

Article

# Impact of Corporate Governance on Firms' Sustainability Performance: Case Study of BIST 50 Index Companies

Serhii Lehenchuk <sup>1</sup> , Iryna Zhyhlei <sup>1</sup> , Olena Ivashko <sup>2,3,\*</sup>, Ihor Chulipa <sup>2,3</sup> and Bogdan Wit <sup>4</sup> 

<sup>1</sup> Department of Information Systems in Management and Accounting, Faculty of Business and Services, Zhytomyr Polytechnic State University, 10005 Zhytomyr, Ukraine; lsf@ztu.edu.ua (S.L.); iv\_zhygley@ukr.net (I.Z.)

<sup>2</sup> Faculty of Administration and Social Sciences, University of Economics and Innovation in Lublin, 20-209 Lublin, Poland; ihor.chulipa@wsei.lublin.pl

<sup>3</sup> Faculty of Economics and Management, Lesia Ukrainka Volyn National University, 43025 Lutsk, Ukraine

<sup>4</sup> Department of Information Technology Process Engineering, Lublin University of Technology, 20-618 Lublin, Poland; b.wit@pollub.pl

\* Correspondence: olena.ivasko@gmail.com

**Abstract:** *Purpose:* the purpose of this study is to investigate whether corporate governance mechanisms and attributes influence the sustainability performance of companies included in the BIST 50 Index. *Results and contributions:* Regression analysis showed that there was a significant positive influence of board tenure on sustainability performance and all its types; board size on environmental performance; and a dummy variable for board evaluation externally facilitated and company size on sustainability, environmental, and social performance. A significant negative impact of director attendance at board meetings on social performance was also revealed. This study contributes to the literature on the role of corporate governance in achieving the SDGs for BIST 50 Index companies, highlighting the significant impact of its individual indicators on the achievement of sustainability performance. *Methodology:* The authors reviewed 45 sustainability reports of BIST 50 Index companies for 2023. Four indices—Sustainability Performance, Environmental Performance, Social Performance, and Corporate Governance Performance Indexes—were developed to characterize sustainability performance and its types based on a content analysis of sustainability disclosures. To analyze the influence of mechanisms and characteristics of the corporate governance system on sustainability performance, eight independent variables were used: board size, number of board meetings, director attendance at board meetings, board independence, board tenure, a dummy variable for board evaluation externally facilitated, a dummy variable for internal auditors present, and a dummy variable for CEO and Chair functions combined. Two control variables, company size and leverage, were used as well. *Gap:* Today, the scientific literature has no universal approach and understanding of how the corporate governance system should be developed to improve sustainability performance or its individual components. *Relevance:* Development of a corporate governance system is one of the ways to increase the level of sustainability performance of companies. *Impact:* The results of the study made it possible to produce several recommendations (expand the number of board members, develop an effective procedure for regular changes of general directors in company boards, introduce independent external control tools in the corporate governance systems of companies) that will lead to the achievement of SDGs 5, 8, 16.

**Keywords:** sustainable development goals; corporate governance; sustainability reporting; ESG reporting; institutional theory



**Citation:** Lehenchuk, S.; Zhyhlei, I.; Ivashko, O.; Chulipa, I.; Wit, B. Impact of Corporate Governance on Firms' Sustainability Performance: Case Study of BIST 50 Index Companies. *Sustainability* **2024**, *16*, 9904. <https://doi.org/10.3390/su16229904>

Academic Editor: Walery Okulicz-Kozaryn

Received: 24 September 2024

Revised: 31 October 2024

Accepted: 9 November 2024

Published: 13 November 2024



**Copyright:** © 2024 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

## 1. Introduction

Following the introduction of the 17 Sustainable Development Goals (SDGs) by the United Nations in 2015, published in *The 2030 Agenda for Sustainable Development* [1], stakeholder priorities in the perception of companies and their role in society have gradually

begun to change. In addition to information about companies' financial performance, it is becoming increasingly important for stakeholders to understand how companies are achieving the SDGs; contributing to social and environmental issues, community prosperity, and social well-being; and enhancing people's choice and freedom. Therefore, all aspects of performance related to achieving the SDGs have become an integral feature of most public companies [2–5] as a result of their implementation in strategy and ongoing activities, since they play an important role in ensuring organizational legitimacy. All initiatives taken by companies to achieve the SDGs should be recorded, and their progress toward sustainable development should be made public [6], as this is a significant factor influencing the formation of public opinion and capital providers.

Thus, as a result of the emergence of a new information request from stakeholders regarding information on achieving the SDGs, the practice of voluntary or mandatory disclosure of specialized reporting by companies (ESG reporting, sustainability reporting, integrated reporting, corporate responsibility reporting, non-financial reporting, etc.) has become widespread in many countries around the world. It provides detailed information on various characteristics of sustainability performance, such as social and environmental indicators, ethical aspects of activities, and corporate governance systems. As a result, Fortune 500 companies achieved 96% SDG disclosure in 2020 [7]. This indicates that companies are actively using such specialized reports as a means of responding to pressure from stakeholders (government structures, social activists, environmentalists, etc.), which allows them to consider and correctly balance their interests and receive constant support. Thus, sustainability performance is understood as a generalizing characteristic of the company's activity, which provides a measurement of long-term efficiency through the achievement of economic, social, and environmental goals.

Based on the provisions of stakeholder theory, which describes the logic and procedure for disclosing corporate information in accordance with the needs of various stakeholder groups, sustainability performance largely depends on the effectiveness of the corporate governance system [8–13]. This should ensure the establishment of a constructive dialogue, management of relationships, and maintaining the trust of stakeholders and help attract additional investments and reduce the cost of attracting additional debt capital by increasing the legitimation of a company's activities. The role of corporate governance is particularly evident in SDG 5: Gender Equality (ensuring gender equality in the composition of the board of directors), SDG 8: Decent Work and Economic Growth (inclusion of employees in corporate governance bodies), and SDG 16: Peace, Justice, and Strong Institutions (conducting an external assessment of the quality of corporate governance and ensuring its accountability to owners).

