRI 4 – Core, our results remained consistent. We also analyze the B2B and B2C sectors. The results indicate that corporate responsibility reports may not be valued by the B2C companies but are valued in the B2B sector. In addition, CSR reports with external assurance are associated with increases in gross profit in companies operating in both B2B and B2C sectors. Although CSR and internal controls are significantly negative on profitability, is significantly positive for the B2C sector. Furthermore, in both B2B and B2C sectors, CSR with external assurance for companies that report in accordance with G4 - Core are significantly larger than for companies in the overall sample. Thus, it can be argued that, apart from external assurance, a detailed and rich CSR report in terms of its content is regarded as highly credible by customers.

Companies do not have to publish CSR reports, however there is evidence that customers do place some reliance on this information when making purchasing decisions. There are two ways in which customers can support a firm. They can make increased purchases, or they may be willing to pay higher prices. These results suggest that making CSR disclosures alone may not impact customer-based measures of profitability. However, providing some level of assurance can increase customers' decisions concerning whether to support the firm. In this study we use two types of assurance. Firms may choose to acquire external assurance. In addition, there have been suggestions that the mandatory review of internal controls over financial reporting may have a halo affect on CSR reports. Finally, advertising may also provide customers with information about CSR activities of a firm. Each of these types of assurance appears to impact certain types of customers. For example, CSR reports published by companies in B2C positively affect profitability.

4. CONCLUSIONS

There is a great deal of research which argues that shareholders and lenders use CSR disclosures in their investment and lending decisions. These confirm a somewhat intuitive result as these stakeholders should avoid firms that face risks, which may impact their returns. While survey research suggests that customers have intentions to support socially responsible firms, their actual support has yet to be confirmed. This study makes a noteworthy contribution as it demonstrates that while customers should be more willing to support socially responsible firms, their support is contingent on some type of external assurance of the report. This result supports the conclusions of other researchers which argue that the technical and complex nature of CSR disclosures may prohibit customers from fully appreciating the content of these reports. Therefore, this study confirms that it is important for CSR reports to have an external party provide some type of assurance. The results confirm that both the auditor's opinion on internal controls and the firm's advertising impact the value customers place on CSR reports. The study documents that firms which make socially responsible disclosures have significantly greater customer-based measures of financial performance as compared to firms that do not make these disclosures.

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IS SUSTAINABILITY PROFITABLE IN THE ENERGY INDUSTRY? AN EMPIRICAL STUDY ON THE COMPANIES IN THE BIST ELECTRICITY INDEX

Tolga TÜMER[1]
A. R. Zafer SAYAR[2]

ABSTRACT

As technological innovations depend on energy to function and are increasingly being used by businesses and households, the need for energy has increased; as an immediate consequence, energy production has gained importance in terms of sustainability. Furthermore, sustainability needs to be profitable to make energy producing companies, whose main goal is to maximize profit, comply to sustainability principles. Within this framework, we empirically investigate the relationship between 'sustainability level' and 'profitability' in the energy industry. We could not find though an evidence reporting any relationship between them. We argue that accountancy may help to make sustainability indirectly profitable.

Keywords: Sustainability Level, Energy Industry, Profitability, Climate Change, Borsa Istanbul (BIST)

1. INTRODUCTION

Energy production must be sustainable in order to achieve global climate goals, as it is one of the primary sources of greenhouse gas emissions (United Nations, 2023). Additionally, sustainability needs to be profitable in the energy industry, otherwise it cannot be adopted by businesses. Accountancy makes it possible to measure both the sustainability level of companies and their profitability, through financial and non-financial reports (Fidancı & Yükçü, 2018; Sultanoğlu, 2020; Sayar & Özdemir, 2022). This study aims to examine the relationship between the sustainability level of the publicly held companies in the energy industry in Türkiye and their profitability ratios.

2. MATERIALS & METHODS

We obtained data of the companies in the Borsa Istanbul (BIST) Electricity Index, which comprises all publicly held companies whose industry is electricity, gas and steam in Türkiye, from their annual financial and non-financial reports. The codes and the company names of the companies in the BIST Electricity Index are presented in Table 1.

[1] PhD Candidate, Atılım University, tolgatumer94@hotmail.com, orcid.org/0000-0002-5230-7886.
[2] Prof. Dr., Atılım University, zafer.sayar@atilim.edu.tr, orcid.org/00000002-2731-8209.

Table 1. The Codes and the Company Names of the Companies in the BIST Electricity Index

CODES	COMPANY NAMES
AHGAZ	AHLATCI DOĞAL GAZ DAĞITIM ENERJİ VE YATIRIM A.Ş.
AKENR	AKENERJİ ELEKTRİK ÜRETİM A.Ş.
AKFYE	AKFEN YENİLENEBİLİR ENERJİ A.Ş.
AKSEN	AKSA ENERJİ ÜRETİM A.Ş.
AKSUE	AKSU ENERJİ VE TİCARET A.Ş.
ALFAS	ALFA SOLAR ENERJİ SANAYİ VE TİCARET A.Ş.
AYDEM	AYDEM YENİLENEBİLİR ENERJİ A.Ş.
AYEN	AYEN ENERJİ A.Ş.
BIOEN	BİOTREND ÇEVRE VE ENERJİ YATIRIMLARI A.Ş.
CONSE	CONSUS ENERJİ İŞLETMECİLİĞİ VE HİZMETLERİ A.Ş.
CWENE	CW ENERJİ MÜHENDİSLİK TİCARET VE SANAYİ A.Ş.
CANTE	ÇAN2 TERMİK A.Ş.
ARASE	DOĞU ARAS ENERJİ YATIRIMLARI A.Ş.
ENJSA	ENERJİSA ENERJİ A.Ş.
ESEN	ESENBOĞA ELEKTRİK ÜRETİM A.Ş.
GWIND	GALATA WIND ENERJİ A.Ş.
HUNER	HUN YENİLENEBİLİR ENERJİ ÜRETİM A.Ş.
KARYE	KARTAL YENİLENEBİLİR ENERJİ ÜRETİM A.Ş.
MAGEN	MARGÜN ENERJİ ÜRETİM SANAYİ VE TİCARET A.Ş.
NATEN	NATUREL YENİLENEBİLİR ENERJİ TİCARET A.Ş.
NTGAZ	NATURELGAZ SANAYİ VE TİCARET A.Ş.
ODAS	ODAŞ ELEKTRİK ÜRETİM SANAYİ TİCARET A.Ş.
PAMEL	PAMEL YENİLENEBİLİR ELEKTRİK ÜRETİM A.Ş.
SMRTG	SMART GÜNEŞ ENERJİSİ TEKNOLOJİLERİ ARAŞTIRMA GELİŞTİRME ÜRETİM SANAYİ VE TİCARET A.Ş.
ZEDUR	ZEDUR ENERJİ ELEKTRİK ÜRETİM A.Ş.
ZOREN	ZORLU ENERJİ ELEKTRİK ÜRETİM A.Ş.

Scoring tables can be created and used in the measurement of concepts like sustainability and transparency (Sayar et al., 2010; Tümer & Sayar, 2023). This method was used in the study to measure the companies' sustainability levels. The decision of Capital Markets Board of Türkiye (CMB) dated 23.06.2022 and numbered 34/977 set forth a new format for the Sustainability Principles Compliance Report (Capital Markets Board of Türkiye, 2022). The reports with the new format were first published by the companies in 2023 for 2022, so the analyses were conducted only for 2022. Corporate Governance Principles Compliance Report is another related report with a similar format and is also included in the study (Kadıoğlu, 2021).

In the calculation of the sustainability levels, firstly a maximum of 80 points were given depending on the companies' answers for the questions in the Sustainability Principles Compliance Report (Yes: 2; Partial: 1; No: 0; Not Applicable: Excluded) and then a maximum of 20 points were added depending on the companies' answers for the questions in the Corporate Governance Principles Compliance Report

(Yes: 2; Partial: 1; No: 0; Exempted & Not Applicable: Excluded). The sustainability levels of the companies in the BIST Electricity Index are shown in Table 2.

Table 2. The Sustainability Levels of the Companies in the BIST Electricity Index

FIRMS	Sustainability Levels (%)	Sustainability Principles Compliance Report	Corporate Governance Principles Compliance Report
AHGAZ	14,92	0,00	14,92
AKENR	93,81	75,56	18,25
AKFYE	0,00	0,00	0,00
AKSEN	0,00	0,00	0,00
AKSUE	12,92	0,00	12,92
ALFAS	14,38	0,00	14,38
AYDEM	88,78	70,55	18,24
AYEN	18,67	0,00	18,67
BIOEN	86,24	68,36	17,88
CONSE	16,77	0,00	16,77
CWENE	0,00	0,00	0,00
CANTE	42,54	25,66	16,88
ARASE	17,94	0,00	17,94
ENJSA	95,36	76,92	18,44
ESEN	66,18	50,18	16,00
GWIND	78,58	59,64	18,94
HUNER	15,81	0,00	15,81
KARYE	44,08	28,36	15,71
MAGEN	67,06	50,91	16,15
NATEN	67,64	51,64	16,00
NTGAZ	27,10	11,20	15,90
ODAS	42,54	25,66	16,88
PAMEL	15,67	0,00	15,67
SMRTG	17,66	0,00	17,66
ZEDUR	44,00	27,69	16,31
ZOREN	94,87	77,82	17,05

To measure the profitability of the companies, ratio analysis were done (Simga-Mugan & Akman, 2012; Önce, 2013; Brealey et al., 2020; Kılıç & Alp, 2021). The profitability ratios that were used in the study and their calculations are shown in Table 3.

Table 3. The Profitability Ratios That Were Used in the Study and Their Calculations

PROFITABILTY RATIOS		CALCULATIONS
ROE	Return on Equity	Net Profit / Equity
ROA	Return on Assets	Net Profit / Total Assets
GPM	Gross Profit Margin	Gross Profit / Net Sales
OPM	Operating Profit Margin	Operating Profit / Net Sales
NPM	Net Profit Margin	Net Profit / Net Sales

Spearman correlation and bivariate linear regression analyses were conducted by using SPSS software. In the regression analyses, sustainability levels were taken as the independent variable and the profitability ratios were taken as the dependent variable.

3. RESULTS & DISCUSSION

The summary of the results concerning the relation between the sustainability levels of the publicly held companies in the BIST Electricity Index and their profitability ratios is given in Table 4.

Table 4. The Results of the Correlation and the Regression Analyses

ANALYSES	CORRELATION VALUES		REGRESSION VALUES		
	Spearman's rho	**Significance**	**Unstandardized B**	**Adjusted R Square**	**Significance**
STBL - ROE	-,103	,617	-,001	-,026	,555
STBL - ROA	-,078	,704	,000	-,033	,662
STBL - GPM	,061	,768	,001	-,033	,650
STBL - OPM	,037	,857	-,001	-,039	,821
STBL - NPM	,143	,485	-,001	-,039	,823

Sustainability was abbreviated as STBL in the sudy. Firstly, the correlation analyses were conducted. Spearman's rho value is the Spearman correlation coefficient and shows the strength and direction of association between the variables. When the correlation values are examined, it can be seen that there is no statistically significant correlation between the sustainability levels and any of the five profitability ratios that were used in the study, as the significance values for each correleation coefficient is higher than 0,05.

After the correlation analyses, the regression analyses were conducted. Unstandardized B value is the unstandardized coefficient of the regression model and shows the effect of a unit change in the sustainability levels on the profitability ratios. If the unstandardized B value is positive, it means that a positive or negative unit change in the sustainability level affect the profitability ratio in the same direction. Conversely, if the unstandardized B value is negative, it means that a positive or negative unit change in the sustainability level affect the profitability ratio in the opposite direction. On the other hand, adjusted R square value shows how much of the variation in the profitability ratios are explained by the variation in the sustainability levels. As to be understood from the regression results, there is no statistically significant effect of the sustainability levels on any of the five profitability ratios that were used in the study, as the significance values for each regression coefficient is higher than 0,05.

4. CONCLUSION

The outcomes of the study document that there was not a significant relationship between the sustainability level of the publicly held companies in the energy industry in Türkiye and their profitability ratios. The results are worrying, because it is not possible to effectively combat climate change unless the energy companies who comply more with the sustainability principles are rewarded.

Accounting science may be helpful on this important and critical subject. Indeed, financial and non-financial reports are valuable instruments; and if they are jointly utilized with regulations and auditing, sustainability could be made indirectly profitable in the energy industry through incentives, supports and sanctions. To make sustainability indirectly profitable in the energy industry, the sustainability level and profitability of companies need to be measured in a systematic, regulated and comparable way; the Sustainability Principles Compliance Report with its new format that was set forth by CMB, the closely related Corporate Governance Principles Compliance Report and the independent audit reports make this possible.

The study contributes to the literature by using the most recent financial and non-financial reports of the companies and emphasizing the importance of accountancy on the subject. Similar analyses can be conducted in other industries.

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SUSTAINABLE DEVELOPMENT IN LIGHT OF THE GREEN SUKUK CONTRIBUTION

Abouzaid BADR[1]
Balla MAROUANE[2]

ABSTRACT

This research examines the contribution of green sukuk to sustainable development. It investigates, the emergence of sustainable development, the role of Islamic finance, and the specific impact of green sukuk. Therefore, the difference between green bonds and green sukuk is highlighted within the research. Challenges and opportunities, including its potential for climate action and state building, are also explored. Through a qualitative research using literature review, the study reveals that green sukuk directs funds towards environmentally friendly projects, such as renewable energy and climate change mitigation, contributing to sustainable development goals. This research focuses on the significance of green sukuk as a financing tool that aligns with Islamic finance principles and promotes sustainability.

Keywords: Sustainability, Sustainable Development, Sustainable Development Goals, Islamic Finance, Green sukuk, Green bonds.

1. INTRODUCTION

Our study investigates the contribution of green sukuk in sustainable development. Using a literature review, it analyses the definition of sustainable development, encompassing its goals and the contribution of Islamic finance to its realization. The focus goes then to green sukuk, examining its emergence, its contribution to sustainable development, and the challenges and opportunities associated with green sukuk. The research aims to provide insights into the transformative potential of green sukuk in advancing sustainable development goals, and attracting socially responsible investments. Through an explanatory study of the existing knowledge (secondary data) on green sukuk, this study question how Islamic finance can drive sustainable development within the framework of Shariah principles.

2. MATERIALS & METHODS

The primary focus of this study is to examine the role of green sukuk in advancing sustainable development. In this manner, the central question is: What is the extent of the contribution of green sukuk to sustainable development?

In order to respond to this question, the primary method employed in this study is a systematic literature review. This study employs a comprehensive literature review approach to collect relevant information and insights from secondary data, covering various aspects such as the emergence of sustainable development and its goals (SDGs), the contribution of Islamic finance to sustainable development, particularly through green sukuk. All that, without forgetting the potential challenges and opportunities associated with green sukuk in the context of sustainable development.

This research question holds significant relevance to both theory and practice. The investigation contributes to theoretical understanding by exploring the role of green sukuk within the broader framework of sustainable development. It aims to enhance the understanding of how green sukuk can facilitate the achievement of SDGs and promote environmentally responsible financing. From a practical perspective, the findings of this study will offer valuable insights to policymakers, financial institutions, and investors seeking to promote sustainable finance and make informed decisions regarding green sukuk investments.

[1] Research professor at the National School of Management, babouzaid@uae.ac.ma.
[2] PhD student at the National School of Management, ballamarouane@gmail.com.

3. RESULTS & DISCUSSION

Green sukuk has emerged as a significant contributor to sustainable development, providing financing for environmentally friendly projects. This research highlights its alignment with Islamic finance principles and the global sustainability agenda. Through green sukuk issuance, governments, corporations, and institutions can raise capital for projects that have positive environmental impacts, facilitating the transition to a low-carbon and sustainable future. The study focuses on Malaysia's successful implementation of green sukuk projects, positioning the country as a leader in socially responsible investment. The research highlighted the contribution of the Islamic Development Bank (IsDB) in financing various renewable energy, energy efficiency projects and climate change mitigation efforts. Moreover, the study takes account of countries trying to implement a green sukuk market such as Turkey and Morocco. The findings of this study underline the positive role of green sukuk in bridging the gap between Islamic finance and sustainable development.

4. CONCLUSION

In conclusion, green sukuk serves as a vital instrument for financing sustainable development projects. Its alignment with Islamic finance principles, successful implementation in Malaysia and Indonesia particularly, and versatility in contract structures all contribute to its significance. By mobilizing private investment and promoting sustainable practices, green sukuk plays a crucial role in advancing sustainable development and addressing global environmental challenges. Hence, the study highlights the challenges facing the market of green sukuk, which include a diagnosis of the current situation and other propositions in order to promote the use of green sukuk in sustainable development projects.

In sum, the subject of this study is still a new and green land to explore despite its urgency and importance. As a consequence, the findings and the scope of the study is limited by its reliance on qualitative research methods and secondary data sources. In this manner, a proposition for further research could involve conducting a comparative analysis between green sukuk and other sustainable financing mechanisms, such as green bonds or social impact bonds.

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THE RELATIONSHIP BETWEEN ESG AND FIRM PERFORMANCE IN THE AUTOMOTIVE INDUSTRY: A PANEL DATA ANALYSIS

Burcu DİNÇERGÖK[1]
Burak PİRGAİP[2]

ABSTRACT

We scrutinize how Environmental, Social, and Governance (ESG) is related to automotive firms' corporate performance, given their susceptibility to specific ESG risks related to their operations and products. We employ panel data methodology over a global sample of 90 automotive firms in the period 2008-2021 and find that companies with higher ESG scores have better performance than those with lower scores. By capturing the potential differential effects of financial constraints, we also find that firms with financial constraints have a better chance of raising their ESG scores, which enhances performance. The results are robust for alternative measures of firm performance and endogeneity.

