ISSN 1678-6971 • *RAM. Rev. Adm. Mackenzie*, São Paulo, *26*(5), eRAMF250129, 2025
https://doi.org/10.1590/1678-6971/eRAMF250129
Submitted: Aug. 06, 2024 | Approved: Mar. 20, 2025
Section: Strategic Finance

Good corporate governance and corporate sustainability performance in Indonesia

Boa governança corporativa e desempenho de sustentabilidade corporativa na Indonésia

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To cite this paper: Surbakti, L. P., Sari, R. P., Swatdikun, T., Nugraheni, R., & Wibawaningsih, E. J. (2025). Good corporate governance and corporate sustainability performance in Indonesia. *Revista de Administração Mackenzie*, *26*(5), 1-32. https://doi.org/10.1590/1678-6971/eRAMF250129

RAM does not have information about open data regarding this manuscript.
RAM does not have permission from the authors or evaluators to publish this article's review.

Abstract

Purpose: This study investigated the effect of good corporate governance on corporate sustainability performance using the triple-bottom-line approach within a two-tier governance system. Good corporate governance is measured by the size, expertise, gender diversity, age, and educational background of the board of commissioners and top management team. Corporate sustainability performance is assessed across economic, social, and environmental dimensions.

Originality/value: This study uniquely explored how different aspects of good corporate governance influence corporate sustainability performance using recent data from Indonesian non-financial companies. It revealed significant roles of top management's education and gender diversity, offering valuable insights for research and practice.

Design/methodology/approach: The sample data for this study was collected from annual reports, financial statements, and sustainability reports of non-financial companies listed on the Indonesia Stock Exchange (IDX) for 2019 to 2021. Multiple regression analysis was applied to test the study's hypotheses.

Findings: Higher levels of education among top management have significantly enhanced corporate sustainability performance. Gender diversity within top management teams has positively influenced economic performance. Interchangeably, gender diversity on the board of commissioners has reduced economic performance. Additionally, the level of education among board members has not significantly impacted overall corporate sustainability performance. These insights provided valuable contributions to understanding how various aspects of good corporate governance influence different dimensions of corporate sustainability, offering implications for academic research and corporate practice.

Keywords: good corporate governance, board, top management team, corporate sustainability performance, Triple Bottom Line

ISSN 1678-6971 • *RAM. Rev. Adm. Mackenzie*, São Paulo, *26*(5), eRAMF250129, 2025
https://doi.org/10.1590/1678-6971/eRAMF250129

Resumo

Objetivo: Este estudo investigou o efeito da boa governança corporativa no desempenho da sustentabilidade corporativa utilizando a abordagem do Tripé da Sustentabilidade (Triple Bottom Line) em um sistema de governança de dois níveis. A boa governança corporativa é medida pelo tamanho, expertise, diversidade de gênero, idade e formação educacional do conselho de administração e da alta administração. O desempenho da sustentabilidade corporativa é avaliado nas dimensões econômica, social e ambiental.

Originalidade/valor: Este estudo explorou de forma única como diferentes aspectos da boa governança corporativa influenciam o desempenho da sustentabilidade corporativa utilizando dados recentes de empresas não financeiras da Indonésia. Revelou papéis significativos da educação da alta administração e da diversidade de gênero, oferecendo insights valiosos para pesquisa e prática.

Design/metodologia/abordagem: Os dados da amostra para este estudo foram coletados de relatórios anuais, demonstrações financeiras e relatórios de sustentabilidade de empresas não financeiras listadas na Bolsa de Valores da Indonésia (IDX) de 2019 a 2021. A análise de regressão múltipla foi aplicada para testar as hipóteses do estudo.

Resultados: Níveis mais elevados de educação entre a alta administração melhoraram significativamente o desempenho da sustentabilidade corporativa. A diversidade de gênero nas equipes de alta gerência influenciou positivamente o desempenho econômico. Por outro lado, a diversidade de gênero no conselho de administração reduziu o desempenho econômico. Além disso, o nível de escolaridade dos membros do conselho não impactou significativamente o desempenho geral da sustentabilidade corporativa. Esses insights forneceram contribuições valiosas para a compreensão de como vários aspectos da boa governança corporativa influenciam diferentes dimensões da sustentabilidade corporativa, oferecendo implicações para a pesquisa acadêmica e a prática corporativa.