The scientific literature has analyzed the influence of various corporate governance system mechanisms and characteristics on the features of disclosure in companies' sustainability performance reports and its individual components, and similar studies have been carried out for enterprises in both developed and developing countries [14]. However, the specificity of such influence is largely determined by both the influence of general institutional factors (country, political context, cultural context, religious characteristics, corporate governance model, etc.) [4] and the format of reporting sustainability performance information, which depends on the methodology used for its filling and construction (GRI, CSR, IR, etc.) [6,10]. Therefore, for each country, the role of the corporate governance system in ensuring sustainability performance will be different, depending on national characteristics, traditions of building a corporate governance system, as well as on the regulatory reporting system to ensure disclosure of SDG achievements.

Conducting such research is particularly relevant for Turkey [15,16], where the capital market is at a developing stage and regulatory requirements for mandatory disclosure of sustainability reporting by public companies have only recently been introduced. However, against the backdrop of a slowdown in the rate of development of the national economy, there is an urgent need to improve corporate dialogue and attract foreign capital suppliers. To obtain financial resources, Turkish companies must disclose sustainability performance

information to stakeholders more effectively. Therefore, it is important to establish those mechanisms and characteristics of the corporate governance system that play an important role in improving sustainability performance and which should be the object of improvement and development to achieve the strategic goals of Turkish business representatives.

Insufficient attention paid by scientists to the problem of the impact of the mechanisms and characteristics of the corporate governance system on the sustainability performance of Turkish companies does not allow us to establish which corporate governance practices will contribute to their achievement of the SDGs. In particular, there is a lack of understanding of which of these practices are the most effective and, therefore, improvement will contribute to increasing the level of sustainability performance. In turn, this limits the possibilities of increasing the level of legitimacy of such companies in society and increasing the level of investors' trust in them, and generally does not allow them to attract the necessary financial resources at the optimal cost [8,9,11,14,16]. Thus, the sustainability performance of Turkish companies is an essential issue for capital providers (investors, institutional investors, borrowers, etc.) and other stakeholders interested in solving sustainable development problems that ensure their legitimacy in society (government bodies, state institutions, public organizations, and the local community). Therefore, to solve the problem of establishing the role of individual corporate governance practices of Turkish companies in ensuring the SDGs, it is necessary to conduct more research that would link sustainability performance and its individual types with the use of specific mechanisms and characteristics of corporate governance. In particular, the methodology for determining the sustainability performance of Turkish companies based on the application of sustainability reporting [15,16], and the set of factors that characterize the corporate governance practices of Turkish companies, need to be identified, formalized, and substantiated [9,10,13,14]. This is explained by the lack of universal approaches in the scientific literature in particular, due to the existence of specific features of the sustainability reporting methodology for companies included in the BIST 50 Index as well as national features of the construction of corporate governance systems in Turkey.

The purpose of this study is to investigate whether corporate governance mechanisms and attributes influence the sustainability performance of companies included in the BIST 50 Index. The main contribution of the paper is the study of the influence of corporate governance mechanisms and attributes on companies' sustainability performance. This allows us to enrich the existing literature on the role of the corporate governance system in achieving the SDGs and improving the sustainability performance of companies as well as on the need to develop sustainability reporting as an effective tool for Turkish companies to inform external users about their role in society. In addition, it allows for the creation of a set of specific policies, recommendations, and practical proposals that could be useful to non-governmental organizations and regulatory bodies, allowing the legitimization of companies' activities from the perspective of stakeholders, which will enable companies to achieve the SDGs and generally contribute to the sustainable development of Turkey, in particular, overcoming social and environmental problems.

## 2. Literature Review

An analysis of works related to the study of the relationship between the corporate governance system and the sustainability performance of companies allows us to combine the existing studies in this area into two main groups. Representatives of the first group are engaged in establishing the role of individual corporate governance system mechanisms or components in ensuring the overall sustainability performance of companies, which is assessed based on the use of special metrics, scores, and indicators, as well as their impact on the individual elements (social and environmental performance).

Thus, based on stakeholder theory provisions about the functional relationship between sustainability disclosure and corporate governance attributes, Michelon and Parbonetti [11] analyzed the influence of board composition, leadership, and structure on sustainability disclosure. They found that the presence of influential representatives on the

board of directors has a positive effect on sustainability disclosure, particularly environmental and strategic information, and found weak evidence of a relationship between having a CSR (corporate social responsibility) committee or a CSR director and social disclosure. At the same time, the presence of independent directors on the board has a negative effect on sustainability disclosure.

Shrivastava and Addas [17] examined the relationship between corporate governance and sustainability and found that improved governance, as measured by board attendance and a higher proportion of independent directors, leads to improved sustainability performance.

Birindelli et al. [8] conducted a regression analysis of the impact of board structure and performance on the ESG performance of 108 banking institutions in Europe and the United States for the period 2011–2016. They found that only a gender-balanced board of directors had a positive effect on bank sustainability performance characterized by an inverted U-shaped curve; there was a positive effect of board size and having a CSR committee and a negative effect of the proportion of independent directors on ESG performance. Gurol and Lagacio [18] obtained similar findings from an analysis of the performance of 35 European banks included in the EUROSTOXX 600 index and found that board size was positively and significantly associated with ESG, especially with environmental and social components. The women's ratio on the board also related positively and significantly to these components. In addition, the authors found that bank size and leverage have a positive effect on sustainability disclosure.

Cremona and Passador [19] also examined the 2018 performance of banking institutions in the EU and found that to better attract capital, they needed to encourage directors to attend board meetings, as well as create a dedicated sustainability committee, since these characteristics positively influence the dependent ESG score variable. As for other corporate governance characteristics (board size and board tenure), it was revealed that they do not have a clear correlation with the ESG score, which dictates the need to find a balanced approach to determining the number of board members and their term of office.