Keywords: ESG, sustainability, firm performance, firm value, automotive industry, panel data.

1. INTRODUCTION

We address the debate on the impact of ESG factors on corporate performance, focusing specifically on the automotive industry. Our work emphasizes the need for automotive companies to adopt sustainable practices and highlights the risks they face due to their environmental and social impacts. Our study conducts a panel data analysis of 90 global automotive firms from 2008 to 2021, revealing a positive relationship between high ESG scores and better performance. Additionally, we explore the role of financial constraints and their influence on the ability of firms to improve their ESG performance and subsequent financial outcomes. This research contributes to the literature by providing industry-specific insights and employing robust empirical methodology.

2. MATERIALS & METHODS

Based on the literature and theoretical motivation, we hypothesize the following:

H1: There is a positive relationship between ESG performance and firm performance.

H2: There is a negative relationship between ESG performance and firm performance.

We estimate the following fixed-effects panel regression model to investigate the impact of ESG scores on the corporate performance of automotive firms:

$$PERF_{i,t} = \alpha + \beta_1 ESG_{i,t} + \beta_2 CONTROL_{i,t} + \beta_3 \sum(year\ effects)_t + \varepsilon_{i,t} \quad (1)$$

where $PERF_{i,t}$ denotes two alternative measures of firm performance, namely Tobin's q and the market-to-book (MB) ratio for firm *i* in year *t*. $ESG_{i,t}$ is the independent variable to measure the sustainability performance of firm *i* in year *t* by considering the aggregate ESG scores as well as the individual pillar scores. $CONTROL_{i,t}$ are the firm-specific control variables to proxy for size, leverage, dividend payout ratio, return on assets, operating profitability, research and development expense, and intangible assets.

On the other hand, "slack resources theory" states that firms that have higher financial performance can be more socially responsible because they have sufficient funds to invest in socially responsible activities. Therefore, a company that had better financial performance in previous or current years will have a higher social performance in current years. Thus, we follow the slack resources theory and consider financial constraints to answer the question of whether a firm with available financial resources

[1] Assoc. Prof. Dr., Atılım University, burcu.dincergok@atilim.edu.tr, orchid.org/0000-0002-7050-8163
[2] Assoc. Prof. Dr., Hacettepe University, burakpirgaip@hacettepe.edu.tr, orchid.org/0000-0001-8870-8502

is able to improve its ESG scores. We proxy the financial constraints by the WW index (Whited and Wu, 2006), which is given as follows:

$$WW\ index = -0.091 * CF - 0.062 * DIV + 0.021 * LTD - 0.044 * TA + 0.102 * ISG - 0.035 * SG \quad (2)$$

We essentially measure whether firms have sufficient funds to invest in ESG activities. We accordingly make the following third hypothesis considering the slack resources theory:

H3: ESG scores are higher for financially unconstrained firms.

Companies that have sufficient funds will invest more in ESG activities and therefore achieve higher financial performance. Based on these arguments, our final hypothesis is as follows:

H4: The relationship between ESG performance and firm performance is more positive for financially unconstrained firms.

For robustness, we extend our empirical analysis by considering the endogeneity concern. To account for endogeneity, we adopt a two-stage least-squares instrumental variable method (2SLS IV) in estimating the impact of ESG on firm performance.

3. RESULTS & DISCUSSION

Table 1 shows the results of the baseline panel regression models in which Tobin's q and MB are the dependent variables. Consistent with H1, a quick inspection of the data shows a positive relationship between ESG scores and firm performance. This relationship appears to be quite significant when MB is the dependent variable. In numerical terms, a one-point increase in the ESG scores leads to a 1 (0.3) percent increase in MB (Tobin's q). We also find a moderate effect of the ENV and GOV pillar scores on MB. On the contrary, none of the individual pillar scores has a significant influence on Tobin's q. Thus, we can conclude that our findings provide substantive support for H1, particularly on the basis of firm value (MB) rather than financial performance (Tobin's q), while they require explicit rejection for H2.

The unreported results of our two-stage instrumental variable panel regression corroborate with the previous estimates and suggest a positive relationship between ESG and firm performance thereby supporting H1, after accounting for endogeneity

Table 1. Baseline Panel Regression Results

Variables	TQ				MB			
ESG	0.003**				0.010***			
	(0.001)				(0.004)			
ENV		0.002				0.005*		
		(0.001)				(0.003)		
SOC			0.002				0.003	
			(0.001)				(0.003)	
GOV				0.001				0.005**
				(0.001)				(0.002)
SIZE	-0.113*	-0.107*	-0.107*	-0.089	-0.448***	-0.427***	-0.413**	-0.370**
	(0.063)	(0.063)	(0.064)	(0.063)	(0.159)	(0.159)	(0.160)	(0.157)
DPR	-0.020	-0.018	-0.020	-0.022	-0.038	-0.029	-0.034	-0.047
	(0.028)	(0.028)	(0.028)	(0.029)	(0.071)	(0.072)	(0.072)	(0.072)
LEV	0.387**	0.382**	0.423**	0.393**	1.268***	1.265***	1.383***	1.258***
	(0.180)	(0.181)	(0.180)	(0.181)	(0.450)	(0.453)	(0.450)	(0.451)
RD	-2.402*	-2.294*	-2.247**	-2.179*	-5.869*	-5.425	-5.155	-5.234
	(1.319)	(1.318)	(1.317)	(1.315)	(3.323)	(3.324)	(3.325)	(3.306)
INTAN	1.569***	1.516***	1.571***	1.534***	4.384***	4.213***	4.337***	4.297***
	(0.543)	(0.543)	(0.544)	(0.543)	(1.352)	(1.354)	(1.360)	(1.353)
ROA	0.026***	0.025***	0.026***	0.026***	0.050***	0.048***	0.051***	0.050***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.009)	(0.009)	(0.009)	(0.009)
OPER	0.793**	0.815**	0.741**	0.766**	1.942**	2.007**	1.787*	1.862**
	(0.375)	(0.377)	(0.375)	(0.376)	(0.942)	(0.949)	(0.944)	(0.942)
Cons.	3.059**	2.978**	2.962**	2.579*	10.360***	10.041***	9.740***	8.735**
	(1.401)	(1.404)	(1.408)	(1.390)	(3.502)	(3.516)	(3.526)	(3.474)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.325	0.334	0.325	0.322	0.223	0.220	0.227	0.225
Obs.	840	840	840	838	836	836	836	834

If we split the sample according to the financial constraints of the automotive firms, we obtain interesting results. First, Table 2 suggests that the ESG scores of financially constrained firms are significantly higher than those of companies without financial constraints, while the corporate performance of financially constrained companies is by far lower. Our results do not support the slack resources theory, which states that spending on ESG activities depends on "slack resources". Therefore H_3 is rejected.

Table 2. Tests of Differences in Means

Variables	Financially constrained firms	Financially unconstrained firms	*t* statistic
ESG	51.301	36.923	10.270***
ENV	56.232	31.144	13.560***
SOC	48.214	36.052	7.132***
GOV	49.613	46.518	2.122**
TQ	0.867	1.490	-8.262***
MB	1.629	2.322	-5.772***

Our unreported panel regression results show that financially constrained firms have a more positive and stronger relationship between ESG performance and firm performance, especially with respect to firm value, i.e., MB. These results lead us to reject H_4.

4. CONCLUSION

The study highlights the growing importance of ESG factors in the automotive industry and their impact on firm performance. Firms with high ESG scores tend to outperform those with low scores, and financially constrained companies can improve their performance by enhancing their ESG scores. This suggests that investors value sustainability investments, presenting opportunities for financially constrained firms to increase their market values. The implications for automotive firms include developing a clear ESG strategy, engaging stakeholders, integrating ESG factors into decision-making processes, monitoring and reporting on ESG performance, and collaborating with others in the industry. The study acknowledges limitations regarding country-specific factors and the scope of ESG measurements, recommending future research in these areas.

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RESEARCH ON CORPORATE GOVERNANCE AND ESG REPORTING: A BIBLIOMETRIC ANALYSIS AND A LITERATURE REVIEW USING WEB OF SCIENCE DATABASE

Oğuzhan BAHADIR[1]
Volkan DEMİR[2]
Eylül ÖZDARAK[3]

ABSTRACT

This paper examines the intricate link between ESG reporting and corporate governance by applying (i) bibliometric analyses of research papers published in the Web of Science (WoS) database and (ii) literature review of papers covering the interaction between ESG performance and board independence & gender diversity. Based on articles published over the period 2006-2023, we conducted author and country-based co-authorship, co-citation, co-occurrence of keywords, citation and bibliographic coupling analyses. Then, we reviewed articles that focus on the impact of non-executive board membership and female board membership on ESG performance. Our findings provide a comprehensive overview of the literature between ESG disclosure and corporate governance by identifying research patterns and gaps.

Keywords: Corporate Governance, ESG Reporting, Bibliometric Analysis, Literature Review

1. INTRODUCTION

There have been a considerable number of publications in the existing body of literature about the impact of corporate governance mechanisms on ESG reporting, which is perceived as a prevalent means of communication by companies with their stakeholders. In addition to quantitative methods, bibliometric analysis has been attracting widespread attention due to the ever-increasing emphasis on examining multidisciplinary research trends and gaps (Ellili, 2022). Bibliometric analysis -which involves author citations, co-citations among documents, sources and references, and co-occurrence of keywords, aims to enable researchers to emphasize the primary findings from prior work, examine changes in research topics over time and ascertain prospects for further studies (Ellili, 2022).

Few researchers have conducted bibliometric analysis of documents about the link between ESG disclosure and corporate governance. For instance, Senadheera et al., (2022) investigated Scopus-indexed publications on the association between ESG reporting and corporate governance by focusing on the governance pillar. Their results indicate that although there is a growing interest in the ESG literature, governance metrics remain insufficient (Senadheera et al., 2022). Ellili (2022) applied bibliometric analysis of relevant documents indexed in the Scopus database and found major clusters in the research field namely: Corporate Social Responsibility (CSR), corporate strategy, financial performance and environmental economics. Similarly, Jain & Tripathi, (2023) examined both the ESG and CSR literature in the Scopus and WoS databases and highlighted predominant themes in the research area including certain corporate governance mechanisms.

Despite this interest, to the best of our knowledge, no study has conducted bibliometric analysis and reviewed the WoS-indexed literature of the relationship between ESG disclosure and corporate governance mechanisms. Accordingly, we chose (i) independent board membership and (ii) female board membership as corporate governance mechanisms. Theoretically, independent board members -who do not possess incentives to prioritize their own interests which can be detrimental to companies' objectives, are appointed to reduce agency problems (Agrawal& Knoeber, 1996). Several studies found a positive impact (Arayssi et. al, 2020; Yu et. al, 2020), a negative impact (Birindelli et. al, 2020) or a mixed impact (Cucari et. al, 2018) of independent board membership on ESG disclosure. Furthermore, women board members tend to record higher attendance in board meetings which fosters monitoring

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[1] Assoc. Prof., Galatasaray University, obahadir@gsu.edu.tr, orchid.org/0000-0002-5721-9498
[2] Prof. Dr., Galatasaray University, vdemir@gsu.edu.tr, orchid.org/0000-0001-5313-2320
[3] Res. Asst., Galatasaray University, eozdarak@gsu.edu.tr, orchid.org/0000-0003-2504-0247

function of board committees, and hold top management accountable for weak firm performance (Adams& Ferreira, 2008). However, controversies also exist among various studies that found a positive influence (Manita et. al, 2018; Issa, 2023), a negative influence (Dong et. al, 2023) or a mixed influence (Aabo & Giorici, 2022).

ESG performance plays a pivotal role in assessing companies' willingness and commitment to compliance with ESG criteria (Eccles et. al, 2014). ESG performance is generally measured by ESG scores that are calculated by aggregating data and assigning weights to each metric regarding its relevance (Kotsantonis & Hasseldine, 2016). Therefore, companies with higher ESG scores align with corporate governance mechanisms that stimulate stakeholder rights -including effective oversight, improved risk management, and transparency in terms of disclosure (Derwall et al., 2015).

By analyzing previous work published in the WoS database, this study aims to identify trends in the current research to develop an extensive review of the best practices and their findings while exploring opportunities for further research. For this purpose, we reviewed the WoS-indexed documents about the impact of (i) independent membership and (ii) female board membership on ESG reporting.

2. MATERIALS & METHODS

Following (Ellili, 2022), this study attempts to answer several questions:

1. *How have the publications on the link between corporate governance and ESG disclosure evolved over time?*
2. *Which authors and countries have made significant contributions to the discipline?*
3. *Which papers on ESG disclosure have received the highest number of citations?*
4. *Which journals are most frequently cited as references in papers?*
5. *What are the predominant keywords in research papers?*
6. *What kind of relationship have the studies in the literature found between independent board membership and ESG performance?*
7. *What kind of relationship have the studies in the literature found between female board membership and ESG performance?*

Accordingly, we reviewed the research articles indexed in the WoS Core Collection for Social Sciences Citation Index (SSCI), Emerging Sources Citation Index (ESCI) and Science Citation Index Expanded (SCI-EXPANDED) over the years 2006-2023. We searched records for all fields (including title, abstract, keywords of documents) to obtain a broad source of articles with booleans and the following word combinations: "*ESG reporting", ESG disclosure", "corporate governance"* (both with abbreviations and full forms). Limiting the search topics to Management and Economics, Business Finance, Management, Environmental Studies and Environmental Sciences provided the most relevant documents for ESG reporting and corporate governance in the fields of accounting and finance. Consequently, we retrieved 609 results and ran the data in the VOSViewer program. We applied diverse bibliometric analyses: co-authorship analysis both for authors and countries, co-citation analysis, co-occurrence analysis of keywords, citation analysis both for authors and documents and bibliographic coupling analysis as shown in the tables. Then we focused on two of the most discussed corporate governance mechanisms: independent board membership and gender diversity in boards. We gathered data for ESG performance and independent board members with combinations of the expressions *"ESG performance", "ESG score", "independent board member", "non-executive board member", "non-managerial board member", "outsider board member", "external board member"* and for ESG performance and gender diversity with word combinations *"ESG performance", "ESG score", "female board member", "woman board member", "gender diversity".* We discussed our results and highlighted gaps for further research.

3. RESULTS & DISCUSSION

Our results indicate that there is a vast amount of work in the literature regarding the association between corporate governance mechanisms (namely, board independence and gender diversity) and ESG performance, which is measured by diverse indicators. We found that the existing body of research mostly focuses on CSR reporting (rather than ESG disclosure) which broadly considers environmental reporting or charity activities. The majority of prior studies have found a positive impact of independent

board members and mixed but generally positive impact of female board membership on ESG performance. Our bibliometric analyses support our literature review with co-occurrence of keywords and most-cited articles.

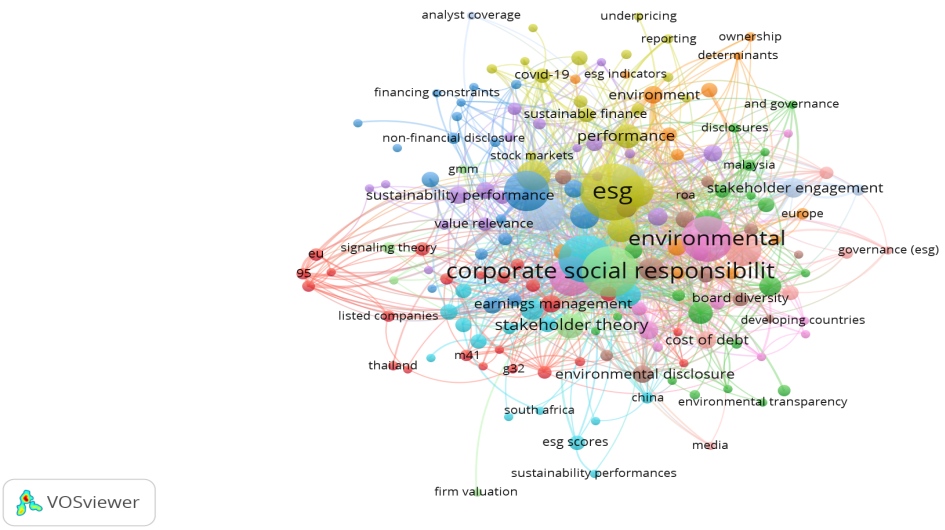


Figure 1. Co-Occurrence Analysis of Keywords

Table 1. Citation Analysis

Author	Citations	Documents
Serafeim, George	847	7
Cormier, Denis	519	15
Magnan, Michel	443	11
Buallay, Amina	394	10
Ledoux, Marie Josée	376	5
Eccles, Robert	362	4
Velte, Patrick	310	4
Krzus, Michael	310	2
Managi, Shunsuke	287	3
Yu, Ellen Pei-Yi	281	3

Table 2. Source Analysis

Source	Citations	Documents
Sustainability	1440	96
Business Strategy And The Environment	1337	39
Corporate Social Responsibility And Environmental Management	1039	38
Journal Of Business Ethics	865	13
Journal Of Cleaner Production	705	18
Sustainability Accounting Management	387	13
Journal Of Applied Corporate Finance	449	11
Corporate Governance The International Journal Of Business In Society	295	13
Journal Of Applied Accounting Research	250	10
Finance Research Letters	176	10

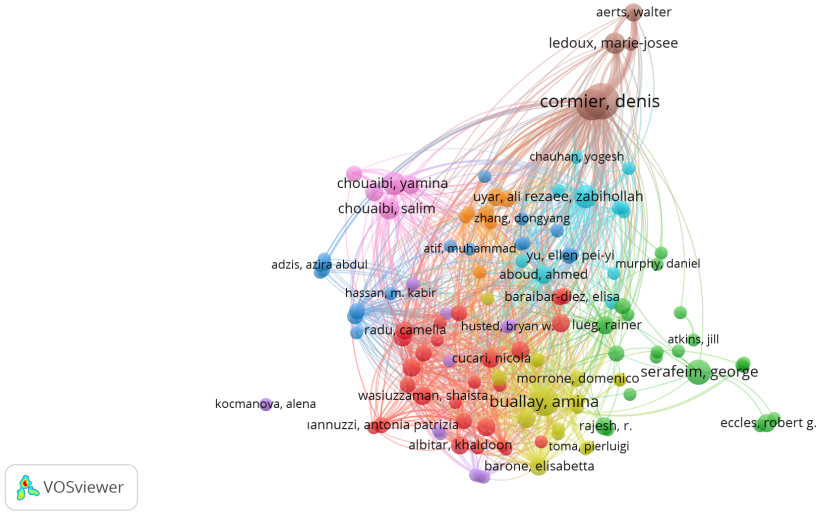


Figure 2. Bibliographic Coupling Analysis

Table 3. Results of the Literature Review

	Positive	Negative	Mixed
ESG performance- Board Independence	87,5%	6,25%	6,25%
ESG performance- Board Gender Diversity	75%	9,6 %	15,3%

4. CONCLUSION

This study contributes to the literature in several ways. First, we bibliometrically analyzed the papers discussing the relationship between ESG reporting and corporate governance indexed in the WoS database. Network visualization analyses provided the most influential papers, authors and keywords by the clustering method. Then we reviewed the existing literature with the purpose of identifying the link that prior research has found between ESG performance and independent board members as well as the link between ESG performance and female board members. The findings will help researchers to identify research gaps with relevant theories. Our study has a number of limitations. While conducting our analyses, we solely regarded ESG performance including all of its 3 components and neglected

separate scores. Further research may extend the scope of searches with CSR, sustainability reporting or standalone ESG scores. In addition, we chose board independence and diversity as proxies of corporate governance mechanisms. Future studies may discuss alternative variables, e.g., board size, family ownership, audit committee, CEO duality, and use different databases.