Palavras-chave: boa governança corporativa, conselho, equipe de alta gerência, desempenho de sustentabilidade corporativa, Tripé da Sustentabilidade

ISSN 1678-6971 • *RAM. Rev. Adm. Mackenzie*, São Paulo, *26*(5), eRAMF250129, 2025
https://doi.org/10.1590/1678-6971/eRAMF250129

INTRODUCTION

The UN Report on Environment and Development states that corporate sustainability is a strategy to balance the interests of current and future stakeholders (World Commission on Environment and Development, 1987). Corporate sustainability performance allows companies to integrate environmental, economic, and social considerations into their operations, benefiting both the company and the society (Artiach et al., 2010). In sustainability theory, Meadows et al. (1972) defined that companies must respond to society's priorities, particularly their social, environmental, and economic welfare. This response has to meet the needs of the present and future generations (World Commission on Environment and Development, 1987). The concept of sustainability is currently growing and implemented in the context of corporate sustainability (Mengko et al., 2022; Jamil et al., 2021).

Artiach et al. (2010) and Pemer et al. (2020) stated that businesses and investments will improve through balancing the needs of current and future stakeholders. Elkington and Rowlands (1999) and Harum et al. (2024) proposed that corporate sustainability is operationalized through the concept of the triple bottom line (TBL), consisting of economic, social, and environmental factors. Markley and Davis (2007) and Pemer et al. (2020) proved that companies focusing on TBL have increased their competitive advantage. Thus, sustainability theory underlies the crucial roles of Board of Commissioners (BoC) and Top Management Team (TMT) in implementing Good Corporate Governance (GCG) that can balance economic, social, and enviromental activities to achieve Corporate Social Performance (CSP) (Tjahjadi et al., 2021).

The global demand for equal representation of women on boards has forced companies to increase the percentage of women on boards. Australian Securities Exchange (ASX) Corporate Governance Council (2007) showed an increase in the presence of women members on the board from 2013 to 2015, from 22% to 34%. Several European countries require gender diversity in company boards, with equal representation of women concerning human rights and justice. Previous studies have proven that gender composition affects company performance and value (Credit Suisse, 2012; Rao & Tilt, 2016).

To date, a large body of literature has focused on the relationship between CSR and firm financial performance (Aupperle et al., 1985; Orlitzky et al., 2003; Mishra & Suar, 2010). Although results vary, the positive relation between CSR and financial performance is the prevailing result (Waddock & Graves, 1997; Orlitzky et al., 2003). Most studies were conducted in

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developed countries. Mishra and Suar (2010) attribute the lack of similar studies in developing countries to institutional weaknesses. Therefore, this study aims to fill the gap and expand research in both developed and developing markets. An evaluation of the CSR-CFP relationship can help managers understand the impact of social responsibility on company growth (Zimon et al., 2022). Evidence from a transition market like the TSE may enhance external validity (Salehi et al., 2018).

In Indonesia, social and environmental responsibility was regulated in the 2007 Limited Company Law. GCG implementation is supervised by The Financial Services Authority (OJK), with sustainability performance as a key focus of the OJK master plan. This study examines the effect of GCG on CSP in a two-tier system. Specifically, the study investigates:

1. Does GCG (Board size, education, expertise, gender diversity) affect CSP?
2. Does GCG (TMT size, CEO education, TMT age) affect CSP?

This study builds on Hussain et al. (2018) and Tjahjadi et al. (2021), expanding their model with board expertise and TMT age, and uses the GRI-G4 guidelines (Global Reporting Initiative – fourth generation, released in 2013) to measure Corporate Social Performance (CSP). The focus is on non-financial companies listed on Indonesia Stock Exchange (IDX) (2019-2021), making it relevant for Indonesia as an emerging market with gender, environmental, and governance challenges.

LITERATURE REVIEW

Sustainability refers to a key concern for all United Nations members, with 17 goals outlined in the Sustainable Development Goals (SDGs) aiming to end poverty, protect the planet, and ensure prosperity by 2030. Companies are expected to implement sustainable practices to achieve their vision and mission, thereby earning stakeholder trust. According to the Global Reporting Initiative (GRI), maintaining trust is essential for achieving corporate sustainability (Tjahjadi et al., 2021).

Corporate Sustainability Performance (CSP) refers to long-term business performance that maintains economic, social, and environmental welfare (Formentini & Taticchi, 2016; Hassini et al., 2012). Many international companies use GRI as an indicator in reporting, particularly the GRI G4 (2013) and GRI Standards (2016). This study uses GRI-G4 guidelines (Global Reporting Initiative – fourth generation, released in 2013) for data availability reasons.