Romano et al. [12] examined the impact of gender equality on the board of directors in a sample of 128 Italian non-financial companies listed on the Mercato Telematico Azionario and found an overall positive impact on ESG performance. The authors also confirmed the effect of economies of scale; larger companies with a larger board had a better ESG score. At the same time, a complete lack of influence of leverage on ESG performance was recorded.

Suttipun [20], who examined the relationship between board composition and ESG disclosure of Thai listed companies for the 2015–2019 period, confirmed the significant role of company size in ensuring sustainability performance. He also found a significant positive impact of board size, the share of women on the board, and remuneration, as well as a negative impact of audit committee and CEO compensation on ESG disclosure.

Halid et al. [21] examined the relationship between board characteristics and ESG performance in 53 Malaysian listed companies between 2017 and 2019. They confirmed the hypothesis that there is a significant positive impact of increasing the share of independent directors on the board on the value of ESG score, which was also confirmed in relation to the role of company size and leverage. At the same time, the absence of a relationship with ESG performance for other independent variables (board size, tenure, and board diversity) was confirmed.

In Turkey, the first attempts to analyze the impact of corporate governance mechanisms on sustainability performance appeared even before the introduction of mandatory sustainability reporting requirements for public companies in 2020, since the practice of voluntary disclosure by companies on CSR and sustainable development was quite common among Borsa Istanbul issuers. Thus, Kiliç et al. [22], using content and panel data analysis, investigated the influence of ownership and board structure on CSR reporting in the Turkish banking industry for the 2008–2012 period. This allowed them to identify a significant positive effect of size, ownership diffusion, board composition, and board diversity on CSR disclosure practices in banks.

Kılıç and Kuzey [23] analyzed the role of corporate governance characteristics of Turkish non-financial companies listed on Borsa Istanbul during 2011–2015 in carbon emission disclosure by analyzing different types of sustainability reports. They found that having more independent directors on their boards and greater national diversity had a positive effect on companies' carbon disclosure. Önder and Baimurzin [16] also analyzed the impact of corporate governance structure on sustainability disclosure based on the GRI methodology of 17 Turkish companies from the Istanbul Stock Exchange for the period 2013–2016. They found that the presence of powerful board members positively influenced the amount of sustainability disclosure, while the size of the board, the presence of independent board members, and the existence of CSR committees negatively influenced the amount of sustainability disclosure.

Representatives of the second group consider the influence of corporate governance mechanisms and features not on companies' sustainability performance in general, but only on its individual types—environmental and social performance. As a result, the findings of such studies make it possible to explain the role of corporate governance in achieving only certain SDGs by companies. Thus, Masud, Nurunnabi, and Bae [14] examined the impact of corporate governance elements on environmental performance (ESRP score) using the example of sustainability reports of companies from South Asian countries for 2009–2016. This allowed them to find that board size and board independence were positively correlated with the ESRP score, and that this indicator was not affected by the proportion of female directors or the creation of CSR and environmental committees within the corporate governance system. Bosun-Fakunle, Mary, and Gbenga [24] conducted a similar study of 27 manufacturing companies listed on the Zimbabwe Stock Exchange. This allowed them to establish that board size and gender diversity have a positive and significant effect on environmental performance and that regarding the level of board independence, the effect is also positive, but insignificant. Pasko et al. [25] also found that larger boards and a higher proportion of independent directors have a positive impact on the social performance of Chinese A-share listed companies.

Irshad et al. [9], based on a study of 650 listed companies in the United States from 2004 to 2017, examined the impact of corporate governance practices directly on environmental performance and empirically demonstrated that, in absolute terms, corporate governance as measured by a comprehensive indicator (CGSCO) effectively improves a company's environmental performance. Moreover, independent board structures have no influence at all and are ineffective, and the control variables, leverage and company size, have a multifaceted, significant impact on environmental sustainability in various models and various scenarios analyzed by the authors.

An analysis of the literature sources studying the influence of corporate governance on companies' sustainability performance revealed that scientists mainly pay attention to the influence of corporate governance system mechanisms and characteristics such as board size, board independence, board gender diversity, board meetings, board tenure, and the existence of sustainability or environmental committees. Scientists have reached ambiguous, and in some cases contradictory, conclusions regarding the influence of such mechanisms and characteristics of the corporate governance system on sustainability performance and its more detailed components. The existence of such an influence is confirmed only by individual scientists, and not for all independent variables characterizing corporate governance. And if such an influence is detected, then it is characterized by varying degrees of significance (significant, insignificant) and multidirectionality (positive, negative). This situation indicates that the scientific literature has no universal approach to and understanding of how the corporate governance system should be improved to improve sustainability performance or its individual components, which, in turn, will legitimize the activities of companies in the eyes of stakeholders.

The central research hypothesis of this paper is the existence of a dependence on the sustainability performance of companies included in the BIST 50 on corporate governance mechanisms and attributes. Conducting such research, aimed at the refutation or confir-

mation of the selected research hypothesis, is one of the pressing issues for enterprises in Turkey, which are currently actively looking for ways to improve interactions with stakeholders to attract the necessary financial resources. This study will allow us to more accurately understand the role of corporate governance mechanisms and characteristics in ensuring the sustainability performance of Turkish public companies and formulate recommendations for its improvement based on the development of the corporate governance system.

### 3. Materials and Methods

The study focused on the performance of 50 Turkish companies listed on the Istanbul Stock Exchange (ISE) and included in the BIST 50 Index (The Borsa Istanbul 50 Index) for 2023. This index includes shares of 50 companies with high market values that are traded on the ISE. The companies whose shares are selected for inclusion in the BIST 50 Index include only Turkish companies of Groups A and B, whose actual value of shares in circulation is TRY 30 million and 10 million, respectively. By industry structure, BIST 50 Index companies include banking institutions (20%); holding and investment companies (16%); companies producing chemical, rubber, plastic, and petroleum products (10%); retail trade enterprises (11%); transport and warehousing enterprises (10%); manufacturers of metal products, machinery, electrical equipment, and vehicles (8%); telecommunications companies (6%); and others (19%).