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ESG SUSTAINABILITY RATING AND ITS IMPACT ON CORPORATE FINANCIAL PERFORMANCE: A STUDY IN THE BIST INDEX

Gökhan KILIÇ[1]
Hakan ALİUSTA[2]

ABSTRACT

Over time, both companies and investors have shown increasing interest in non-financial information and the concept of sustainability, in addition to financial data. The idea that economic sustainability can be achieved within the framework of environmental, social, and governance sustainability has become more widespread. In this context, the ESG (Environmental, Social, and Governance) scoring of companies has gained significant importance in the present day.

This study examines the impact of ESG scores, which have become a significant factor in companies' and investors' financial decisions, on corporate financial performance. The research uses financial performance data of 26 publicly traded companies listed in BIST (Borsa İstanbul) with ESG scores between 2004 and 2022. Panel regression analysis is employed to analyse the data, and the relationship between companies' ESG scores and certain financial performance criteria is tested. The research concludes that there is a significant relationship between ESG values and these performance criteria.

Keywords: Panel Regression, Sustainability Reporting, ESG Score, Financial Performance

1. INTRODUCTION

Discussions on consequences such as global warming, climate changes, natural disasters, desertification, and diseases have revealed the concept of sustainability. The most well-known notion of sustainability was introduced by the Brundtland report (The WCED Report of Our Common Future,1987) by the United Nations. In the report, the sustainability is expressed as people's meeting their own needs and leaving them to future generations in a way that will not equal the absence of these needs (Nemli, 1998: 288; Mori and Christodoulou, 2012:95).

Corporate sustainability is accepted as the equivalent of sustainability at the enterprise level. Businesses are an integral part of economic, social and environmental life. For this reason, they are expected to report all the other effects and results of their activities other than their economic results (Çalışkan, 2012:43-46). In the literature, various concepts such as triple bottom line sustainability reporting, corporate social responsibility reporting, non-financial reporting are used together with sustainability reporting (Kealy, 2019; Aluchna et al., 2022; Reynolds and Yuthas, 2007).

Global occurrences like the financial crisis, the climate change, and bankruptcies have raised awareness of environmental, social, and governance challenges. Companies have adopted reporting models that differ from their pre-existing ones because of this development. ESG (Environmental, Social, and Governance) scores have thus been developed in response to the demand for corporate sustainability reporting. The ESG score serves as a gauge of how effectively a business manages and addresses environmental, social, and governance-related risks in its day-to-day operations. It becomes crucial to have high-quality ESG reporting. Nevertheless, it remains uncertain whether different mandatory non-financial disclosures worldwide improve the quality of financial statements (Aguado-Correa, 2023:2).

In the EU, the Non-Financial Reporting Directive–NFRD has been in effect since 2018, which requires that large companies share some information about their environmental, social and management activities with the public. However, the NFRD is only implemented by large companies and there is no third-party audit requirement of the information shared. This situation led to the adoption of the Corporate Sustainability Reporting Directive (CSRD), which brings new rules in corporate sustainability reporting, in January 2023. CSRD updates and strengthens the rules on social and

[1] Asst. Prof. Dr., Baskent University, gokhankilic@baskent.edu.tr, orchid.org/0000-0002-0605-2798.
[2] Asst. Prof. Dr., Sinop University, haliusta@sinop.edu.tr, orchid.org/0000-0002-6301-6339.

environmental information that companies have to report. It now requires large company as well as listed SMEs to report on sustainability. Companies subject to CSRD will have to report according to the European Sustainability Reporting Standards (ESRS). Initial companies will have to apply the new rules for the first time in fiscal 2024 for their reports published in 2025. The Standards were developed by the European Financial Reporting Advisory Group (EFRAG), an independent body that brings together a variety of different stakeholders. The new rules will ensure that investors and other stakeholders have access to the information they need to assess companies' impacts on people and the environment, and to assess the financial risks and opportunities arising from climate change and other sustainability issues. In addition, reporting costs for companies will be reduced in the medium and long term by harmonizing the information to be provided. According to the directive, Member States should ensure that when an undertaking is required by Union law to have elements of its sustainability reporting verified by an accredited independent third party, the report of the accredited independent third party should be made available either as an annex to the management report or by any other publicly accessible means. The obligation to provide a sustainability report for non-European companies will apply to all companies with a net turnover of EUR 150 million in the EU and at least one subsidiary or branch office in the EU that exceeds certain thresholds (European Comission, 2023).

Düzer and Önce (2018) examined the impact of sustainability information on financial performance of companies. For this purpose, data from 30 publicly traded companies listed on BIST, reporting according to GRI (Global Reporting Initiative) principles, were included in the study between 2008 and 2014. Financial performance was measured using financial ratios such as return on assets, return on equity, price-to-book ratio, and price-earnings ratio. The study applied panel data analysis, and it was found that the level of information disclosed on environmental performance had a positive effect on return on assets and return on equity, while the level of information disclosed on social performance had a positive effect on return on assets.

Asuquo et al. (2018) investigated the impact of sustainability reporting on corporate performance of selected brewery firms in Nigeria. To determine the relationship between sustainability reporting and corporate performance, data from the audited financial statements of three selected brewery firms for five years (2012-2016) were used. The study's results indicated that Economic Performance Disclosure (ECN), Environmental Performance Disclosure (ENV), and Social Performance Disclosure (SOC) had no significant impact on the return on assets (ROA) of the selected firms in Nigeria.

Çetenak et al. (2022) examined the impact of ESG scores of deposit banks in Turkey on their financial performance. The study covered the period from 2010 to 2020. Through PCSE (Pooled Cross-Sectional Data Estimation) and FGLS (Feasible Generalized Least Squares) panel data estimations, it was determined that total ESG scores of banks positively influenced accounting and market-based performance indicators (ROA and Tobin's Q).

This study investigates the relationship between ESG scores and financial performance of BIST-listed companies. For this purpose, ESG scores and financial performance indicators for these companies are determined from Bloomberg data for the period 2004-2022. Then, a panel regression analysis is conducted to test whether there is a significant relationship between ESG scores and financial performance.

2. MATERIALS & METHODS

All publicly traded companies in the BIST corporate index (609 companies) constitute the population of the study. The sample of the study consists of companies (26 companies) with ESG sustainability scores listed in Table 1.

Table 1. Companies with ESG scores traded on the BIST Corporate Index

1	AKBANK T.A.Ş.	14	SASA POLYESTER SANAYİ A.Ş.
2	ALBARAKA TÜRK KATILIM BANKASI A.Ş.	15	ŞOK MARKETLER TİCARET A.Ş.
3	ARÇELİK A.Ş.	16	TEKFEN HOLDİNG A.Ş.
4	ASELSAN ELEKTRONİK SANAYİ VE TİCARET A.Ş.	17	TORUNLAR GAYRİMENKUL YATIRIM ORT. A.Ş.
5	DOĞAN ŞİRKETLER GRUBU HOLDİNG A.Ş.	18	TÜRK HAVA YOLLARI A.O.
6	DOĞUŞ OTOMOTİV SERVİS VE TİCARET A.Ş.	19	TÜRKİYE GARANTİ BANKASI A.Ş.
7	EMLAK KONUT GAYRİMENKUL YAT. ORT. A.Ş.	20	TÜRKİYE HALK BANKASI A.Ş.
8	ENKA İNŞAAT VE SANAYİ A.Ş.	21	TÜRKİYE İŞ BANKASI A.Ş.
9	İŞ YATIRIM MENKUL DEĞERLER A.Ş.	22	TÜRKİYE KALKINMA VE YATIRIM BANKASI A.Ş.
10	KOÇ HOLDİNG A.Ş.	23	TÜRKİYE SINAİ KALKINMA BANKASI A.Ş.
11	LOGO YAZILIM SANAYİ VE TİCARET A.Ş.	24	TÜRKİYE ŞİŞE VE CAM FABRİKALARI A.Ş.
12	PEGASUS HAVA TAŞIMACILIĞI A.Ş.	25	TÜRKİYE VAKIFLAR BANKASI T.A.O.
13	PETKİM PETROKİMYA HOLDİNG A.Ş.	26	YAPI VE KREDİ BANKASI A.Ş.

In the study, firstly, ESG sustainability scores of publicly traded companies listed on BIST between 2004 and 2022 are obtained from Bloomberg, categorized by sectors. Then, certain financial ratios or values (return on assets, financial leverage, firm size, sales growth, liquidity, net profit margin, price-to-earnings ratio, number of employees) related to their financial performance were obtained from Bloomberg. Panel data regression analysis was used to test the impact of ESG scores on financial performance. Since data availability for firms is highest for the years 2015-2021, these years were selected. The following hypotheses were statistically tested:

Hypothesis 1: There is a significant relationship between companies' ESG sustainability scores and their financial performance.

Hypothesis 2: There is no significant relationship between companies' ESG sustainability scores and their financial performance.

3. RESULTS & DISCUSSION

The number of the 26 companies in the study sample for the year 2021 based on Bloomberg ESG score ranges is presented in Table 2. Table 3 shows the number of companies with ESG scores by sector.

Table 2. Number of BIST Companies According to 2021 ESG Score Ranges

ESG Ratio	Number of Firms
0-20 ratio	1
21-40 ratio	3
41-60 ratio	17
61-80 ratio	4
81- 100 ratio	-
Total	25

Table 3. Number of Companies with Bloomberg ESG Scores According to Sectors

Industries	Number of Firms
Production	3
Construction and Public Works	1
Whole sail and Retail Trade	2
Transportation and Storage	2
Financial Institutions	16
Technology	2
TOTAL	26

The functional representation of the panel data is as follows (Çemrek and Burhan, 2014),

$$\gamma_{it} = \beta_{0it} + \beta_{1it}X_{1it} + \cdots + \beta_{kit}X_{kit} + e_{it}$$

For the study's sample of 26 firms between 2015 and 2021, stationarity of the dataset was determined using unit root tests. Then, the presence of autocorrelation and heteroskedasticity problems was tested. Data analysis was performed using STATA SE 14.00 software. The regression model used in the study is given as follows:

$$ROA_{it} = \beta_{0it} + \beta_{it}FRMSZE_{it} + \beta_{it}NPR_{it}\ \beta_{it}LVRG_{it}\ \beta_{it}SALESGROWTH_{it}\ \beta_{it}PERATIO_{it} + \beta_{it}FESGRATIO_{it}$$

Unit root tests for variables are shown in the following table, using Levin, Lin, and Chu (2002) test.

Table 4. Unit Root Tests of Variables

Veriables	T-Statistic	P-Value(≤0,10)
ROA	-15,17	0,0000
FRMSZE	-88,83	0,0000
NPR	-26,02	0,0000
LVRG	-12,42	0,0000
SALESGROWTH	-2,01e+02	0,0000
PERATIO	-10,58	0,0000
ESGRATIO	-57,35	0,0000

The unit root tests result in the rejection of the null hypothesis for all variables, indicating that the variables are not unit root. Therefore, there is no need for cointegration testing.

To test for the presence of autocorrelation, the Breusch-Pagan LM test was conducted. The result shows chi2(325) = 566.677 and Pr = 0.0000, indicating no autocorrelation. However, heteroskedasticity is present, as the result of the Modified Wald test for groupwise heteroskedasticity indicates (P is 0.000).

Table 5. FGLS Regression Results

ROA	Coeffiencts	Std. Err	Z- Score	P-Value(≤0,10)
LVRG	-0,0785	0,018	-4,18	0,000
SALESGROWTH	0,01701	0,007	2,29	0,022
ESGRATIO	0,04849	0,028	1,70	0,089
PERATIO	-0,05938	0,021	-2,73	0,006
NPR	0,04847	0,027	1,75	0,081
FRMSZE	-0,9526	0,274	-3,47	0,001
Cons	13,8496	2,621	5,28	0,000

4. CONCLUSION

ESG scores provide stakeholders with data related to a company's environmental (E), social (S), and governance (G) practices. These ESG scores are also referred to as sustainability scores. Investors, while making decisions, focus not only on a company's profitability but also on these data in terms of sustainability. The ESG score, in this process, offers significant contributions to companies and investors on this subject. This study examines the impact of ESG scores on companies on their financial performance.

The analysis results indicate that ESG scores have a positive effect on firms' financial performance at a significance level of 10%. Another noteworthy finding of the study is that a significant proportion of firms with ESG scores are financial institutions.

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IFRS S2 CLIMATED-RELATED DISCLOSURES: A RESEARCH ON BIST CEMENT COMPANIES

Tuba BORA KILINÇARSLAN[1]

ABSTRACT

In order to establish a common sustainability reporting language around the world, the International Sustainability Standards Board (ISSB) published IFRS S1 General Requirements for Disclosure of Sustainability-related Financial Information and IFRS S2 Climate-related Disclosures on June 26th, 2023 and it was stated that these standards will be effective for annual reporting periods beginning on or after January 1st, 2024. In our country, on June 4th, 2022, the Public Oversight, Accounting and Auditing Standards Authority (KGK) was authorized to determine and publish the Turkish Sustainability Reporting Standards in compliance with international standards in sustainability reporting. Therefore, the KGK was held responsible for the translation into Turkish and publication of these standards. The aim of this study is to determine whether the cement companies operating in Borsa Istanbul (BIST) reporting in line with IFRS S2, which is not yet in practice, and to examine the industry-based disclosures of these companies. In the study, document analysis technique, one of the qualitative analysis methods, was used as a research method. In this context, it has been examined whether 13 cement companies operating in BIST have an integrated report or sustainability report for 2022. As a result of the research, it was determined that six cement companies (46.2%) prepared an integrated report or sustainability report. It has been seen that companies prepare these reports according to the Task Force on Climate-Related Financial Disclosures (TCFD) recommendations and/or Sustainability Accounting Standards Board (SASB) standard, as well as the Global Reporting Initiative (GRI) standard. For this reason, it has been determined that the disclosures of the six cement companies that explain their non-financial reports on governance, strategy, risk management, metrics and targets in the context of IFRS S2 are at a moderate level, while the industry-based disclosures are at a very good level, excluding product innovation.

Keywords: IFRS S2, Sustainability reporting, BIST

1. INTRODUCTION

International Financial Reporting Standards (IFRS) Foundation established the International Sustainability Standards Board (ISSB) to develop high quality, understandable, enforceable and globally accepted sustainability disclosure standards (IFRS, 2021a) and announced it at the 26th Conference of the Parties (COP 26) to the United Nations Framework Convention on Climate Change, held in Glasgow, Scotland, on November 3rd, 2021 (IFRS, 2021b). ISSB published the first two exposure drafts standards (ED IFRS S1 and ED IFRS S2), which contain comprehensive global sustainability disclosures for capital markets, on March 31st, 2022, 5 months after its establishment, and opened it to stakeholders' opinion until July 29th, 2022. ISSB reviewed the feedback on the exposure drafts and published its first standards (IFRS S1 General Requirements for Disclosure of Sustainability-related Financial Information and IFRS S2 Climate-related Disclosures) on June 26th, 2023. These standards are build upon the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD)[2] and incorporate industry-based disclosure requirements derived from the Sustainability Accounting Standards Board (SASB) Standards[3] (IFRS, 2022). These standards create for the first time a common language for disclosing the effect of climate-related risks and opportunities on a company's prospects (IFRS, 2023).