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To explain the GCG-CSP relationship, this study employs three theories: agency theory (Jensen & Meckling, 2019), upper echelons theory (Hambrick & Mason, 1984), and sustainability theory (Meadows et al., 1972). Agency theory defines the board's role in GCG and addresses conflicts between shareholders and management (Chams & García-Blandon, 2019). Effective GCG can resolve these conflicts and improve CSP (Salehi et al., 2021). Upper echelons theory highlights the role of top leadership in shaping CSP through attributes like education and experience (Hambrick & Mason, 1984). Higher education enhances problem-solving and decision-making capabilities, positively influencing performance (Papadimitri et al., 2020). Sustainability theory emphasizes balancing economic, social, and environmental goals to meet present and future needs (World Commission on Environment and Development, 1987). GCG contributes to sustainable performance and increased corporate value through Corporate Social Responsibility (CSR) (Tjahjadi et al., 2021; Klettner et al., 2014).

CSR is an essential instrument to build sustainability, defined as voluntary practices beyond legal obligations that integrate social, environmental, and economic concerns (Činčalová & Prokop, 2019; Matten & Moon, 2008). Thus, CSP reflects a firm's integration of these dimensions. These three theories form the basis for this study's framework linking GCG to CSP.

CSP depends heavily on the quality of GCG, which builds stakeholder trust (Tjahjadi et al., 2021). In Indonesia, a two-tier system separates the supervisory role of the Board of Commissioners (BoC) and the executive role of the Board of Directors (BoD or TMT). This separation enhances transparency and decision-making (Pellegrini et al., 2016). The BoC supervises and advises the BoD, as regulated by the OJK (2007), supporting strategic decision-making and reducing agency problems (Adams et al., 2015; Nadeem et al., 2017). The board holds responsibility for sustainability through governance and decision-making (Díaz-Fernandez et al., 2020; Krechovská & Procházková, 2014).

Implementing GCG strengthens CSP by increasing stakeholder trust (Hussain et al., 2018). GCG is based on five principles: fairness, accountability, responsibility, transparency, and independence. Boards must ensure these principles are upheld, guiding managers in decision-making and stakeholder engagement (Naciti, 2019). Zona et al. (2018) affirm the board's impact on performance.

This study emphasizes the theoretical foundation again: agency theory addresses GCG structure and conflict resolution; upper echelons theory links top leadership traits to CSP; and sustainability theory promotes balance among economic, social, and environmental dimensions. GCG enhances CSP

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and CSR, fostering sustainable growth (Jaimes-Valdez & Jacobo-Hernandez, 2016; Sharma & Khanna, 2014).

Since 2007, Indonesia's Limited Liability Companies Law has mandated social and environmental responsibility. The Financial Services Authority (OJK) further regulates GCG for public companies. Sustainability finance is prioritized in OJK's strategic plan (Tjahjadi et al., 2021).

This research investigates GCG's influence on CSP using a Triple Bottom Line (TBL) framework in Indonesia. It addresses two questions: (1) Does GCG (Board size, Board education, Board expertise, Board gender diversity) affect CSP (economic, social, and environmental)? (2) Does GCG (TMT size, CEO Education, TMT age) affect CSP? This study extends prior work (Tjahjadi et al., 2021) by adding variables such as board expertise, board gender diversity, and TMT age. CSP is measured using GRI-G4 across economic, social, and environmental indicators. The study focuses on non-financial companies listed on the Indonesian Stock Exchange (IDX) from 2019 to 2021. Indonesia, as an emerging market, faces gender, environmental, and governance challenges, making this research particularly relevant. Much of the existing literature focuses on CSR and financial performance (Aupperle et al., 1985; Marcus, 1989; Teoh et al., 1999; Wright & Ferris, 1997; Margolis & Walsh, 2003; Orlitzky et al., 2003; Mishra & Suar, 2010), with mixed findings. Nonetheless, a positive link between CSR and financial performance is most common (Griffin & Mahon, 1997; Waddock & Graves, 1997). These studies largely originate from developed countries, highlighting a lack of empirical evidence in developing markets. Mishra and Suar (2010) attribute this to institutional and regulatory weaknesses in such countries.

In contexts like Iran, limited attention is given to CSR disclosure due to the belief that customers do not consider CSR when making purchases (Zimon et al., 2022). There is a need to understand whether investors in such markets respond to CSR disclosure. This study contributes to this gap by exploring the CSR-CSP relationship in an emerging economy. Findings can help managers assess the strategic value of CSR investments in company growth (Salehi et al., 2018). Research in transition markets with unique socio-economic and cultural contexts, like the TSE, can enhance the global relevance of CSR literature.