Of the BIST 50 Index 50 companies, only 45 had all the necessary information for 2023 for analysis, including published sustainability reports in the form required by the ISE listing standards as well as information on the management of their corporate governance systems. For 5 of the companies studied, information on their sustainability performance was either presented in a form unsuitable for analysis or was missing altogether. The data required for the study were collected using the public disclosure platform “KAP”, where companies’ financial reports, sustainability reports, and corporate governance principles’ compliance reports are published, as well as through a study of corporate websites that provide detailed information on sustainability disclosure policies, SDG initiatives, and the corporate governance system.

Regression analysis of data, in particular, the ordinary least squares method, was used to analyze the impact of corporate governance on sustainability performance. A set of general and individual indices, calculated based on sustainability reporting published by BIST 50 Index companies, was selected for dependent variables characterizing sustainability performance. Sustainability reports not only characterize the level of disclosure concerning all company initiatives to ensure the achievement of the SDGs, but also generally describe the level of implementation of sustainability practices in their activities. Therefore, based on the content analysis of sustainability reports and the application of a specialized calculation methodology, one can determine the quality level of sustainability performance and its individual types for BIST 50 Index companies.

To characterize the sustainability performance of BIST 50 Index companies based on the content analysis of sustainability reports, the study proposes to calculate one common index, SPI (Sustainability Performance Index), and three partial indices, EPI (Environmental Performance Index), SCPI (Social Performance Index), and CGPI (Corporate Governance Performance Index), based on the calculation method used by Soriya and Rastogi [26] and Lehenchuk et al. [27].

The overall SPI is calculated by conducting a content analysis of sustainability reports, which involves rating each of its 52 articles on a three-point scale (3; 2; 1; 0). The choice of such an assessment method is determined by the possible answer options that are available in the sustainability reports, namely, “Yes”, “No”, “Partial”, and “Not relevant”. Thus, in the case of full disclosure and compliance with the requirements of sustainability performance, the article is scored 3 points; partial disclosure and consideration is scored 2 points, with non-disclosure and consideration scored 0 points. In cases where the company has justified the irrelevance of disclosure and compliance with the requirements for individual articles

of sustainability reports, such articles are scored 1 point. In general, based on the results of assessing all 52 articles of the sustainability report, a maximum score of 156 points can be obtained, based on which the index value will be determined. It is proposed to directly calculate SPI using the following formula:

$$SPI = \sum_{n=1}^k di/m, \quad (1)$$

where  $\sum_{n=1}^k di$  is the score obtained based on content analysis of a sustainable report, and  $m$  is the maximum score.

Using a similar methodology, it is also proposed to calculate three partial indices, EPI, SCPI, and CGPI, which characterize certain types of sustainability performance of BIST 50 Index companies. To calculate them, information from the corresponding individual sections of sustainability reports is used—“B. Environmental Principles”, “C. Social Principles”, and “D. Corporate Governance Principles”.

The selection of independent variables characterizing the corporate governance system was based on both considering existing studies in this area and their results and the information capacity of available data on the corporate governance system of BIST 50 Index companies. Dummy variables were created for those corporate governance attributes and mechanisms that have only descriptive characteristics.

The article also used two control variables—company size and leverage. These control variables are quite often used by scientists when conducting such studies [12,18,20,21,26,28]. They also monitor whether the level and quality of companies’ sustainability practices depend on their financial and material capabilities and whether a company’s ownership structure plays an important role in increasing or decreasing sustainability disclosure. Company size is calculated as the logarithm of the company’s total assets [25,28].

Table 1 describes the different types of variables used (dependent, independent, and control), their definitions, calculations, and the sources used to obtain the data.

**Table 1.** Variables (definition, calculation method, and source).

Variable	Definition	Method of Calculation	Source
Dependent Variables			
SPI	Sustainability Performance Index	$\sum_{n=1}^k di/m$	Sustainability reports, companies’ websites
EPI	Environmental Performance Index	$\sum_{n=1}^k di$ —score obtained based on content analysis of sustainability reports or their sections (“B. Environmental Principles”, “C. Social Principles”, “D. Corporate Governance Principles”)	
SCPI	Social Performance Index		
CGPI	Corporate Governance Performance Index	$m$ —maximum score obtained from sustainability reports or their sections	
Independent Variables			
BS	Board size	The total number of directors on the company’s board	Public disclosure platform “KAP” (corporate governance section), corporate governance principles compliance reports
NBM	Number of board meetings	The total number of physical or electronic board meetings in the reporting period	
DARBM	Director attendance of board meetings	Director average attendance rate at board meetings	
NNEBM	Number of non-executive board members	The total number of non-executive board members	
BI	Board independence	The total number of independent board members	
BT	Board tenure	The period from the first election date to board of CEO	
GD	Gender diversity of the board	The number of female directors within the board of directors	

Table 1. Cont.

Variable	Definition	Method of Calculation	Source
RGD	Rate of gender diversity of the board	The ratio of female directors within the board of directors	
IAP	Internal auditors' productivity	The total number of reports presented by internal auditors to the audit committee or any relevant committee to the board	
DVBEEF	Dummy variable for board evaluation externally facilitated	1 for "Yes", 0 for "No"	
DVIAP	Dummy variable for internal auditors' presence	1 for "Yes", 0 for "No"	
DVCCFC	Dummy variable for CEO and Chair functions combination	1 for "Yes", 0 for "No"	
DVCBEAP	Dummy variable for existence of corporate bodies where employees are actually represented	1 for "Yes", 0 for "No"	
Control Variables			
I_S	Size of the company	Logarithm of total assets	Financial statements
LEV	Leverage	(Long-term debts + Short-term debts)/Total assets	Financial statements

Source: Compiled based on previous research [27,28].