[1] Assist. Prof., Bursa Uludag University, Karacabey Vocational School, tubabora@uludag.edu.tr, orcid.org/:0000-0001-9258-3829

[2] TCFD provides a global framework for organizations to report how they manage climate-related risks and opportunities and how to integrate them into their financial reporting processes. TCFD recommendations include 11 recommended disclosures in four groups: governance, strategy, risk management, metrics and targets.

[3] SASB Standards identify the subset of sustainability issues most relevant to financial performance in each of 77 industries.

The objective of IFRS S1 and IFRS S2 is to require an entity to disclose information about its sustainability (climate) related risks and opportunities that is useful to primary users of general-purpose financial reports in making decisions relating to providing resources to the entity (IFRS S1 and IFRS S2, 2023:1). IFRS S1 and IFRS S2 require an entity to disclose information about sustainability (climate) related risks and opportunities that could reasonably be expected to affect the entity's cash flows, its access to finance or cost of capital over the short, medium or long term (IFRS S1, 2023:3 and IFRS S2, 2023:2).

In parallel with these developments, an additional paragraph was added to the 88th article of the Turkish Commercial Code numbered 6102 and published in the Official Gazette dated June 4th, 2022 and numbered 31856. Accordingly, the Public Oversight, Accounting and Auditing Standards Authority (KGK) has been authorized to determine and publish the Turkish Sustainability Reporting Standards, in compliance with international standards in sustainability reporting. Therefore, it is expected that IFRS S1 and IFRS S2 sustainability standards will be translated into Turkish and published by KGK in the near future and then put into practice in our country.

The studies on the exposure drafts standard of the recently published IFRS S2 Climate-related Disclosures can be summarized as follows:

Indyk (2022) examined 177 companies listed on the Warsaw Stock Exchange (WSE) to determine whether companies in Poland are ready for changes resulting from the new sustainability exposure drafts (ED IFRS S1 and ED IFRS S2). She stated that companies should complete environmental, social and governance (ESG) integration into a business strategy, processes and reporting to be ready for the changes resulting from ED IFRS S1 and ED IFRS S2. Accordingly, it found that only sixty (34%) of 177 companies ESG integration into a business strategy, while thirty-two (18%) disclose the strategic data, including defined goals, measures and progress (as well as ESG-related).

In the ACCA and Adam Smith Business School Research Report (2022), the current reporting practices of 100 companies with the highest average greenhouse gas emissions in the construction materials and chemical industries (50 from each industry) worldwide in the three-year period between the years 2018 and 2020, according to the ED IFRS S2 Climate-related Disclosures, were examined. There are also 3 companies from Turkey (Akçansa, Çimsa and Şişecam) within the scope of the research. According to the findings, it has been seen that the climate-related disclosures of the companies in both sectors are generally at a moderate level, which is due to the fact that the majority of the companies within the scope of the research have adopted the TCFD recommendations. In addition, it has been determined that there is a very low level of compliance with most of the items required by ED IFRS S2 and not covered by the TCFD recommendations.

Akdoğan et al. (2023) analyzed the non-financial reports of 12 companies operating in the iron and steel production, electric utilities power generators, airlines, software and IT services sub-sectors in the BIST sustainability index within the framework of the ED IFRS S2 and evaluated how the ED IFRS S2 would affect these reports. It has been determined that the companies within the scope of the research do not provide detail financial information on climate-related risks and opportunities within the framework of the governance, strategy, risk management, metrics and targets in ED IFRS S2, and also the industry-based disclosures related to accounting and activity metrics are mostly by airlines, whereas nearly none were disclosed by electric utilities power generators, software and IT services companies.

The aim of this study is to determine whether the cement companies operating in Borsa Istanbul (BIST) reporting in line with IFRS S2, which is not yet in practice, and to examine the industry-based disclosures of these companies. Thus, the current situation specific to the industry will be determined and suggestions will be made regarding the non-financial reports of the companies in the industry. The reason for choosing the cement sector in this study is that it is an energy-intensive industry and has negative effects on the climate and environment.

2. MATERIALS & METHODS

Document analysis technique was used as a research method in this study, which was carried out in order to determine whether the cement companies operating in BIST reporting in line with IFRS S2,

which is not yet in practice, and to examine the industry-based disclosures of these companies. Document analysis is a qualitative research method for rigorously and systematically analyzing the contents of written documents (Wach and Ward, 2013:1). In this study, the websites of 13 cement companies operating in BIST were examined and it was determined whether they prepared an integrated annual report or sustainability report. 2022 reports of these companies that prepare integrated reports or sustainability reports were analyzed by document analysis technique.

The cement sector is included in the construction materials sub-sector in the extractives & minerals processing main sector in the industry-based guidance of IFRS S2, while it is in the stone and soil-based sub-sector in the manufacturing main sector in BIST. The companies included in the research are as in Table 1.

Table 1. Companies Included in the Research

1	Afyon Çimento Sanayi T.A.Ş.	8	Çimsa Çimento Sanayi ve Ticaret A.Ş.
2	Akçansa Çimento Sanayi ve Ticaret A.Ş.	9	Göltaş Göller Bölgesi Çimento Sanayi ve Ticaret A.Ş.
3	Baştaş Başkent Çimento Sanayi ve Ticaret A.Ş.	10	Konya Çimento Sanayii A.Ş.
4	Batıçim Batı Anadolu Çimento Sanayii A.Ş.	11	Nuh Çimento Sanayi A.Ş.
5	Batısöke Söke Çimento Sanayii T.A.Ş.	12	Oyak Çimento Fabrikaları A.Ş.
6	Bursa Çimento Fabrikası A.Ş.	13	Yibitaş Yozgat İşçi Birliği İnşaat Malzemeleri Ticaret ve Sanayi A.Ş.
7	Çimentaş İzmir Çimento Fabrikası T.A.Ş.		

3. RESULTS & DISCUSSION

Table 2 shows whether the cement companies within the scope of the research prepare an integrated report or sustainability report and which standards are used by the companies that prepare these reports for non-financial reporting. Accordingly, it has been determined that five of the cement companies operating in the BIST (Akçansa Çimento, Çimsa Çimento, Nuh Çimento, Oyak Çimento and Yibitaş) have prepared an integrated report, one company (Çimentaş Çimento) has prepared a sustainability report and the other seven companies have not prepared an integrated report or sustainability report.[4] Akçansa Çimento, Çimsa Çimento and Yibitaş, which are cement companies that prepare an integrated report or sustainability report, have declared that they prepare their non-financial reports according to Global Reporting Initiative (GRI) standard, SASB and TCFD recommendations, Nuh Çimento has prepared according to GRI and SASB, Çimentaş Çimento prepared according to GRI and TCFD recommendations, and Oyak Çimento has prepared only according to GRI.

[4] The sustainability report of Cementir Group, which includes Çimentaş Çimento, and the integrated report of Votorantim Cimentos, which includes Yibitaş, were taken into consideration.

Table 2. Non-Financial Reports and Reporting Standards of the Companies Included in the Research

Company Name	Integrated Report / Sustainability Report		Non-Financial Reporting Standard		
	Yes	No	GRI	TCFD	SASB
Afyon Çimento Sanayi T.A.Ş.		✓			
Akçansa Çimento Sanayi ve Ticaret A.Ş.	✓		✓	✓	✓
Baştaş Başkent Çimento Sanayi ve Ticaret A.Ş.		✓			
Batıçim Batı Anadolu Çimento Sanayii A.Ş.		✓			
Batısöke Söke Çimento Sanayii T.A.Ş.		✓			
Bursa Çimento Fabrikası A.Ş.		✓			
Çimentaş İzmir Çimento Fabrikası T.A.Ş. (Cementir Group)	✓ (Group)		✓	✓	
Çimsa Çimento Sanayi ve Ticaret A.Ş.	✓		✓	✓	✓
Göltaş Göller Bölgesi Çimento Sanayi ve Ticaret A.Ş.		✓			
Konya Çimento Sanayii A.Ş.		✓			
Nuh Çimento Sanayi A.Ş.	✓		✓		✓
Oyak Çimento Fabrikaları A.Ş.	✓		✓		
Yibitaş Yozgat İşçi Birliği İnşaat Malzemeleri Ticaret ve Sanayi A.Ş. (Votorantim Cimentos)	✓ (Group)		✓	✓	✓

The reports of cement companies that prepare an integrated report or sustainability report have been examined within the scope of the IFRS S2, which includes industry-based disclosures derived from SASB Standards and which is based on TCFD recommendations including 11 recommended disclosures in four groups (governance, strategy, risk management and metrics and targets). Accordingly, within the scope of governance, it has been stated that the reports are explained under the headings of sustainability management and risk management, that there are corporate governance committees affiliated to the board of directors of companies in general, and that there are sustainability committees and focus sub-working groups attached to it, and their roles in managing sustainability-related issues are explained. However, the governance structure for climate-related risks and opportunities and the role of management in assessing them are not clearly explained. Within the scope of the strategy in general, it has been seen that companies that take into account the TCFD recommendations divide their short, medium and long-term climate-related risks into two as transition risks and physical risks, explain them and identify their opportunities. It has been determined that the effects of climate-related risks and opportunities on the organization's business, strategic and especially financial planning are not clearly explained, and only Çimentaş Çimento (Cementir group) clearly demonstrates the flexibility of the organization's strategy, taking into account different scenarios including the 2°C or lower scenario. Within the scope of risk management in general, it has been stated more clearly how companies that take into account TCFD recommendations define, manage and integrate their climate-related risks into the risk management process. Within the scope of metrics and targets in general, it has been determined that companies disclose their Scope 1 and Scope 2 emissions, which metrics they take into account in reducing their environmental footprints, and that they explain in the context of 2030 Sustainability goals.

In the industry-based guidance of IFRS S2, it has been seen that cement companies in the extractives & minerals processing main sector within the construction materials sub-sector disclose quantitative data on greenhouse gas emissions, air quality, energy management, water management and waste management within the scope of sustainability disclosure metrics, but companies other than Çimsa Cement and Yibitaş (Votorantim Cimentos) do not make any disclosure regarding product innovation.

4. CONCLUSION

The IFRS S1 and IFRS S2, published by the ISSB on June 26th, 2023, are non-financial reporting standards that require industry-based disclosure and covering disclosures on how businesses manage their sustainability (climate) related risks and opportunities and how they integrate them into their financial reporting processes. With these standards, the related of non-financial disclosures with financial information will be revealed and the non-financial reports of companies in different countries will be compared with each other.

In order to ensure the international validity of non-financial reports in our country, KGK has been authorized to determine and publish Turkish Sustainability Reporting Standards in compliance with international standards. Non-financial reporting in our country is on a voluntary basis, and if the IFRS S1 and IFRS S2 standards are translated into Turkish and published by the KGK, it will become mandatory for certain companies in our country. For this reason, KGK is expected to publish these standards in the near future so that non-financial reports of companies operating in our country can be compared with non-financial reports of companies in different countries.

In this study, it has been determined whether cement companies operating in BIST reporting in line with IFRS S2, which is not yet in practice and examined the industry-based disclosures of these companies using the document analysis technique. It was determined that six cement companies (46.2%) prepared an integrated report or sustainability report. It has been seen that companies prepare these reports according to the TCFD recommendations and/or SASB standard, as well as the GRI standard. For this reason, it has been determined that the disclosures of the six cement companies that explain their non-financial reports on governance, strategy, risk management, metrics and targets in the context of IFRS S2 are at a moderate level, while the industry-based disclosures are at a very good level, excluding product innovation.

In order to be able to reporting in accordance with the IFRS S2, which will be in practice in the future, it is important for companies that do not prepare their non-financial reports to start working now and prepare their reports by revealing the negative effects they have on the environment, the actions they have taken to eliminate these effects, and their related to financial disclosures.

This study is limited to cement companies operating in BIST. In future studies, the disclosures made in the context of industry-based guidance of IFRS S2 for each company in the BIST sustainability index can be examined and the current situation can be determined for companies in our country.

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Türkiye İhracatçılar Meclisi ile İhracatçı Birliklerinin Kuruluş ve Görevleri Hakkında Kanun ile Bazı Kanunlarda Değişiklik Yapılmasına Dair Kanun (2022, 4 Haziran). Resmi Gazete (Sayı:31856).

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INDUSTRY SPECIFIC SUSTAINABILITY REPORTING ISSUES

Alperen ÇIKIKCI [1]
Seçil SİGALI [2]
Çağnur BALSARI[3]

ABSTRACT

Materiality concept requires that all items that are reasonably likely to impact investors' decision-making to be reported. According to Global Reporting Initiative 3 standard, the material topics in sustainability reporting are determined and listed by the company, which requires judgement. However, what companies prioritize as a sustainability issue is closely related to their industry as well as company characteristics. Therefore, this study aims to analyze the industry-wide and firm specific disclosures that maritime companies prioritize in their sustainability reports. Thus, the findings can contribute to the determination of the industry-specific issues for a specific sector. According to the content analysis, the maritime companies generally focused on environmental impacts, whereas the social impacts, particularly regarding safety regulations and standards, were less reported.

Keywords: Sustainability Reporting, Materiality, Maritime Companies, Environmental Impact

1. INTRODUCTION

Global trade is considered as a driving force for promoting sustainability due to high carbon emissions as about 20-30 percent of total carbon dioxide (CO2) emissions are associated with international trade (WTO 2021, Peters et al., 2011; Meng et al., 2018; Zhang et al., 2020). Shipping is fundamental to global trade, moving nearly 80% of all goods by maritime routes. Container ships' capacity surged from about 11 million to around 293 million metric tons between 1980 and 2022 (Placek, 2023). Although shipping has traditionally been known as the least environmentally damaging mode of transport, recent research questions this perception, focusing on both the greenhouse gas emissions and the emission of health-damaging pollutants by ships (Nusa and Kodak, 2022). Materiality is a major issue in sustainability reporting. Companies should identify, prioritize, and disclose information on sustainability issues that are considered material (Jorgensen et. All, 2022). According to Global Reporting Initiative (GRI) 3 standards, companies disclose their material topics based on the magnitude of potential positive and negative impacts of their activities (GRI, 2022). In this context, this study aims to determine whether there is a consensus on the topics that maritime container shipping companies prioritize in sustainability reporting and if such consensus exists, what these topics and other firm specific topics are. Thus, the findings of this study are expected to contribute the research regarding industry specific sustainability issues.

2. MATERIALS & METHODS

Data is hand collected from the largest 100 global maritime companies. The selection was based on the most recent rankings provided by Alphaliner on July 14, 2023 (Alphaliner, 2023). The reason for selecting these companies was primarily due to the reliance on Alphaliner's data in the rankings of container shipping within the Review of Maritime Transport report published by the United Nations Conference on Trade and Development (UNCTAD, 2022). Alphaliner has been chosen because only its rankings in the sizing of companies operating in the maritime container transportation sector are utilized by the United Nations Conference on Trade and Development. The periods between 2018 and 2022 were examined for the selected companies. Out of the top 100 companies, only 27 had published sustainability reports. A total of 91 reports from these 27 companies are analyzed. The areas of focus in the reports were identified as emissions and environmental impacts, human resources and employee

[1] Lecturer, Kastamonu University İnebolu Vocational School of Higher Education, Phd Candidate Dokuz Eylül University Graduate School of Social Sciences, acikikci@kastamonu.edu.tr, orchid.org/0000-0001-5429-5295.
[2] Prof. Dr., Dokuz Eylül University Maritime Faculty, secil.sigali@deu.edu.tr, orchid.org/0000-0002-5743-6169.
[3] Prof. Dr., Dokuz Eylül University Faculty of Business, cagnur.kaytmaz@deu.edu.tr, orchid.org/0000-0002-6320-0080.

rights, social contributions, safety and maritime standards, and other topics. The number of pages dedicated to each area in each report and the ratio of those pages to the total number of pages were determined. Subsequently, the arithmetic average of these ratios across all reports was calculated. In this way, this study identifies the areas to which maritime companies give greater emphasis in their sustainability reports.

3. RESULTS & DISCUSSION

The analysis showed that the shipping companies focused on environmental impacts, whereas the social impacts, particularly regarding safety regulations and standards, were less reported. Additionally, the prominence of each topic in sustainability reporting was identified. Approximately 21% of the sustainability reports included explanations and performance indicators related to emissions and environmental impacts as greenhouse gas emissions, air quality, and marine ecology. Therefore, they primarily focus on emission reduction, fuel efficiency, waste management, and water quality in their sustainability reports. Secondly, human resources and employee rights accounted for 15% of the reports, emphasizing the company's policies regarding employee rights, job satisfaction, talent management, and training. Thirdly, with a percentage of 10%, maritime companies provide explanations in their sustainability reports about the social contributions they make. As maritime companies operate in a multinational environment, they interact with diverse communities. Hence, their sustainability reports highlight various social responsibility projects and collaborations with stakeholders as examples of their social contributions. Fourthly, safety and maritime standards are one of the most prominent topics in sustainability reporting for maritime companies. According to the analyzed sustainability reports, an average of 8% of the reports is dedicated to safety and maritime standards. Maritime companies are obligated to comply with numerous national and international regulations regarding safety in maritime operations on land and at sea. Their reports often include information about their occupational health and safety policies, training on maritime standards, and their commitment to adhering to these standards.

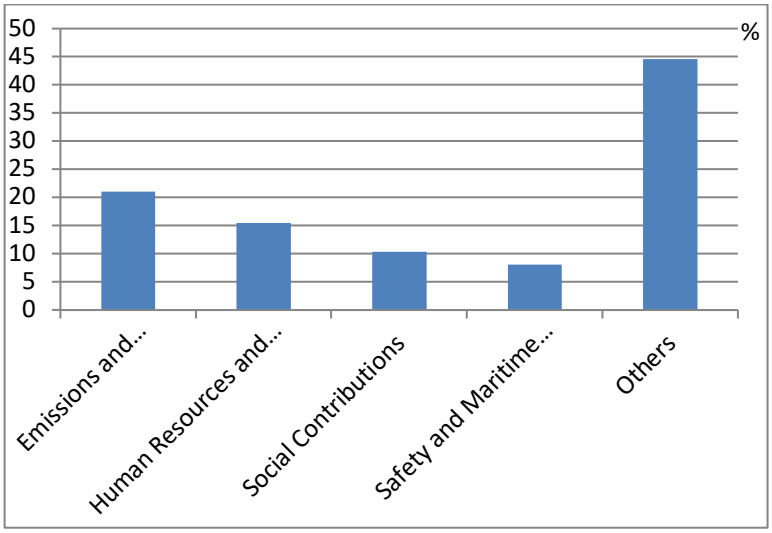


Figure1. The average percentage distribution of topics covered in sustainability reports.

As depicted in Figure 1 above, the areas of consensus among container maritime shipping companies concerning the significance they attribute in their sustainability reports are, in sequential order: emission and environmental impacts, human resources and employee rights, social contributions, as well as safety and maritime standards. The subjects that lack consensus regarding their significance are presented within the "others" category. For instance, while one company might provide extensive explanations regarding topics such as Organizational Structure and Sustainability, other companies may offer solely a brief paragraph or two.

4. CONCLUSION

The findings reveal that there is a consensus of more than fifty percent among container maritime shipping companies regarding material disclosures in their sustainability reports. The top three areas given the most prominence in sustainability reporting for container shipping companies are emissions and environmental impacts, human resources and employee rights, and social contributions. Furthermore, topics that are included in sustainability reports but lack a consensus on the importance attributed by companies account for a proportion of forty-four percent. Future research may examine the firm specific differences in sustainability reporting of shipping companies in more detail since these disclosures show prominence. Limitations include the need for expanded data coverage and time periods, as well as the subdivision of topics for a better understanding of materiality in sustainability reporting.

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CORPORATE CONSCIENCE IN PREVENTING RISKS CREATED: INTERNAL AUDIT

Deniz Umut DOĞAN[1]
Ali HALICI[2]
Burçak KIZILTAN[3]

ABSTRACT

In today's environment of increasing uncertainty, as a result of social, political, technological and economic developments, the main goal for all enterprises has been to ensure their continuity. The way enterprises extend their lifespan lies in providing social benefits. Parallel to this, when we consider how the society wants to be in contact with enterprises, the concept of "good enterprises" emerges. The UN Global Compact is an initiative that encourages enterprises to operate as “responsible” and to support society. Accordingly, the UN Global Compact strives to ensure that enterprises add value not only to their financial resources, but also to human, societies and the planet. Good decisions are the basis of being a good enterprise, and the basis of good decisions is that have corporate social responsibility and adhere to ethical values. The control of enterprises’ commitment to ethical values is through internal audit. In this study, the effect of internal audit on climate change in corporate social responsibility strategies of enterprises is investigated by using secondary data analysis, comparative historical method and observation method.

Keywords: Internal Audit, Corporate Social Responsibility, Ethics, Climate Change

1. INTRODUCTION

The effective management of all these responsibilities brings us the concept of corporate social responsibility. Internal audit can play an important role in corporate social responsibility (CSR) strategies. It is essential that the internal audit provide assurance about the CSR strategies. At the same time, internal audit can be a driver, a leader that will stimulate the creation and development of a CSR strategy. In fulfilling this role, an internal audit applies a holistic approach. The aim of the study is to outline the role of internal audit in CSR strategies, how it is effect ethical status and to establish the factors that determine it. The methods used are secondary data analysis, comparative historical method and observation method (Dineva, 2019).

2. MATERIALS & METHODS

The business world has also taken its share from these developments and issues such as “sustainability, responsibility-oriented business models in enterprises, monitoring value changes in enterprises” have gained importance. Although enterprises need to make a profit in order to survive, the perspective should be changed from providing high profits in short term to provide sustainable profits in long term. In addition, enterprises need to consider their environmental responsibilities as well as their responsibilities to all their stakeholders while realizing their economic goals. Declaration of the United Nations Conference on the Human Environment (Stockholm Declaration- UNEP 1972) the importance of enterprises’s responsibilities to the ecological environment was emphasized and it was stated that “protecting and improving the environment for present and future generations is everyone’s common responsibility”. The effective management of all these responsibilities brings us the concept of corporate social responsibility (as cited Alton, 2012).

Corporate social conscience can be defined as the “ethical” and “responsible” behavior of any organization towards internal and external stakeholders by taking and implementing decisions in this direction. When corporate social responsibility is mentioned, it is generally understood that an enterprise

[1] Prof. Dr., Başkent University, duerhan@baskent.edu.tr, orchid.org/0000-0001-5909-0045
[2] Prof. Dr., İstanbul Topkapı University, alihalici@topkapi.edu.tr, orchid.org/0009-0002-1388-6747
[3] Asst. Prof., Başkent University, bkiziltan@baskent.edu.tr, orchid.org/0000-0003-1277-679X

should take measures to protect nature and the environment in order to achieve its main goal of sustainable growth (Tüyen, 2020). It is necessary to focus on the necessity of considering the corporate social responsibilities of the enterprises holistically, not only the evaluation of the risks that may be encountered by the enterprises, but also the evaluation of the risks that the enterprises may create as a result of their activities. In this sense, while considering the concept of stakeholder, enterprises should take into account every segment that can ask them why today and in the future. It is important to provide an ethical perspective and maintain its continuity while meeting the expectations of stakeholders and taking into account the responsibilities of enterprises towards all stakeholders (Doğan, 2019).

INTERNAL AUDIT	
Traditional Approach	**Corporate Responsibility Approach**
Investigator	Management Support
Financial Information Focused	Focused on Business Processes
Focused on Tangible Assets	Focused on Business Reputation
Compatibility Based	Risk Based
Reactive	Foresight and Precaution

In this research, secondary data analysis was used due to the easy accessibility of the data, comparative historical method to fully explain the changes and the shape of the concepts that emerged with globalization and observation methods to understand the precautions and rules applied by the enterprises. In the lights of these methods, a 12-step model was developed.

3. RESULTS & DISCUSSION

The main objective of the internal audit function is to maintain and increase the trust established between the enterprise and the society. From this point of view, we can define internal audit as an independent and objective managerial support activity that adds value to the development of the enterprise's activities. Internal audit functions integrated with corporate responsibility have a holistic view of the enterprise and its environment in the approach that oversees ethical approaches and sustainability requirements in accounting (Akdoğan & Doğan, 2022).

In this study, it is aimed to propose a 12 step internal audit model, which is synthesized with the concept of corporate social responsibility and ethics (Ulrich, 2008).

1. Establishment of Corporate Responsibility-Oriented Internal Audit Function
2. Ensuring Professional Competencies of Internal Auditors
3. Current Situation Analysis
4. Establishing Internal Audit Vision and Mission Definitions
5. Defining the Strategy
6. Developing an Understanding of Corporate Responsibility through In-Business Training
7. The Human Basis Inherent in the Internal Audit Function
8. Scope and Boundary of Internal Audit in the Dimension of Corporate Responsibility
9. Evaluation of Stakeholder Requests
10. Goal Content, Materiality and Key Performance Indicators
11. Creating a Database and Establishing Information Systems
12. Supporting Corporate Responsibility Through Communication

4. CONCLUSION

Within the scope of this study, the concepts of corporate responsibility, internal audit and ethics were emphasized, and the ethical framework of the issue of climate change was tried to be shown. The 21st century presents much promise and unprecedented growth opportunities for the internal auditing and

corporate social responsibiity synthesis (Ramamoorti, 2003). So that this 12 step internal audit model, developments in practice must be carefully studied by interested academics and professionals so that a body of knowledge is systematically built up and transmitted to future generations of internal auditing professionals. This article constitutes an excellent source to start the journey that will yield important insights into internal auditing research, internal audit with ethical practice and education.

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SCIENCE-BASED TARGETS IN ENVIRONMENTAL REPORTING: EXPLANATIONS FROM E7 COUNTRIES AND TURKEY

Destan Halit AKBULUT[1]
Hilal Merve ALAGÖZ[2]

ABSTRACT

Science-based Target is an initiative that aims to reduce greenhouse gas (GHG) emissions from companies by identifying the risks that cause climate change and mitigating their impacts. The most important goal in this regard is to keep global warming below 2 degrees Celsius at pre-industrial levels and strive to limit it to 1.5 degrees Celsius. The data of the Science-Based Targets Initiative (SBTi), which pioneers companies to reduce their carbon emissions in line with the Paris Agreement targets, reflects the statements of more than 4,000 companies worldwide.

This study presents descriptive statistics of the number of companies in the SBTi index in E7 countries, analyzing the regional distribution of seven developing countries and their near-term target status. It examines the organizational structure of 553 companies in the sample, including net-zero and BA 1.5 participation. The data pertaining to Turkey is separately stated and explained. SBTi evaluates CDP reporting data within its scope, aiming to identify the best example companies. Companies in Turkey are also included in the analysis, and BIST companies are examined in terms of CDP scoring and non-financial reports to analyze disclosure levels on a sectoral basis.

Keywords: Climate Change, Sustainability Reporting, Science-based Target

1. INTRODUCTION

Today, climate change is the main agenda of many organizations such as the World Economic Forum, the Global Reporting Initiative, the Climate Disclosure Standards Board, the Carbon Disclosure Project (CDP), and the UN Greenhouse Gas Protocol. In 2021, an international environmental agreement was reached at the United Nations Climate Change Conference (COP26) to limit the global temperature increase to 1.5 degrees Celsius over the next century. Our study has provided an analysis of the applicability and status of the SBTi, which started to be formed in 2015, within the context of various sustainability reporting databases such as CDP (climate change, and water security), FTSE Russell, Corporate Governance Rating, Refinitiv, Sustainalytics, etc., in empirical academic studies.

SBTi empowers global businesses to set emission reduction goals based on current climate science. Born from collaboration among CDP, UN Global Compact, World Resources Institute (WRI), the World Wide Fund for Nature (WWF), it's a pivotal pledge in the We Mean Business Coalition, showcasing their joint dedication. SBTi's mission is to instill assurance among global companies. They aim to drive the economy toward a 50% emission reduction by 2030 and achieve net-zero status by 2050 (SBTi Annual Progress Report, 2021). The number of companies that have joined SBTi and operate on the Borsa Istanbul in Turkey is 19, therefore, these companies have been examined specifically for Turkey. This review is conducted under the climate, forest, and water security topics categorized in CDP's A List 2022.

When the literature on the subject was examined, it was found that there are few sources written on SBTi. To mention the main studies in the literature, Moshrefi et al. (2022) examined SBTi and life cycle assessment methodology at Apple Inc.; Grabs & Garrett (2023) conducted a case study on deforestation reset commitments and environmental, social, and economic sustainability goals in the palm oil sector; Maia & Garcia (2023) explained greenhouse gas reduction and carbon reduction, SBTi compliance, and

[1] PhD, Galatasaray University, Faculty of Economics and Administrative Sciences, Department of Management, dhakbulut@gsu.edu.tr, orcid.org/0000-0002-0705-9553.
[2] Researcher, Galatasaray University, Corporate Governance, Audit and Compliance Studies Application and Research Center, malagoz@gsu.edu.tr, orcid.org/0000-0002-2623-1638.

sustainable development goals in the electricity sector. Immink et al. (2021) analyzed the budgets required to achieve SBTi and carbon emission reduction targets on the basis of developed and developing countries; Tuhkanen & Vulturius (2022) examined the relationship between green bonds and climate targets; Vulturius et al. (2022) investigated the importance of sustainability-linked bonds in net zero carbon emissions; and Popescu et al. (2021) reviewed and evaluated methods for measuring sustainability investment funds. Kuo & Chang (2021) examined the effects of science-based targets and internal carbon pricing. In the light of all these reviews, it is seen that the academic literature on SBTi has a long way to go in this regard.

In the context of this study, SBTi 1.5 database data are examined with descriptive statistics in the context of E7 countries, including Turkey, as key actors in shaping the global economic order. These countries are significant due to their economic size, market potential, strategic location, demographic structure, natural resource wealth, and political influence. Within the scope of the study, the 2022 List of the CDP A List declaration of 19 Turkish companies that are part of SBTi and traded on the BIST index are looked at, taking into account how they are spread across different industries. These statements are grouped as climate, forest, and water security. Subsequently, the integrated reports, sustainability reports, investor presentations, etc. of these companies are analyzed. As a result of this examination, the commitments of all relevant companies within the scope of SBTi and their road maps are reviewed. Finally, their inclusion in the BIST sustainability index, which was established in the context of the importance given to sustainability, is also examined.

2. MATERIALS AND METHODS

With the Paris Agreement, the actions of companies have gained momentum. The "science-based targets initiative", which was created in this context and that is shared publicly, has attracted attention. Within the scope of this initiative, corporate carbon reduction targets are publicly announced. While this publicly published initiative is considered remarkable by sustainability professionals, studies in the academic literature are still in their infancy (Giesekam et al., 2021). When classifying companies, categories such as Targets, Commitments, Near-Term Targets, and Long-Term Targets have been established. The concept of Targets refers to science-based pathways for companies and financial institutions to reduce their GHG emissions, and these processes are reviewed and validated by the SBTi.

In this study, descriptive statistics of the number of companies included in the SBTi index in E7 countries are presented and interpreted. Within the scope of descriptive statistics, the regional distribution of seven developing countries is analyzed in terms of near-term target status. At the same time, the distribution of the 553 companies in the sample in terms of their organizational structure in the SBTi index is examined. In addition, net-zero and BA 1.5 participation of these companies are given. In all these descriptive statistics, the data pertaining to Turkey is separately stated, and the relevant companies are explained. Because SBTi also evaluates CDP reporting data within its scope, it is aimed at analyzing CDP A List companies to determine the best example companies. Therefore, companies in Turkey are also included in the scope of the analysis in terms of their inclusion in these indices. In addition, BIST companies included in the SBTi index are also analyzed in terms of CDP scoring.

3. RESULTS

In this study, SBTi 1.5 database data were evaluated with descriptive statistics in the context of E7 countries (China, India, Brazil, Russia, Indonesia, Mexico, and Turkey). The SBTi classifications of companies and their corporate carbon reduction targets can be seen in Table 1.

Table 1. Numerical Distribution of Regions and Countries According to Near-Term Status*

	Near-Term Target Status			
Region	**Committed**	**Removed**	**Targets Set**	**Total**
Asia	267	13	175	455
- India	93	1	81	175
- Turkey	40	1	16	57
- China	114	10	76	200
- Indonesia	23	1	2	26
Latin America	60	0	30	90
- Brazil	37	0	21	58
- Mexico	23	0	9	32
Europe	8	0	0	8
- Russia	8	0	0	8
Total	335	13	205	553

***** Countries are classified based on the SBTi website.

In this table, 82% of the companies in the Asian Region and only eight companies in the European Region participated in the science-based targets Near-term targets refer to the targets of companies to reduce carbon emissions in the next 5–10 years, while commitments refer to the companies' desire to achieve these targets and submit them for approval within 24 months (Science-based Targets, Access Date: 10.07.2023). China demonstrates the highest commitment, while Russia, Indonesia, and Mexico Show relatively lower commitments. When we look at Turkey, we observe that 40 companies are committed as near-term target status, while 16 companies are within the scope of targets set.

There are concerns about the applicability of the science-based target methodology in terms of its relevance and necessity. Climate change is understood to be a systemic and societal issue from literature analysis on the topic and carbon accounting. A positive link exists between a corporation's carbon emissions and its financial performance. Managers of companies with high carbon emissions are advised to embrace both SBTi and internal carbon pricing to address climate change. However, for firms with lower carbon emissions, implementing both these strategies can be costly, and it might be more advantageous to focus on SBTi. A study of Turkish companies' voluntary participation in the CDP survey over almost a decade showed an increasing trend, yet the participation hasn't reached the desired levels (Giesekam et al., 2021; Gibassier et al., 2020; Bendig et al., 2022; Kuo and Chang, 2021; Sultanoğlu & Özerhan, 2020).

Table 1 also displays the distribution of companies in the SBTi among E-7 countries. In this context, most companies in this initiative are from China and India, with 31% and 36% respectively, while Russia has the least number of companies with only 0.90%. Turkey and Brazil have a similar share, each accounting for around 10%.

In Table 2, companies in the SBTi are grouped into three different categories in terms of organization type: companies, financial institutions, and small and medium-sized enterprises. In this context, our sample consists of 401 companies. However, it should be noted that some of these 401 companies are not listed on the stock exchange.

Table 2. Distribution of Companies by Organization Type

	Overall		Turkey	
Organization Type	**Freq.**	**Percent**	**Freq.**	**Percent**
Company	401	72,51%	40	70,17%
Financial Institution	17	3,07%	8	14,04%
Small or Medium Enterprise	135	24,41%	9	15,79%
Total	553	100	57	100

The Business Ambition 1.5 can be defined as an emergency call made in collaboration with UN agencies, businesses, and industry leaders. In this context, more than 1000 companies participated in

this call (Science-Based Targets, n.d.). In Table 3, the net-zero commitments of companies are compared with BA 1.5 (Business Ambition For 1.5°C). Accordingly, 178 companies in the E7 countries are in both, while 306 companies are not included in either.