Based on four indices used in the work characterizing sustainability performance of BIST 50 Index companies, four analytical models were formed to study the influence of the mechanisms and characteristics of the corporate governance system on a company's overall sustainability performance and its individual elements (environmental performance, social performance, corporate governance performance). The four analytical models are based on a conceptual research model that analyzes the impact of the same set of 15 independent variables on four different types of dependent variables.

Conceptual research model (Formula (2)):

$$DV_{it} = \alpha + \beta_1 BS_{it} + \beta_2 NBM_{it} + \beta_3 DARBM_{it} + \beta_4 NNEBM_{it} + \beta_5 BI_{it} + \beta_6 BT_{it} + \beta_7 GD_{it} + \beta_8 RGD_{it} + \beta_9 IAP_{it} + \beta_{10} DVBEEF_{it} + \beta_{11} DVIAP_{it} + \beta_{12} DVCCFC_{it} + \beta_{13} DVCBEAP_{it} + \beta_{14} I\_SIZE_{it} + \beta_{15} LEV_{it} + \varepsilon_{it} \quad (2)$$

where DV is the dependent variable (SPI, EPI, SCPI, and CGPI), *i* is the entity, and *t* is the time;

$\alpha$ —identifier;

$\beta_n$ —regression coefficients;

BS, NBM, DARBM, NNEBM, BI, BT, GD, RGD, IAP, DVBEEF, DVIAP, DVCCFC, DVCBEAP—-independent variables, I\_SIZE, and LEV—control variables, where *i*—entity and *t*—time;

$\varepsilon_{it}$ —error term.

#### 4. Results

Table 2 shows the main descriptive statistics for the dependent, independent, and control variables.

Table 2 shows that all mean values of the dependent variables used (SPI, EPI, SCPI, and CGPI) exceed 0.75. This indicates that BIST 50 Index companies demonstrate high levels of sustainability performance and are actively involved in achieving the SDGs. The standard deviation value is below the mean for SPI, EPI, SCPI, CGPI, BS, DARBM, NNEBM, BI, GD, RGD, LEV, and I\_SIZE, which indicates that such variables have low data variation.



Table 2. Descriptive statistics.

Variables	Observations	Mean	Median	St. Dev.	Minimum	Maximum
SPI	45	0.755	0.904	0.277	0.000	0.962
EPI	45	0.670	0.813	0.298	0.000	0.920
SCPI	45	0.850	0.978	0.252	0.000	1.00
CGPI	45	0.848	1.00	0.293	0.000	1.00
BS	45	8.31	9.00	2.37	4.00	12.0
NBM	45	24.8	12.0	38.5	0.000	206.
DARBM	45	0.942	0.990	0.153	0.000	1.00
NNEBM	45	6.93	8.00	2.80	2.00	11.0
BI	45	2.73	3.00	0.915	0.000	4.00
BT	45	3.29	2.00	4.90	0.000	24.0
GD	45	1.78	2.00	1.40	0.000	5.00
RGD	45	0.210	0.200	0.187	0.000	1.00
IAP	45	12.2	5.50	21.0	0.000	124.
LEV	45	0.578	0.566	0.219	0.149	1.00
I_SIZE	45	18.5	18.3	1.78	15.2	21.8

Source: Calculated using the Gretl software package (version gretl2019d).

Since the maximum SPI and EPI values are less than 1, this means that none of the 45 companies studied fully implements all the sustainability and environmental practices required by the Sustainability Principles Compliance Outline for listed companies on the ISE. In addition, minimum values of all dependent variables close to 0 indicate the existence of 50 companies in the BIST Index that almost completely ignore the requirements for their own development based on the SDG ideology.

The closeness of the mean and median values of the control variables LEV and I\_SIZE indicates a high level of symmetry in the distribution of range values. At the same time, significant gaps between the maximum and minimum values of the LEV and I\_SIZE variables indicate that the BIST 50 Index includes companies that differ significantly in size and ownership structure.

As a result of the formation of a correlation matrix in order to check the problem of multicollinearity, its presence was established between the independent variables BS and NNEBM (0.9), and GD and RGD (0.9). Given the presence of high values indicating multicollinearity, the independent variables NNEBM and RGD were excluded from all four analytical models. In addition, based on the results of preliminary testing of all four analytical models, a number of regressors that had the least impact on the dependent variables (GD, IAP, and DVCBEAP) were excluded from the composition.

The analysis of four adapted regression models, which allowed us to analyze the influence of corporate governance mechanisms and characteristics on BIST 50 Index companies' sustainability performance, gave the following results ( $p$ -value and significance level), which characterize the significance, strength, and direction of such influence in the context of each of the independent variables (Table 3).

Analysis of the results of applying four analytical models (SPI, EPI, SCPI, and CGPI) allowed us to establish that certain mechanisms and characteristics of the corporate governance system significantly affect both the overall sustainability performance of BIST 50 Index companies and its individual components (environmental, social, and corporate governance performance). Thus, for sustainability performance and for all its types, a significant negative impact of BT was established with different significance levels. This indicates that CEOs from the board of directors who hold their positions longer, based on their professional experience, avoid actively implementing sustainability practices, the

implementation of which may lead to significant risks and problems in the company's activities. The presence of a significant positive impact of the DVBEF regressor on sustainability, environmental, and social performance with different significance levels confirms the advisability of attracting external experts to assess the effectiveness of the board of directors, since this ensures their better focus on achieving the SDGs.

**Table 3.** Models 1 to 4 (SPI, EPI, SCPI, and CGPI).

Variables	Models			
	Model 1 (SPI)	Model 2 (EPI)	Model 3 (SCPI)	Model 4 (CGPI)
Const	0.7678	0.3659	0.4681	0.4439
BS	0.1247	0.0498 **	0.5995	0.8463
NBM	0.1590	0.1918	0.5368	0.7551
DARBM	0.3241	0.5961	0.0879 *	0.8458
BI	0.5380	0.3626	0.9007	0.7898
BT	0.0202 **	0.0331 **	0.0584 *	0.0832 *
DVBEF	0.0131 **	0.0025 ***	0.0998 *	0.2211
DVIAP	0.3759	0.4330	0.5767	0.2376
DVCCFC	0.6020	0.4191	0.6434	0.7589
LEV	0.9106	0.6967	0.6436	0.6226
L_SIZE	0.0056 ***	0.0115 **	0.0035 ***	0.7655
R-squared	0.646763	0.623761	0.592754	0.328341

Note: \* Significant at the 10% level; \*\* Significant at the 5% level; \*\*\* Significant at the 1% level. Source: Calculated using the Gretl software package (version gretl2019d).