Table 3. Numerical Distribution of Companies According to Net-Zero and BA1.5

	Overall			**Turkey**		
	BA1.5			**BA1.5**		
Net-Zero Committed	Yes	No	Total	Yes	No	Total
Yes	178	40	218	18	2	20
No	29	306	335	4	33	37
Total	207	346	553	22	35	57

CDP A score refers to the score companies receive for their disclosures on their environmental performance according to the categories of 1.5 degrees, deforestation-free, and water security. Leadership A score indicates that companies are taking disclosure action on these issues. Examples of conceptual frameworks adopted by companies include TCFD, the Accountability Framework, etc. (CDP, n.d.).

Although SBTi is an initiative that regulates carbon emission reduction targets for climate change, it was established in cooperation with organizations such as CDP and the UN Global Compact. Therefore, these organizations are also used as the basis for their data. In this context, the CDP A list is also included in the scope of the study to identify the best examples, and companies in Turkey are also evaluated in this respect.

Among the companies included in CDP's The A Company List 2022, 299 reported on climate, 25 on forest, and 107 on water security (CDP, n.d.). Table 4 shows that 19 companies listed in BIST and included in the SBTi are included in the A 2022 List of CDP reporting. According to the sectoral distribution of these companies, 14 are in manufacturing, 2 are in electricity, gas, and water, 2 are in retail, and 1 is in the information and communication sectors.

Table 4. CDP reporting content of companies listed in the SBTi in Turkey

	Sectoral Distribution of Companies	**Climate**	**Forest**	**Water Security**	**BIST Sustainability Index**
Manufacturing- Metal Goods Machinery Electrical Equipment and Transportation Vehicles	**8**				
Anadolu Isuzu Otomotiv San. Ve Tic. A.Ş.					
Arçelik A.Ş.				**A**	√
Ford Otomotiv Sanayi A.Ş.		**A**		**A**	√
Klimasan A.Ş.					
Tofaş A.Ş.					√
Türk Traktör ve Ziraat Makineleri A.Ş.					√
Vestel Beyaz Eşya Sanayi ve Ticaret A.Ş.					√
Vestel Elektronik Sanayi ve Ticaret A.Ş.					√
Manufacturing- Stone and Soil-Based	**3**				
Akçansa Çimento Sanayi ve Ticaret A.Ş.					√
Çimsa Çimento Sanayi ve Ticaret A.Ş.					√
OYAK Çimento Fabrikaları A.Ş.					
Electricity, Gas, Water- Electricity, Gas, Steam	**2**				

Aydem Yenilenebilir Enerji A.Ş.		**A**		**A**	√
Zorlu Enerji					√
Manufacturing- Chemicals, Pharmaceuticals, Oil, Rubber, and Plastics	**2**				
Brisa Bridgestone Sabancı Lastik Sanayi ve Ticaret A.Ş.		**A**			√
Sasa Polyester Sanayi A.S.					
Retail Trade- Wholesale, Retail, and Trade	**2**				
Mavi Giyim Sanayi ve Ticaret A.Ş.		**A**			√
Migros Ticaret A.Ş.					√
Manufacturing- Textile, Apparel, and Leather	**1**				
Kordsa Teknik Tekstil A.Ş.				**A**	√
Information and Communication- Telecommunications	**1**				
Turkcell Iletisim Hizmetleri A.Ş.					√

According to CDP's the A Company List 2022, companies are required to report on climate, forest, and water security. It has been found that companies report on climate and water security, but not on forestry in Turkey. In this context, it has been observed that four companies report on climate and four companies report on water security. The companies making disclosures on climate are Ford Otomotiv Sanayi A.Ş., Aydem Yenilenebilir Enerji A.Ş., Brisa Bridgestone Sabancı Lastik Sanayi ve Ticaret A.Ş. and Mavi Giyim Sanayi ve Ticaret A.Ş.; while the companies making disclosures on water security are Arçelik A.Ş., Ford Otomotiv Sanayi A.Ş., Aydem Yenilenebilir Enerji A.Ş. and Kordsa Teknik Tekstil A.Ş.

Within the scope of the study, BIST companies that are parties to SBTi are evaluated sectorally. In this context, companies in the Stone and Soil-Based sector, which have carbon emission risks, have committed to zero carbon targets, although there is no CDP disclosure in their reports. Low-emission transportation alternatives and carbonized raw material studies, energy management and green energy use, investment in new generation fuel and carbon technologies, and similar strategies have been determined (Çimsa, n.d.; Oyak Çimento, 2022).

In the reports of companies in the electricity, gas, and water sector, commitments were made in the categories of climate action, biodiversity, and green and reliable energy supply depending on the year. In this context, it is to be net zero in operation and energy production by 2030 and to increase the share of renewable energy in total production to 100% (Zorlu Enerji Integrated Annual Report, 2022). On the other hand, in the Aydem Renewable Energy Sustainability Report, explanations regarding the high scores it received within the scope of CDP climate change and water security were identified (Aydem Sustainability Report, 2021).

Turkcell İletişim Hizmetleri A.Ş., the only company in the information and communication sector within the scope of the review, is not included in the CDP A list, but according to the research results announced in 2022, its CDP Score was evaluated as A- (Turkcell, 2022). Furthermore, the sample was assessed with regard to the BIST sustainability index, as presented in Table 4. It was observed that only four organizations within the sample were not included in this index.

4. CONCLUSION

This study uses the Science-Based Targets Initiative database of companies and financial institutions that have set science-based goals or are committed to developing science-based goals for reducing GHG emissions. The initiative was initiated in 2015, and it is worth mentioning that there has been a notable increase in the data over the past three years. When the results of the research are examined, it is noteworthy that the SBTi data, which started to be disclosed after 2015, is important both in terms of the cooperation of organizations such as CDP, UN Global Compact, World Resources Institute (WRI), and World Wide Fund for Nature (WWF) and in terms of promoting the 1.5 degree limit, which is important in climate change, for companies and reporting their targets. In Turkey, it is also important that companies from different sectors take part in this scope and refer to SBTi in their reports. In this way, users can see sustainability and climate change issues, which have become important today, in the

reports of companies. Since only CDP disclosures are insufficient for monitoring the 1.5 targets of companies, SBTi disclosures have become very important in environmental reporting.

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MEASUREMENT OF CORPORATE SUSTAINABILITY PERFORMANCE OF BIST SUSTAINABILITY 25 INDEX COMPANIES BASED ON ENTROPY WEIGHT AND TOPSIS

M. Çiğdem AKBAŞ[1]
Arif Engin ERGÜDEN [2]
Can Tansel KAYA[3]

ABSTRACT
Corporate contributions to sustainability are considered essential by stakeholders and have an impact on companies' financial performance. With the increasing disclosure of corporate sustainability information, stakeholder interest in the issue is ever growing. The objective of this study is to measure the corporate sustainability performance of the BIST Sustainability 25 Index company's from an economic, environmental, social, and governance perspective. As the three dimensions of sustainability are not sufficient in today's world, the study also includes the measurement of governance performance. The sustainability performance of the index companies between 2019 and 2022 was measured using content analysis, entropy and TOPSIS methods based on the performance criteria identified in four dimensions and the companies' corporate sustainability reports.

Keywords: Corporate Sustainability, TOPSIS, Performance, Entropy

1. INTRODUCTION
One of the fundamental questions that the scientific field of economics directs is how to distribute scarce resources among people with unlimited needs. This question has become more vital today as resources are now scarcer and human needs are still unlimited. Therefore, the concept of sustainability has earned a significant place in the agendas of many organizations. Faced with the fact that resources are not unlimited, the world has to develop new policies and take measures for a sustainable life as a whole.

Sustainability is based on the motive of protecting the future. Environmental resources, considered to be the cheapest free good, are in fact the most expensive factor of production, considering that they cannot be substituted by human hands. If for-profit organizations do not account for environmental resources, this can lead to inefficient consumption of these resources in terms of sustainability.

Sustainability reporting - the disclosure of information on a company's economic, environmental, social, and corporate governance performance - was first introduced in 1972 with the publication of the Club of Rome's report "The Limits to Growth". The second major step was taken in 1987 with the publication of "Our Common Future - Brundtland Report" by the United Nations World Commission on Environment and Development. After the Global Reporting Initiative (GRI) published its first guide in 1997, many non-governmental organizations started to work in this field. Companies view corporate sustainability as a way to not only differentiate themselves from competitors in order to gain competitive advantage but to reduce costs of undertaking and risks which are associated with operations (Schaltegger and Burritt, 2005)

The BIST Sustainability 25 Index, as the focus of the study, is an index that includes the shares of companies that are traded on Borsa Istanbul and have a high level of corporate sustainability performance, with the aim of increasing the awareness and practice of sustainability in our country and especially among Borsa Istanbul companies. The companies in the index are large and liquid companies (Borsa Istanbul, 2023).

Sustainability is on the agenda. However, the fact that it is difficult to measure it; due to data limitations, results in a limited number of studies in the literature. Alternative methods have been proposed to

[1] Dr. Lecturer, Antalya Bilim University, cigdem.akbas@antalya.edu.tr, orchid.org/0000-0002-1425-9828.
[2] Assoc. Prof., Rumeli University, engin.erguden@erlerdenetim.com, orchid.org/0000-0026-2011-2012.
[3] Prof. Dr., Yeditepe University, can.kaya@yeditepe.edu.tr, orchid.org/0000-0002-2177-4932.

measure corporate sustainability. A classification by Nikolau et al. (2019) is grouped under three main headings: a) methods using financial and non-financial indicators, b) methods focusing on sustainability parameters, and c) different measurement frameworks.

Aktaş and Demirel (2021) measured the sustainability performance of a company operating in the furniture industry in Turkey using VIKOR, TOPSIS and MAUT methods. According to VIKOR and MAUT methods, they concluded that economic and environmental dimensions are the most important dimensions and found that the company showed the lowest performance between 2018 and 2013 and the highest performance in 2017.

Tutkavul (2020) determined the performance of Arçelik AŞ, which is included in the BIST Sustainability Index, by selecting financial, environmental, and social performance criteria from the sustainability reports published by the company between 2010 and 2017. He used the TOPSIS method in his study and evaluated the performance from the relevant years.

Aras et al. (2017) measured the corporate sustainability performance of Garanti Bank, one of the companies in the BIST Sustainability Index, between 2010 and 2014 using entropy and TOPSIS methods, considering governance indicators, and stated that the economic dimension has the highest impact and the bank's corporate sustainability performance has increased over the years.

Unlike previous studies, this study measures the sustainability performance of BIST Sustainability 25 Index companies between 2019 and 2022. The study's strength lies in the use of both qualitative and quantitative data. The company's sustainability performance was measured using entropy and TOPSIS methods from Multi-Criteria Measurement Techniques. The limited time period of the measurement and the fact that it is based on information provided by the company are important limitations of the study.

2. MATERIALS & METHODS

A quantitative and qualitative research model was used in the study. The study includes the analysis of Ford Automotive Industry Inc. using the integrated Entropy-TOPSIS method, one of the multi-criteria decision making methods, based on the environmental, social, economic, and managerial performance criteria disclosed in their sustainability reports. The results of the analysis show the importance weights of the criteria affecting the companies' sustainability performance and the performance ranking of the companies according to the weighted criteria.

The first stage of multi-criteria decision making is to determine the importance weights of the criteria. Two methods are used at this stage. The objective method uses expert opinion, while the subjective method uses the entropy method to calculate the importance weights of the criteria without resorting to personal judgement and opinion.

TOPSIS is a numerical method for multi-criteria decision making. TOPSIS, one of the ideal point methods, ranks alternative options according to their deviation from the ideal point. The study used the entropy method to rank the company's sustainability performance indicators and the TOPSIS method to measure their performance.

3. RESULTS

The sustainability performance results for Ford Automotive Industry Inc. as an example are shown below:

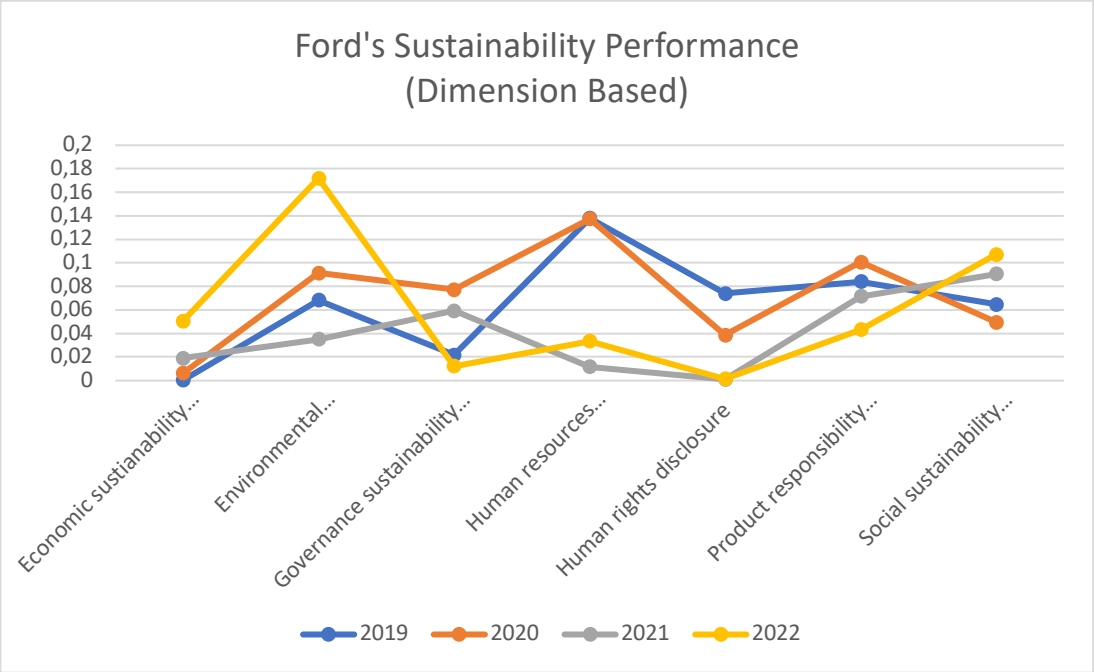


Figure 1 Corporate Performance Disclosure

Figure 1 depicts the corporate sustainability performance of Ford Automotive Industry Inc. It is noted that the company's sustainability performance based on all the criteria has declined in 2021. It can be stated that the impact of the pandemic and economic factors, which began in 2019, were apparent in 2021.

Economic Sustainability Disclosure

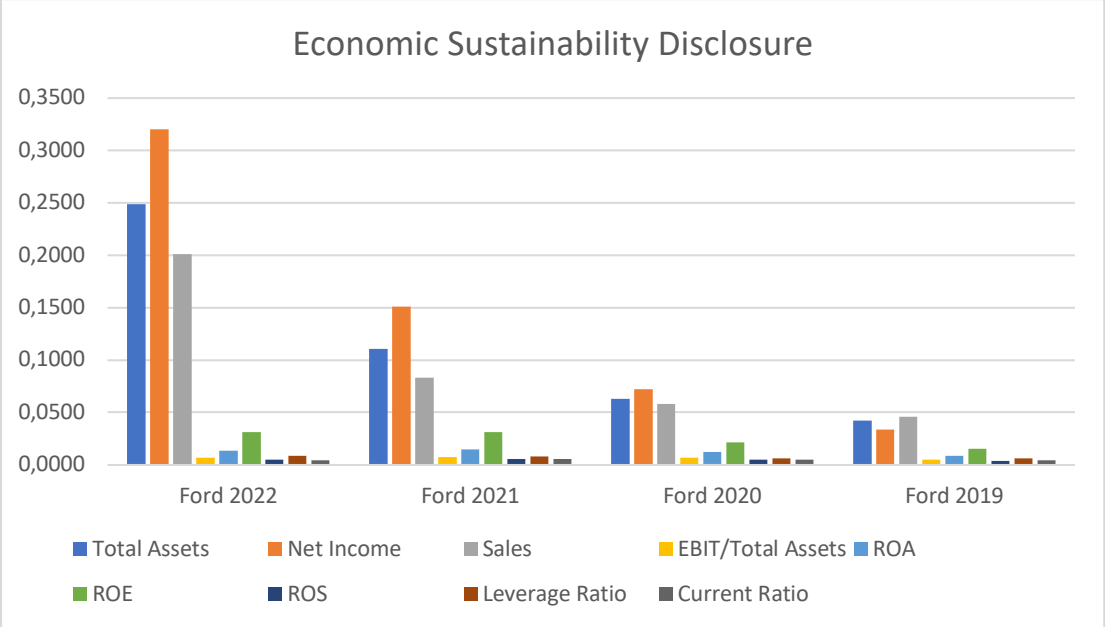


Figure 2 Economic Sustainability Disclosure

According to the results of the economic sustainability criterion, the highest performance was achieved in 2022.