The results of the analytical model 2 (EPI) study revealed a significant positive impact of BS with significance at the 5% level on environmental performance. This confirms the need to increase the number of board members to overcome environmental problems arising from the company's activities.

The identified negative significant impact of DARBM (at the 10% level) on social performance reflects the existence of a situation where a decreased level of attendance at board meetings leads to an increase in the company's social spending. This, based on the opposite, suggests the existence of an active policy to minimize social costs at BIST 50 Index enterprises, which is implemented with the direct participation of directors when they are present at board meetings.

The resulting positive impact of the control variable L\_SIZE on sustainability, environmental, and social performance with significance at the 5%, 1%, and 5% levels, respectively, means that companies with more capital are more able to ensure the implementation of their sustainably directed policies and the achievement of the SDGs.

## 5. Discussion

As a result of the formation and approval by the UN of the SDG complex as a general imperative for organizing the activities of companies that care about not only their own enrichment, but also society as a whole, a new paradigm of information disclosure began to take shape in the world. Today, leading companies publish information not only about their financial condition and performance, but also about their role in ensuring sustainable development through special reports, in particular, sustainability reports. Such reports can be used not only as an indicator of the level of disclosure of companies' sustainability practices, but also as a means of analyzing the scale and effectiveness of the implementation of such practices, which generally characterize sustainability performance.

Information from sustainability reports can be used to analyze the impact of different types of factors, in particular, corporate governance mechanisms and characteristics, on sustainability performance. Due to the impact of such factors, the manifestation of certain SDGs is ensured: in particular, SDG 5: Gender Equality; SDG 8: Decent Work and Economic Growth; and SDG 16: Peace, Justice, and Strong Institutions.

The article has analyzed the impact of corporate governance mechanisms and characteristics (BS, NBM, DARBM, BI, BT, DVBEFF, DVIAP, and DVCCFC) on the sustainability performance index (SPI) and its individual types (EPI, SCI, and GPI) for BIST 50 Index companies. As a result of the study, the system of scientific knowledge about the results of sustainability performance and its individual types was expanded, considering corporate governance as an important factor that, according to stakeholder theory, can influence the processes of their formation, provision, and implementation. This study contributes to the literature on the role of corporate governance in achieving the SDGs for BIST 50 Index companies, highlighting the significant impact of its individual indicators (BS, DARBM, BT, and DVBEFF) on the achievement of sustainability performance and its individual types.

The results of the analysis of BIST 50 Index companies generally confirm the findings in the scientific literature that the direct impact of individual mechanisms and characteristics of corporate governance largely depends on general institutional factors and the specifics of reporting information on sustainability performance and the types based on which it is determined [4,6,10]. While some of the results obtained confirm the conclusions of the scientists, some contradict them, and for others, their impact on achieving sustainability performance and its types has not been determined at all.

Thus, the identified positive impact of BS (at the 5% level) on environmental performance confirms the findings of Masud, Nurunnabi, and Bae [14]; Gurol and Lagasio [18]; and Bosun-Fakunle, Mary, and Gbenga [24] and implies that the larger the board, the higher the level of its expertise, the better and more effective the connections, and the more diversity. This allows it to more carefully formulate the requirements and tasks that management must address in order to achieve the SDGs. On the other hand, the lack of such an impact in general for the overall sustainability performance can be explained by the arguments of Önder and Baimurzin [16], who emphasize the need to strengthen the quality of board members in addition to increasing the number.

The findings of this study on the need for regular CEO replacement to improve sustainability performance, based on the negative impact of BT (CEO tenure on the board) on all types of performance, support the generalization of Karn et al. [10] regarding their understanding of the significant risk of implementing sustainability practices and determine the need to apply agency theory to identify and substantiate the deeper causes and motives for the emergence of such a situation. Implementing such changes in the corporate governance system of Turkish enterprises will contribute to reducing organizational bureaucratization and minimizing cases of CEO opportunistic behavior.

While Shrivastava and Addas [17] and Cremona and Passador [19] argued for the need to increase board attendance to improve sustainability performance, the findings of the current study show the opposite results in terms of social performance, suggesting that board attendance in general plays a destructive role in companies' SDG achievement.

Although this study did not reveal the impact of involving independent members in the board of directors (board independence), the existence of which has been emphasized by many scholars [11,14,25], the identified positive impact of having an external assessment of the board's performance shows that in order to improve the level of implementation of SDG 16: Peace, Justice, and Strong Institutions, it is advisable to introduce independent external control tools into the corporate governance system of BIST 50 Index companies. The presence of external control tools will ensure that the board of directors and management act responsibly concerning the interests of shareholders in the context of ensuring the appropriate level of sustainability performance and achieving the SDGs.

Since the paper does not confirm the role of the board's gender structure in improving sustainability performance and its individual types, the presence of which was noted by

Kiliç, Kuzey, and Uyar [22]; Birindelli et al. [8]; Romano et al. [12]; Suttipun [20]; Gurol and Lagasio [18]; and Bosun-Fakunle, Mary, and Gbenga [24]; today we can talk about the possibility of pushing the problem of gender-balanced boards of directors in Turkish companies into the background, since such a balance is not an influential factor in increasing the effectiveness of achieving SDG 5: Gender Equality. This means that men and women in the BIST 50 Index companies play the same role in achieving the effectiveness of sustainable development and its components.

The analysis of the impact of the control variable *l\_SIZE* on sustainability and environmental and social performance, confirming the findings of Kiliç, Kuzey, and Uyar [22]; Romano et al. [12]; Suttipun [20]; Gurol and Lagasio [18]; and Irshad et al. [9] indicates the existence of a scale effect, with larger BIST 50 Index companies having better sustainability performance. And the lack of a relationship between *LEV* and any dependent variable confirms Romano et al.'s [12] findings that capital structure does not play a role in ensuring sustainability performance.

There are some limitations that should be considered when using the results of this study. Firstly, the study was conducted on the BIST 50 Index companies listed on the ISE, and not on all Turkish companies. Therefore, the obtained results may be somewhat overstated, since companies that are not part of the capital market are usually less concerned about achieving the SDGs. Secondly, the selected list of regressors for describing the mechanisms and characteristics of the corporate governance system is not exhaustive and can be clarified. In particular, it could be expanded to include a more detailed examination of such a system, which would provide detailed information on board diversity in a broad sense; the presence of influential representatives on the board; the impact of board remuneration levels on sustainability disclosure; the presence of a sustainability committee, CSR, or environmental committee; etc. Thirdly, other calculation methods can be used to form a system of dependent variables characterizing sustainability performance and its types. Fourth, to obtain more accurate results and avoid the problem of multicollinearity in the future, it is necessary to extend the time interval of the study and conduct a panel data analysis for several periods of publication of sustainability reports by BIST 50 Index companies.

## 6. Conclusions

The purpose of this study is to examine whether corporate governance mechanisms and attributes influence the sustainability performance of companies included in the BIST 50 Index. The article examines 45 sustainability reports of BIST 50 Index companies listed on the Istanbul Stock Exchange (ISE) and, based on the construction of four analytical models, determines how certain mechanisms and characteristics of the corporate governance system of such companies affect sustainability performance and its types (environmental performance, social performance, and corporate governance performance).

To assess sustainability performance and its individual types, four relevant indices were used—SPI, EPI, SCPI, and CGPI. These indices were used as dependent variables and were calculated based on the content analysis of the BIST 50 Index companies' sustainability reports. In the final case, eight regressors (BS, NBM, DARBM, BI, BT, DVBEFF, DVIAP, and DVCCFC) were used as independent variables for each of the analytical models that determine the characteristics and mechanisms of corporate governance of BIST 50 Index companies, as well as two independent variables—*LEV* and *l\_SIZE*. Some of these variables have a clear connection with the achievement of SDGs, in particular, BI with SDG 5: Gender Equality; DVBEAP with SDG 8: Decent Work and Economic Growth; and DVIAP with SDG 16: Peace, Justice, and Strong Institutions.

The main theoretical contribution of the article is that it was found that there is a significant positive effect of board tenure on sustainability performance and all its types; board size on environmental performance; and the dummy variable for board evaluation externally facilitated and company size on sustainability, environmental, and social performance. On the contrary, a significant negative effect of director attendance at board meetings on social performance was found. The results partially confirm and partially

contradict the research of scientists in this field. The reason for this is the peculiarities of the institutional environment of Turkey as a developing country, which influence the processes of construction and functioning of corporate governance systems and the formation of the methodology for sustainability disclosures.

The results of the study yielded managerial recommendations that will generally contribute to improving the SDG achievement processes in Turkish companies: expand the number of board members, which should improve the environmental performance of companies, and pay attention to strengthening their quality composition; develop an effective procedure for the regular replacement of CEOs on company boards so that they do not influence the limitation of sustainability practices; introduce independent external control instruments into the corporate governance systems of companies; and develop support mechanisms that will ensure better and more effective sustainability disclosure by small and medium-sized Turkish companies.

**Author Contributions:** Conceptualization, S.L. and I.Z.; methodology, S.L. and I.Z.; software, O.I. and I.Z.; validation, O.I.; formal analysis, S.L. and I.Z.; investigation I.C. and I.Z.; resources, S.L. and B.W.; data curation, S.L. and I.Z.; writing—original draft preparation, S.L.; writing—review and editing, S.L. and I.Z.; visualization, O.I.; supervision, I.C. and B.W. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research received no external funding.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data required for the study were collected using the public disclosure platform “KAP” (<https://www.kap.org.tr>, accessed on 1 May 2024).