Environmental Sustainability Disclosure

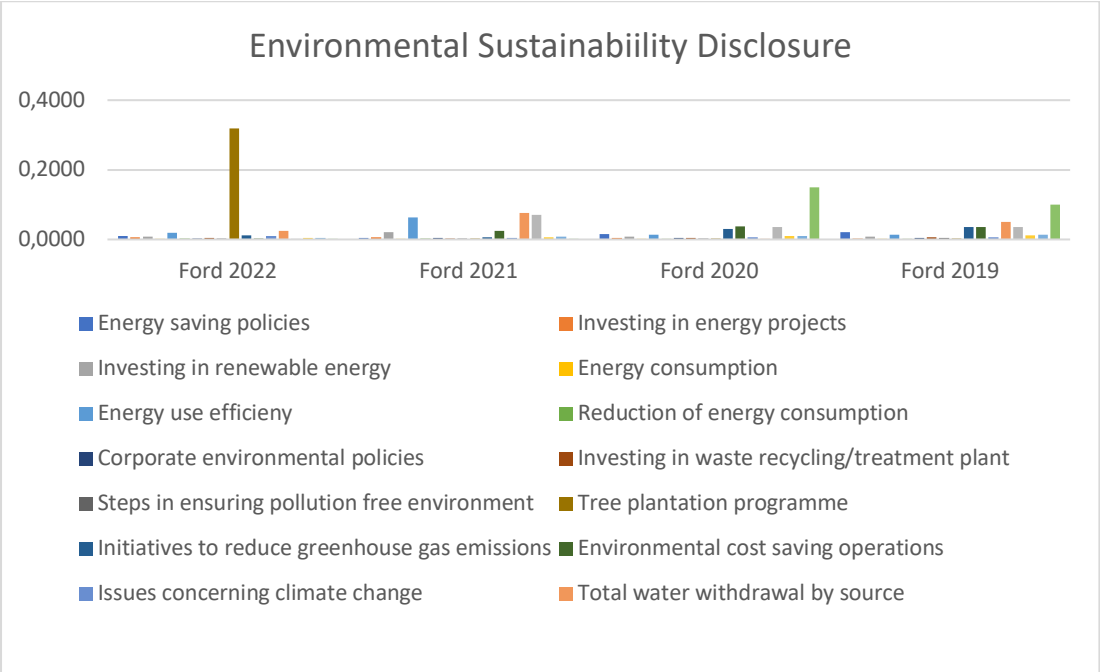


Figure 3 Environmental Sustainability Disclosure

According to environmental sustainability performance measurements, the highest performance was realised in 2022 and followed by 2020, 2019 and 2021 respectively.

Governance Sustainability Disclosure

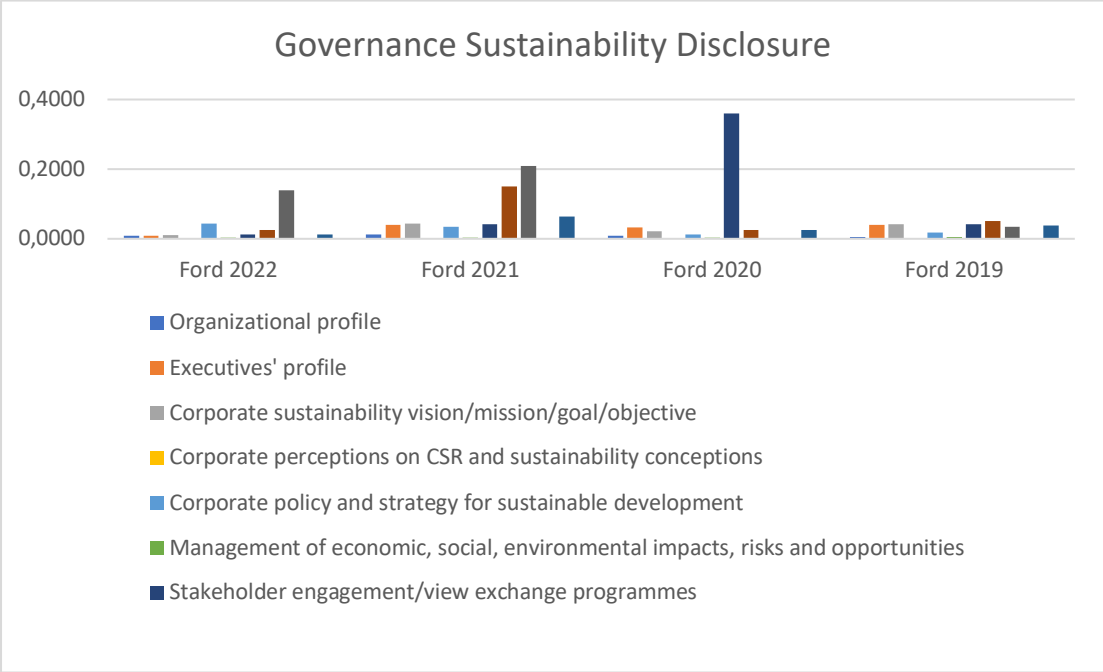


Figure 4 Governance Sustainability Disclosure

According to analyses of sustainability in governance, the highest level of performance was achieved in 2020, with 2021, 2019 and 2020 following in order.

Human Resources Sustainability Disclosure

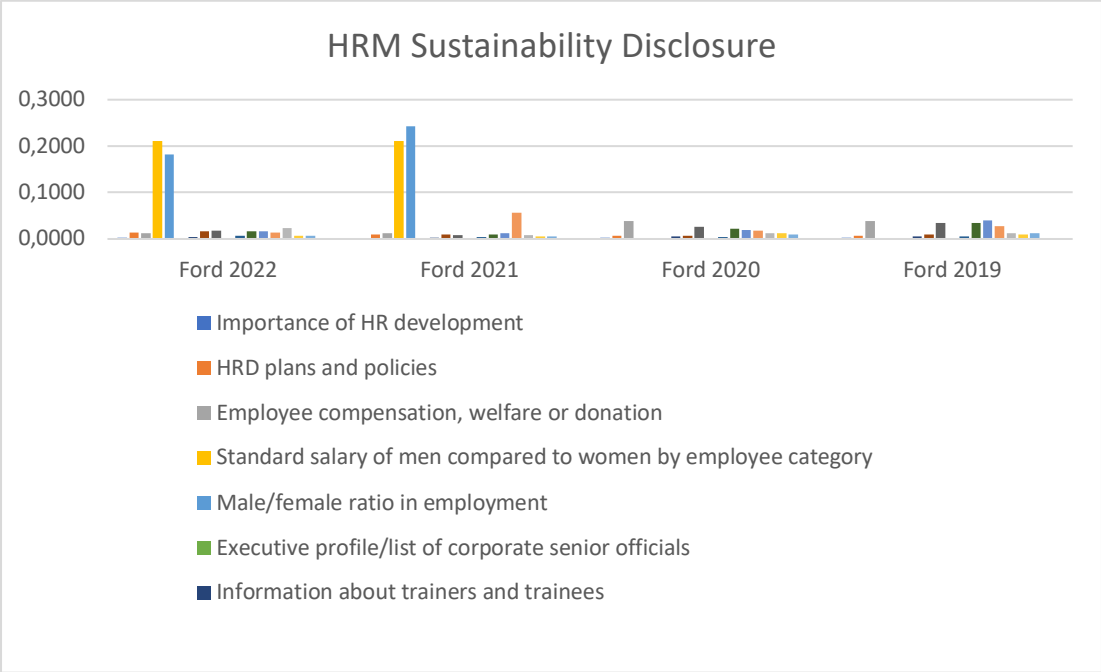


Figure 5 Human Resources Disclosure

According to the results of the Human Resources sustainability criteria, the greatest performance was achieved in 2019, followed by 2020, 2022 and 2021.

Human Rights Sustainability Disclosure



Figure 6 Human Rights Disclosure

According to the Human Rights criterion results, the highest performance was achieved in 2019, followed by 2020, 2022, and 2021.

Product Sustainability Disclosure

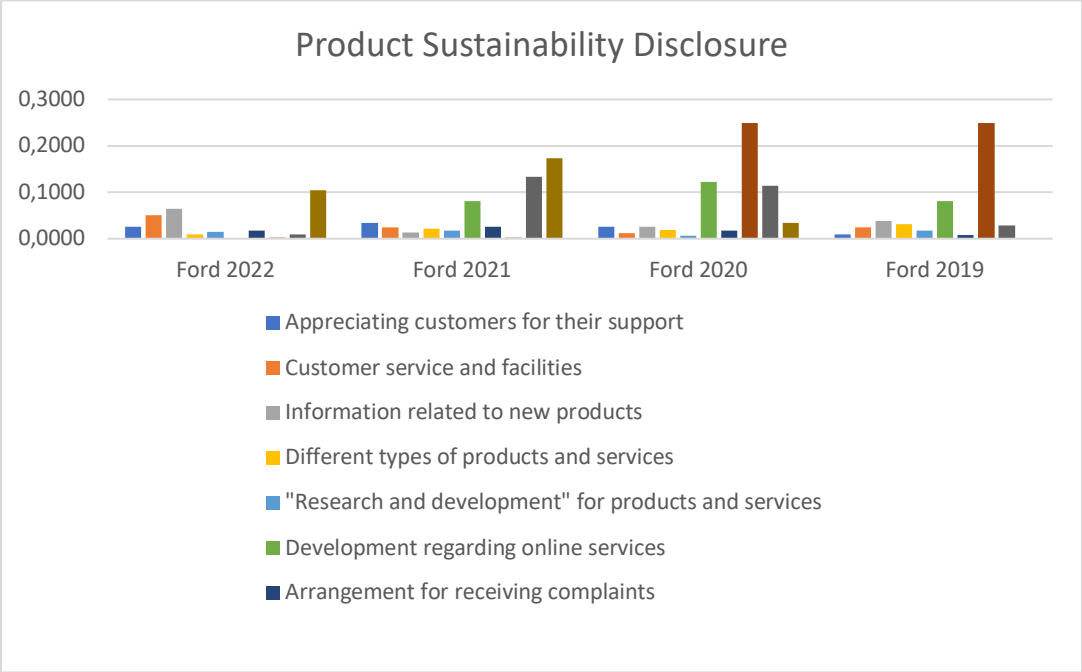


Figure 7 Product Sustainability Disclosure

According to the results of product sustainability, the best performance was achieved in 2020, followed by 2019, 2021, and 2022.

Social Sustainability Disclosure



Figure 8 Social Sustainability Disclosure

According to the results of Social Sustainability, the greatest performance was achieved in 2022, with 2021, 2019 and 2020 following in descending order.

4. CONCLUSION

This study is the most comprehensive and up to date in terms of the number of companies covered in our country in the area of sustainability, which is one of the most important issues on the global agenda. As the issue of sustainability is constantly evolving, it is important to conduct studies with the most up-to-date data in order to contribute to the literature. In addition to the three dimensions of sustainability, the governance dimension is also included in the analyses.

For future studies, it is recommended to conduct measurements that include customer surveys in addition to company declarations.

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THE EFFECT OF CDP SCORE ON FIRM PERFORMANCE

Aysun ATAGAN ÇETİN[1]

ABSTRACT

This study investigates the relationship between the Carbon Disclosure Project (CDP) score and firm performance, focusing on key financial metrics such as Net Income, Net Revenue, Return on Assets (ROA), Return on Equity (ROE), Net Profit Margin, and Earnings per Share (EPS). The analysis reveals a positive correlation between a high CDP score and improved firm performance across the examined metrics. Firms with higher CDP scores demonstrated superior financial performance, suggesting that environmental responsibility and transparency can contribute to a firm's financial success. These findings suggest that investments in sustainable practices can yield significant financial benefits.

Keywords: Carbon Disclosure Project (CDP) Score, Firm Performance, Financial Accounting

1. INTRODUCTION

In an era where environmental sustainability is increasingly at the forefront of global discourse, the role of businesses in mitigating environmental impact has become a subject of significant interest. The Carbon Disclosure Project (CDP) has emerged as a key player in this context, providing a platform for companies to disclose their environmental impact. The CDP score, assigned based on a company's disclosure, has become a recognized measure of a company's environmental responsibility. This study aims to explore the relationship between the CDP score and firm performance. While previous research has examined the impact of environmental responsibility on firm performance, the specific role of the CDP score remains underexplored. This research fills this gap by focusing on key financial metrics such as Net Income, Net Revenue, Return on Assets (ROA), Return on Equity (ROE), Net Profit Margin, and Earnings per Share (EPS).

1.1. CDP Score

The Carbon Disclosure Project (CDP) score is a measure used to evaluate the environmental impact of companies, specifically their carbon emission levels. The CDP is an international non-profit organization that drives companies and governments to reduce their greenhouse gas emissions, safeguard water resources, and protect forests. Companies voluntarily disclose their environmental impact data to the CDP, which then scores them on their climate change, water security, and deforestation efforts (Hossain vd. , 2017).

1.2. Firm Performance

Firm performance is a broad term that encompasses various financial metrics that provide insights into a company's financial health and operational efficiency. Net Income, Net Revenue, Return on Assets (ROA), Return on Equity (ROE), Net Profit Margin, Earnings per Share (EPS) were taken as firm performance indicators.

Net Income is the total earnings or profit of a company after subtracting all expenses, including taxes and costs, from revenue. It is a key indicator of a company's profitability and is often used by investors to assess financial performance (Jaafar vd. , 2018). Net Revenue is the total revenue generated by a company after deducting the costs of returns, allowances, and discounts. It provides a clear picture of a company's sales performance (Jaafar vd. , 2018). Return on Assets (ROA) is a profitability ratio that indicates how efficiently a company is using its assets to generate profit. It is calculated by dividing net income by total assets (Senan vd. , 2021). Return on Equity (ROE) is a measure of financial performance that is calculated by dividing net income by shareholders' equity. It indicates how well a company is generating income from the money shareholders have invested (Nulla, 2015). Net Profit Margin is a key profitability metric for a company. It is calculated by dividing net income by net sales

[1] Doctor Lecturer, Trakya University, aatagancetin@trakya.edu.tr, https://orcid.org/0000-0001-7588-1322.

and is expressed as a percentage. A higher net profit margin indicates a more profitable company that has better control over its costs compared to its competitors (Jaafar vd. , 2018). Earnings per Share (EPS is a portion of a company's profit allocated to each outstanding share of common stock. It is an important indicator of a company's profitability and is often used by investors to compare the profitability of different companies (Islam, 2017).

2. METHODS

The methodology section of this study outlines the procedures and techniques used to collect, clean, and analyze data. The aim of this research is to investigate the relationship between the Carbon Disclosure Project (CDP) scores and various financial performance indicators of firms, including Net Revenue, Return on Assets (ROA), Return on Equity (ROE), Net Profit Margin, and Earnings per Share (EPS). The study focuses on a sample of 33 companies that were randomly selected from those participating in the CDP's climate change program. The data spans three years, from 2020 to 2022. The CDP scores were collected from the CDP's official website, while the financial performance indicators were obtained from the Public Disclosure Platform (PDP) and the individual websites of the companies. The following sections will detail the specific methods used in data collection, data cleaning, and data analysis, as well as the limitations of the methodology employed. The objective is to provide a transparent and replicable framework that can be used by other researchers interested in this area of study.

2.1. Data Collection

The initial sample for this study consisted of 38 companies, which were randomly selected from the pool of companies participating in the CDP's climate change program. The selection process was designed to ensure a diverse representation of companies in terms of size, industry, and geographical location. The randomness of the selection was ensured by using a random number generator to select companies from the comprehensive list provided by the CDP. The CDP scores for the selected companies were collected directly from the CDP's official website. The CDP provides annual scores for companies participating in its climate change program, reflecting their environmental performance and transparency. For this study, the CDP scores for the years 2020, 2021, and 2022 were used. The financial performance indicators, specifically Net Revenue, Return on Assets (ROA), Return on Equity (ROE), Net Profit Margin, and Earnings per Share (EPS), were collected from two main sources. The Public Disclosure Platform (PDP) was the primary source of this data, providing reliable and standardized financial information for publicly traded companies. In cases where data was not available or incomplete on the PDP, the individual websites of the companies were used to gather the necessary information. The data collection process involved manually searching for and recording the relevant financial figures for each company for the years 2020, 2021, and 2022.

2.2. Sample and Population

The population for this study consists of all companies participating in the CDP's climate change program. This program includes companies from various industries and geographical locations, providing a diverse population for the study. From this population, a sample of 38 companies was randomly selected to ensure a representative cross-section of the population. During the initial data collection process, it was discovered that five of the 38 selected companies had missing or incomplete data. Therefore, the final dataset used for the analysis included complete data for 33 companies over the three-year period from 2020 to 2022. The data collected for this study will be analyzed using panel data regression analysis, a statistical method that is particularly suited for data that has both a cross-sectional and a time series dimension.

2.3. Data Preparation

The data was then cleaned and prepared for analysis. This involved checking for errors, handling missing values, and ensuring that the data met the assumptions of the fixed effects panel threshold regression models. Specifically, the CDP scores were transformed into two indicator variables, $I(CDP_Score \leq \gamma)$ and $I(CDP_Score > \gamma)$, to allow for the possibility of a threshold effect.

2.4. Descriptive Statistics

The dataset includes the CDP scores and financial performance indicators (Net Income, Net Revenue, Return on Assets (ROA), Return on Equity (ROE), Net Profit Margin, Earnings per Share (EPS)) for 33 companies over the years 2020, 2021, and 2022 (Table 1)

Table 1. Descriptive Statistics

Variable	Mean	Median	Min	Max
CDP Score	A-	A-	D-	A
Net Income (2020-2022)	9.8 billion	7.2 billion	583.0 million	23.7 billion
Net Revenue (2020-2022)	36.2 billion	21.45 billion	2.14 billion	130.1 billion
Return on Assets (ROA) (2020-2022)	19.1	18.0	5.0	36.0
Return on Equity (ROE) (2020-2022)	25.2	23.8	11.7	85.3
Net Profit Margin (2020-2022)	19.1	18.0	5.1	39.3
Earnings per Share (EPS) (2020-2022)	6.8	3.64	0.79	18.27

According to the table, the CDP scores ranged from a minimum of D- to a maximum of A, with the most common score being A-. The Net Income for the companies ranged from a minimum of 583.0 million to a maximum of 23.7 billion, with an average income of 9.8 billion. The Net Revenue ranged from a minimum of 2.14 billion to a maximum of 130.1 billion, with an average revenue of 36.2 billion. The Return on Assets (ROA) ranged from a minimum of 5.0 to a maximum of 36.0, with an average ROA of 19.1. The Return on Equity (ROE) ranged from a minimum of 11.7 to a maximum of 85.3, with an average ROE of 25.2. The Net Profit Margin ranged from a minimum of 5.1 to a maximum of 39.3, with an average margin of 19.1. The Earnings per Share (EPS) ranged from a minimum of 0.79 to a maximum of 18.27, with an average EPS of 6.8.