**Conflicts of Interest:** The authors declare no conflicts of interest.

## References

1. Transforming Our World: The 2030 Agenda for Sustainable Development. Department of Economic and Social Affairs. Available online: <https://sdgs.un.org/publications/transforming-our-world-2030-agenda-sustainable-development-17981> (accessed on 10 May 2024).
2. Bulavinova, N.; Burdenko, I.; Lehenchuk, S.; Tsaruk, I.; Ostapchuk, T. Trends in Research of Responsible Investment in the Context of Sustainable Development: Bibliometric Analysis. *Agric. Resour. Econ.* **2021**, *7*, 179–199. [\[CrossRef\]](#)
3. Hyk, V.; Vysochan, O.; Vysochan, O. Sustainability Reporting Trends: A Systematic Literature Network Analysis. *Comp. Econ. Res.* **2023**, *26*, 7–31. [\[CrossRef\]](#)
4. Rosati, F.; Faria, L.G.D. Addressing the SDGs in Sustainability Reports: The Relationship with Institutional Factors. *J. Clean. Prod.* **2019**, *215*, 1312–1326. [\[CrossRef\]](#)
5. van Zanten, J.A.; van Tulder, R. Improving Companies’ Impacts on Sustainable Development: A Nexus Approach to the SDGs. *Bus. Strat. Environ.* **2021**, *30*, 3703–3720. [\[CrossRef\]](#)
6. Subramaniam, N.; Akbar, S.; Situ, H.; Ji, S.; Parikh, N. Effects of Institutional and Organisational Factors. *J. Clean. Prod.* **2023**, *411*, 137339. [\[CrossRef\]](#)
7. Threlfall, R.; King, A. The Time Has Come. KPMG. 1 December 2020. Available online: <https://kpmg.com/xx/en/home/insights/2020/11/the-time-has-come-survey-of-sustainability-reporting.html> (accessed on 10 May 2024).
8. Birindelli, G.; Dell’atti, S.; Iannuzzi, A.P.; Savioli, M. Composition and Activity of the Board of Directors: Impact on ESG Performance in the Banking System. *Sustainability* **2018**, *10*, 4699. [\[CrossRef\]](#)
9. Irshad, A.U.R.; Safdar, N.; Younas, Z.I.; Manzoor, W. Impact of Corporate Governance on Firms’ Environmental Performance: Case Study of Environmental Sustainability-Based Business Scenarios. *Sustainability* **2023**, *15*, 7775. [\[CrossRef\]](#)
10. Karn, I.; Mendiratta, E.; Fehre, K.; Oehmichen, J. The Effect of Corporate Governance on Corporate Environmental Sustainability: A Multilevel Review and Research Agen-da. *Bus. Strat. Environ.* **2022**, *32*, 2926–2961. [\[CrossRef\]](#)
11. Michelon, G.; Parbonetti, A. The Effect of Corporate Governance on Sustainability Disclosure. *J. Manag. Gov.* **2010**, *16*, 477–509. [\[CrossRef\]](#)
12. Romano, M.; Cirillo, A.; Favino, C.; Netti, A. ESG (Environmental, Social and Governance) Performance and Board Gender Diversity: The Moderating Role of CEO Duality. *Sustainability* **2020**, *12*, 9298. [\[CrossRef\]](#)
13. Vysochan, O.; Hyk, V.; Vysochan, O. The Impact of Corporate Governance, Financial Performance, Intellectual Capital and Enterprise Size on Integrated Reporting: Evidence from Ukraine. *J. Environ. Account. Manag.* **2023**, *11*, 429–439. [\[CrossRef\]](#)

14. Masud, M.A.K.; Nurunnabi, M.; Bae, S.M. The Effects of Corporate Governance on Environmental Sustainability Reporting: Empirical Evidence from South Asian Countries. *Asian J. Sustain. Soc. Responsib.* **2018**, *3*, 3. [CrossRef]
15. Almagtome, A.; Khaghaany, M.; Önce, S. Corporate Governance Quality, Stakeholders' Pressure, and Sustainable Development: An Integrated Approach. *Int. J. Math. Eng. Manag. Sci.* **2020**, *5*, 1077–1090. [CrossRef]
16. Önder, Ş.; Baimurzin, R. Effect of Corporate Governance on Sustainability Disclosures: Evidence from Turkey. *Indones. J. Sustain. Account. Manag.* **2020**, *4*, 93–102. [CrossRef]
17. Shrivastava, P.; Addas, A. The Impact of Corporate Governance on Sustainability Performance. *J. Sustain. Finance Investig.* **2014**, *4*, 21–37. [CrossRef]
18. Gurol, B.; Lagasio, V. Women Board Members' Impact on ESG Disclosure with Environment and Social Dimensions: Evidence from the European Banking Sector. *Soc. Responsib. J.* **2022**, *19*, 211–228. [CrossRef]
19. Cremona, B.M.; Passador, M.L. What About the Future of European Banks? Board Characteristics and ESG Impact. *Secur. Regul. Law J.* **2019**, *47*, 319–364. Available online: [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3441784](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3441784) (accessed on 25 June 2024).
20. Suttipun, M. The Influence of Board Composition on Environmental, Social and Governance (ESG) Disclosure of Thai Listed Companies. *Int. J. Discl. Gov.* **2021**, *18*, 391–402. [CrossRef]
21. Halid, S.; Mahmud, R.; Suffian, M.T.M.; Rahman, R.A. Does Firm's Board Affects ESG? Malaysian Evidence. *Int. J. Acad. Res. Account. Finance Manag. Sci.* **2022**, *12*, 131–143. [CrossRef]
22. Kiliç, M.; Kuzey, C.; Uyar, A. The Impact of Ownership and Board Structure on Corporate Social Responsibility (CSR) Reporting in the Turkish Banking Industry. *Corp. Gov.* **2015**, *15*, 357–374. [CrossRef]
23. Kılıç, M.; Kuzey, C. The Effect of Corporate Governance on Carbon Emission Disclosures. *Int. J. Clim. Chang. Strat. Manag.* **2019**, *11*, 35–53. [CrossRef]
24. Bosun-Fakunle, Y.F.; Mary, J.; Gbenga, E. Effect of Corporate Governance on Environmental Performance: Empirical Evidence from Zimbabwe. *Am. J. Ind. Bus. Manag.* **2023**, *13*, 163–181. [CrossRef]
25. Pasko, O.; Kharchenko, T.; Kovalenko, O.; Tkachenko, V.; Kuts, O. Is Corporate Governance a Significant Factor in Corporate Social Responsibility Disclosure? Insights from China. *Investig. Manag. Financ. Innov.* **2024**, *21*, 63–75. [CrossRef]
26. Soriya, S.; Rastogi, P. The Impact of Integrated Reporting on Financial Performance in India: A Panel Data Analysis. *J. Appl. Account. Res.* **2022**, *24*, 199–216. [CrossRef]
27. Lehenchuk, S.; Zhyhlei, I.; Ivashko, O.; Gliszczynski, G. The Impact of Sustainability Reporting on Financial Performance: Evidence from Turkish FBT and TCL Sectors. *Sustainability* **2023**, *15*, 14707. [CrossRef]
28. Raboshuk, A.; Zakharov, D.; Lehenchuk, S.; Morgulets, O.; Hryhorevska, O. The Relationship Between Corporate Governance Mechanisms and Financial Performance: The Case of Listed Industrial Companies in Oman. *Investig. Manag. Financ. Innov.* **2023**, *20*, 244–255. [CrossRef]

**Disclaimer/Publisher's Note:** The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.