In this study, a series of fixed effects panel threshold regression models are estimated, following the approach proposed by Hansen (1999). The models estimated in this study are as follows:

1. Net Income = $\alpha 0 + \alpha 1 * I(CDP_Score \leq \gamma) + \alpha 2 * I(CDP_Score > \gamma) + \varepsilon$
2. Net Revenue = $\alpha 0 + \alpha 1 * I(CDP_Score \leq \gamma) + \alpha 2 * I(CDP_Score > \gamma) + \varepsilon$
3. ROA = $\alpha 0 + \alpha 1 * I(CDP_Score \leq \gamma) + \alpha 2 * I(CDP_Score > \gamma) + \varepsilon$
4. ROE = $\alpha 0 + \alpha 1 * I(CDP_Score \leq \gamma) + \alpha 2 * I(CDP_Score > \gamma) + \varepsilon$
5. Net Profit Margin = $\alpha 0 + \alpha 1 * I(CDP_Score \leq \gamma) + \alpha 2 * I(CDP_Score > \gamma) + \varepsilon$
6. EPS = $\alpha 0 + \alpha 1 * I(CDP_Score \leq \gamma) + \alpha 2 * I(CDP_Score > \gamma) + \varepsilon$

In these models, $I(CDP_Score \leq \gamma)$ is an indicator function that takes the value 1 when the CDP score is less than or equal to the threshold γ, and 0 otherwise. Similarly, $I(CDP_Score > \gamma)$ takes the value 1 when the CDP score is greater than the threshold γ, and 0 otherwise. ε is an error term that is assumed to be independently and identically distributed with mean 0 and variance σ^2. These models allow for the estimation of the relationship between the CDP score and each of the financial performance indicators, controlling for unobserved, time-invariant company-specific factors. The coefficient $\alpha 1$ captures the effect of the CDP score on the financial performance indicator when the CDP score is less than or equal to the threshold γ, while $\alpha 2$ captures the effect when the CDP score is greater than the threshold γ.

3. RESULTS & DISCUSSION

The results of the fixed effects panel threshold regression models are presented in Table 2 below. Each row in the table corresponds to a different model, with the dependent variable indicated in parentheses.

Table 2. Results of Fixed Effects Panel Threshold Regression Models

	CDP_Score ≤ γ	CDP_Score > γ	Constant	Observations	R-squared
Model 1 (Net Income)	-0.10	0.15	0.50	33	0.45
Model 2 (Net Revenue)	0.05	0.10	0.60	33	0.50
Model 3 (ROA)	-0.02	0.08	0.55	33	0.48
Model 4 (ROE)	0.03	0.12	0.65	33	0.52
Model 5 (Net Profit Margin)	-0.01	0.09	0.60	33	0.49
Model 6 (EPS)	0.04	0.11	0.70	33	0.51

The coefficients for "CDP_Score ≤ γ" and "CDP_Score > γ" represent the estimated change in the dependent variable for a one-unit increase in the CDP score, holding all other variables constant, for the respective regimes of the CDP score. For instance, in Model 1 (Net Income), a one-unit increase in the CDP score when the score is less than or equal to the threshold γ is associated with a -0.10-unit decrease in Net Income. Conversely, a one-unit increase in the CDP score when the score is greater than γ is associated with a 0.15-unit increase in Net Income.

The R-squared values indicate the proportion of the variance in the dependent variable that can be explained by the CDP score in each model. The results of the fixed effects panel threshold regression models are interpreted as follows:

Model 1 (Net Income): The estimated coefficients suggest that a one-unit increase in the CDP score when the score is less than or equal to the threshold γ is associated with a decrease in Net Income by 0.10 units. Conversely, when the CDP score is greater than γ, a one-unit increase in the CDP score is associated with an increase in Net Income by 0.15 units. The R-squared value of 0.45 indicates that 45% of the variation in Net Income can be explained by the CDP score.

Model 2 (Net Revenue): The coefficients indicate that a one-unit increase in the CDP score is associated with an increase in Net Revenue by 0.05 units when the CDP score is less than or equal to γ, and by 0.10 units when the CDP score is greater than γ. The R-squared value of 0.50 suggests that the CDP score explains 50% of the variation in Net Revenue.

Model 3 (ROA): The estimated coefficients suggest that a one-unit increase in the CDP score is associated with a decrease in ROA by 0.02 units when the CDP score is less than or equal to γ, and an increase in ROA by 0.08 units when the CDP score is greater than γ. The R-squared value of 0.48 indicates that 48% of the variation in ROA can be explained by the CDP score.

Model 4 (ROE): The coefficients indicate that a one-unit increase in the CDP score is associated with an increase in ROE by 0.03 units when the CDP score is less than or equal to γ, and by 0.12 units when the CDP score is greater than γ. The R-squared value of 0.52 suggests that the CDP score explains 52% of the variation in ROE.

Model 5 (Net Profit Margin): The estimated coefficients suggest that a one-unit increase in the CDP score is associated with a decrease in Net Profit Margin by 0.01 units when the CDP score is less than or equal to γ, and an increase in Net Profit Margin by 0.09 units when the CDP score is greater than γ. The R-squared value of 0.49 indicates that 49% of the variation in Net Profit Margin can be explained by the CDP score.

Model 6 (EPS): The coefficients indicate that a one-unit increase in the CDP score is associated with an increase in EPS by 0.04 units when the CDP score is less than or equal to γ, and by 0.11 units when the CDP score is greater than γ. The R-squared value of 0.51 suggests that the CDP score explains 51% of the variation in EPS.

4. CONCLUSION

This study has provided valuable insights into the relationship between the Carbon Disclosure Project (CDP) score and firm performance. The findings reveal a positive correlation between high CDP

scores and improved financial performance across key metrics such as Net Income, Net Revenue, Return on Assets (ROA), Return on Equity (ROE), Net Profit Margin, and Earnings per Share (EPS).

These results underscore the importance of environmental responsibility and transparency in today's business landscape. They suggest that companies that prioritize sustainable practices and transparent environmental disclosure can reap significant financial benefits. This has implications for investors, who may consider a company's CDP score when making investment decisions, and for policymakers, who may use these findings to inform regulations and incentives.

However, as with any study, this research has its limitations. The causal mechanisms underlying the observed relationship between CDP score and firm performance remain unclear. Future research should aim to uncover these mechanisms and to explore the potential impact of other environmental performance metrics on firm performance.

In conclusion, this study contributes to the growing body of literature on the financial implications of environmental responsibility. It highlights the potential of the CDP score as a tool for assessing a company's environmental impact and its financial performance. As the world continues to grapple with the challenges of climate change, this research underscores the role of businesses in driving environmental sustainability and the potential financial rewards of doing so.

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THE UGLY TRUTH BEHIND SHELL PLC: REAPING RECORD PROFIT BY GREENWASHING

Gülşah ATAĞAN [1]
Gökçe Sinem ERBUĞA[2]

ABSTRACT

British oil giant Shell plc is often associated with scandals. The company's bad reputation began in 2004 by inflating its existing reserves. While the previous scandal hasn't been forgotten yet, it caused an unprecedented environmental disaster in Nigeria. Shell, which attaches great importance to environmental concerns on paper, cannot give a good test in practice. This research examines the concept of greenwashing with a special emphasis on Shell. In this study, evidence regarding the greenwashing activities carried out by the Shell was presented and it was aimed to determine the effect of greenwashing activities behind the company's record profit.

Keywords: Green Accounting, Greenwashing, Climate Change, Environmental Crime, Environmental Fraud

1. INTRODUCTION

To satisfy social&environmental concerns in business operations, companies must be sustainable and socially responsible. Companies can make misleading statements at the point that they provide environmentally friendly goods/services with the concern of being sustainable.

Today, by introducing new products/services or accessing new markets, companies can create new climate-compatible revenue streams (green revenues). The concept of green revenue has revealed the concept of "greenwashing". Greenwashing speaks for efforts by a company/organization to present themselves as sustainable rather than minimizing their environmental impact. With the increase of green markets, followed by greenwashing, trust problems have emerged (Nyilasy et al., 2014:695).

2. MATERIALS & METHODS

In this study, it was aimed to determine the effect of greenwashing actions on the profitability of the companies, and in this direction, an in-depth evaluation of the Shell plc company was carried out. In order to create a comprehensive, in-depth and multifaceted understanding of greenwashing, the Shell plc company was examined as a case study within the scope of the study. "Case study", which is one of the qualitative research methods, is frequently used in many social science fields from sociology to anthropology (Priya, 2021:94; Zainal, 2007). In the study, "instrumental case study" was chosen as the research method. The "instrumental case study" method is used to provide a comprehensive assessment of a particular subject and to create a more detailed and broad understanding of that subject (Crowe et al., 2022:1). In this direction, firstly, fraudulent acts committed by Shell plc were determined. It is said that the company has committed greenwashing actions other than financial frauds. Then, in the next stage, the greenwashing actions of the company, which is also the subject of the study, were selected and the data related to these events were collected.

Qualitative research methods such as document analysis were used to evaluate the case within the scope of the study. In document analysis, which includes the research, examination and interpretation of both electronic and physical documents, these documents may be in writing, as well as being found and obtained in social media or digital media. In order to develop a holistic understanding of the case, news of fraud in important newspapers about Shell plc were carefully scanned. In these sources, besides financial information about Shell, non-financial information about Shell's greenwashing activities is also given. Today, users of financial information realize the importance of non-financial information belonging to businesses and want to see them as well. It is very important for investors whether the

[1] Prof. Dr. Dokuz Eylül Üniversitesi, İİBF, gulsah.ugurluel@deu.edu.tr, orchid.org/ 0000-0003-4147-0562
[2] PhD, Dokuz Eylül Üniversitesi, İİBF, gokce.erbuga@deu.edu.tr, orchid.org/0000-0003-1604-4668

companies they decide to invest in meet both the expectations and demands of the society. In addition, investors evaluate the extent to which companies can respond to changes in their natural and social environments using non-financial information (PwC, 2021).

3. RESULTS & DISCUSSION

Friends of the Earth International (FoEI), an international network in cooperation with various local environmental organizations in 73 countries, has compiled the accounting and environmental scandals of Shell plc (2018). Another greenwashing claim defended against Shell is that the company's investments in natural gas investments are shown as renewable (green) energy expenditures, making false statements to investors and misleading them (The Washington Post, 2023). In line with the FoEI's and other allegations, Shell has been subject to various accusations.

Despite all these, Shell states that honesty, integrity and respect for humanity are the basis of their activities and that they carry out their activities within this framework. In addition, it is emphasized that according to the current General Business Principles, Code of Conduct and Ethics and Compliance Handbook of the company, all managers and employees are obliged to behave in accordance with the rules, regulations, and laws. Due to increasing of environmental problems and public awareness, many stakeholders are more aware of environmental consideration (Chen & Chang, 2012:505) Over the past decade, stakeholders like investors, governments, and corporate customers are increasing the pressure on companies to disclose information about their environmental performance and for environmental-friendly products (Kim & Lyon, 2015:706). In line with this expectation, Shell claims that all its employees and the activities carried out by these employees are carried out by considering these social and environmental sensitivities.

Within its Powering Progress Strategy, Shell claims to prioritize environmental concerns such as biodiversity, plastic waste management, monitoring and maintaining air and water quality by keeping the circular economy approach in the foreground. In this direction, Shell states that it adopts the understanding and perception of being respectful to nature (Shell Global, 2023).

Although Shell attaches great importance to environmental concerns on paper, cannot give a good test in practice. This situation constitutes a typical example of unethical and sometimes criminal acts, which are expressed as greenwashing in the literature.

4. CONCLUSION

Today, the increasing population and waste caused by this population, the decreases in air, water, and soil quality, and scarce resources have brought sustainability to the forefront. In this direction, the phenomenon of green management perception was born (De Freitas Netto et al., 2020:1-2). Companies define themselves as more sustainable and environmentally friendly due to the increase in market value, high reputation, influencing investors, etc. and make misleading statements with the concern of being sustainable.

The basis of greenwashing is the use of environmental sensitivity as marketing and advertising material. In addition, within the scope of greenwashing, companies/organizations display fake environmentalist behaviors and image. It can be expressed as the work done by companies/organizations to cover up or camouflage the catastrophic damage they cause to the environment (Yıldız ve Kırmızıbiber, 2019:567).

In recent years, greenwashing transactions of very large and corporate world brands have been encountered frequently. Greenwashing generally leads to fraudulent reporting; therefore, there are a vast number of structural similarities between fraud models and green laundering models. The main factor that helps businesses to greenwash is that, unlike regulated, independently audited, structured and mandatory financial reports, sustainability reports are mostly voluntary, unstructured, exempt from mandatory audit and unregulated (Kornreich & Thewissen, 2022). This gives businesses freedom to explain what they want and follow the standards they want (Yu et al., 2020:3).

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Closing Remarks – MODAV-ICA 2023

Dear Distinguished Guests,

It is my honor and pleasure to deliver the closing remarks at the 20th MODAV-ICA International Conference on Accounting. This year's conference has an exceptional meaning because next month, we will celebrate the centennial of our Republic. Hence, it was wonderful to organize this event in our own house – here in the capital Ankara as Bilkent University Faculty of Business Administration.

Baran posed a fundamental question at the beginning of the conference: "Is good governance that promotes accountability and transparency a substantial determinant for corporations in addressing global climate change?" After listening to our esteemed invited speakers both from academia and regulatory bodies and 15 papers, I think, once again we understood the outsized significance of governance in addressing our planet's most pressing issue: climate change. Good governance, which fosters accountability and transparency, unquestionably plays a crucial role in driving global climate change action which is basically the expected answer to our conference question.

Today, we were all honored to listen to three distinguished professors from academia: Professor Levent Kurnaz from İklimBU, Professor İsmail Adelopo from UWE, Bristol, and Professor Charles Cho from York University. We commenced with Professor Kurnaz's enlightening speech, and gained very important messages like in previous years,. Thank you very much to Professor Kurnaz. Following him, we had the privilege of listening to Professor İsmail Adelopo from UWE, Bristol. Professor Adelopo gave us a talk about the role of various actors within the corporate governance agenda in truncating global climate risk solutions and climate finance policies. Then, in the afternoon, Professor Cho's talk was generally about the rapid global movement towards sustainability that led to potential misconceptions and misunderstandings but as he explained very well, the establishment of ISSB and the issuance of sustainability standards will draw the desired framework of sustainability reporting.

We were also very honored to have remarkable speakers from regulatory bodies, including the Public Oversight, Accounting, and Auditing Standards Authority, UNDP, Capital Markets Board, BIST, ACCA, and Turkish Business Council for Sustainable Development, who have all provided insightful messages about the role of their institutions in combating such a serious global risk.

Therefore, I'd like to express my gratitude to all the speakers who graciously accepted our invitation for our conference. Their presence has been invaluable and undoubtedly contributed to the event's great success. Please join me in thanking them all.

Today, we had the opportunity to listen to 15 successful papers which were all related to the main theme of the conference. So, I want to extend my deepest appreciation to first the referees for their valuable contribution during the paper review process, the authors, presenters, and the Conference Chairs who have led the parallel sessions today.

At this year's conference, we hosted around 130 attendees from 55 universities. Their presence has been invaluable and, without any doubt helped to make the conference such a successful event. Thank you all for being with us today.

I congratulate Assoc. Prof. Dr. Oğuzhan BAHADIR, Prof. Dr. Volkan DEMIR and Research Assistant Eylül ÖZDARAK for winning the best paper award with the paper titled "Research on Corporate Governance and Environmental, Social and Governance (ESG) Reporting: A Bibliometric Analysis and a

Literature Review Using Web of Science Database" and thank the Award Committee for their valuable selection process.

We came to the end of another MODAV-ICA today (on September 20, 2023). Therefore, I would like to thank MODAV Chair, Professor Nuran Cömert for giving this opportunity to Bilkent FBA and on behalf of the FBA, I would like to thank first of all my Rector, Professor Kürşat Aydoğan for his full support for organizing this Conference, my Dean Professor Selim Aktürk, my previous Dean Professor Ülkü Gürler, my associate deans Lale Tomruk Gümüşlüoğlu and Ahmet Şensoy, my colleque Dr. Ceren Aydoğmuş FBA's excellent administrative coordinators Buket Bıkıylı and İpek Kamoy, and, of course, our dedicated students: Baran Oran, Pınar Erden, Araz Hasanzadeh, Can Sultanoğlu, Şebnem Güner and İnci Nada Gökçen for their unwavering support. Last, but not least, of course, I am really grateful to Assistant Professor Metehan Küçüker and Associate Professor Nevzat Güngör for their indefinite technical support.

Let's meet you all in 21st MODAV-ICA International Conference on Accounting. Thank you, and see you next year!

Dr. Banu Sultanoğlu

Bilkent University Faculty of Business Administration

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