METHODOLOGY

This study has investigated the effect of Good Corporate Governance (GCG) on corporate sustainability performance. The sample includes

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companies listed on the Indonesia Stock Exchange, with data covering the financial years 2018–2021. The research period was chosen due to considerations related to the implementation of corporate sustainability performance and good corporate governance in companies. The dependent variable is Corporate Sustainability Performance, while the independent variables are elements of GCG. Data were collected from annual reports accessed through the Indonesia Stock Exchange's website and the data stream. Corporate sustainability performance refers to the disclosure of sustainability indicators in the annual sustainability report, comprising economic, environmental, and social indicators based on the GRI 2016 Standard (GSSB, 2016), which includes 89 items, consisting of 17 economic indicators, 32 environmental indicators, and 40 social indicators. The corporate sustainability disclosure index is used to measure sustainability performance, assigning a value of 1 for each disclosed item and 0 if not disclosed (Zaid et al., 2020). The research model used in this study is:

Model:

$$EcoSP_{it} = \alpha + \beta_1 BOCSize_{it} + \beta_2 BOCEdu_{it} + \beta_3 BOCGend_{it} + \beta_4 TMTSize_{it} + \beta_5 TMTEdu_{it} + \beta_6 TMTGend_{it} + \beta_7 LEV_{it} + \beta_8 AgeFirm_{it} + \beta_9 SizeFirm_{it} + \beta_{10} ROA_{it} + \beta_{11} IE_{it} + e_{it}$$

Description:

Table 1 presents the definitions and measurements of the variables used to assess Corporate Sustainability Performance (CSP).

Table 1

Definition and Measurement of Corporate Sustainability Performance Variables

Variable	Acronym	Measurement
Corporate Sustainability Performance		
Economic Sustainability Performance	ECOSP	$\frac{\text{Total score for economic sustainability disclosure}}{\text{Total point economic sustainability disclosure}}$
Environment Sustainability Performance	ENVSP	$\frac{\text{Total score for environment sustainability disclosure}}{\text{Total point environment sustainability disclosure}}$
Social Sustainability Performance	SOCSP	$\frac{\text{Total score for social sustainability disclosure}}{\text{Total point social sustainability disclosure}}$

(continues)

ISSN 1678-6971 • *RAM. Rev. Adm. Mackenzie*, São Paulo, *26*(5), eRAMF250129, 2025
https://doi.org/10.1590/1678-6971/eRAMF250129

Table 1 (conclusion)

Definition and Measurement of Corporate Sustainability Performance Variables

Variable	Acronym	Measurement
Good Corporate Governance		
Board of Commissioner Size	BOCSize	The total number of commissioners in the Company
Board of Commissioner Education	BOCEdu	The BoC with a Bachelor's, Master's, MBA, and Ph.D. educational background is assigned a dummy variable with a value of 1. Otherwise, they are assigned the value of 0.
Gender Diversity on the Board of Commissioners	BOCGend	The ratio of female commissioners divided by the total number of commissioners
Top Management Team Size	TMTSize	The total number of top executives in the company
Top Management (CEO) Education	TMTEdu	A dummy variable (score of 0 is given to CEOs who do not have a college education, a score of 1 is given to a CEO who has an undergraduate education, and a score of 2 is given to a CEO who has a postgraduate education)
Top Management (CEO) Gender	TMTGend	The ratio of female Top Management (CEO) divided by the total number of Top Management
Control Variable		
Leverage	Lev	Total Liabilities divided by total assets
Firm Age	AgeFirm	a logarithm of the number of years since foundation
Firm Size	SizeFirm	Natural logarithm of Total Asset
Profitability	ROA	Calculated by dividing a firm's net income by the total assets.
Industry Effect	IE	A dummy variable (where 1 (one) indicates whether a company is in the manufacturing industry and 0 (zero) otherwise.

Prior to conducting panel data regression analysis, this study conducted a series of classical assumption tests to ensure model validity, including normality, multicollinearity, heteroscedasticity, and autocorrelation tests. Autocorrelation testing was performed using the Wooldridge Test. If extreme

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outliers were found, adjustments were made using the Winsorized Treatment of 2% to maintain data consistency without deleting observations.

RESULTS

Panel Data Regression Test

The Panel Data Regression Test was carried out because the sample data used in this study is panel data. The sample is data from 56 non-financial companies listed on the Indonesia Stock Exchange (IDX) from 2019 to 2021. Several tests were carried out to perform the panel data regression test: the Chow Test, the Lagrange-Multiplier (LM) Test, and the Hausman Test. This testing procedure aimed to determine the best regression model that fits the sample characteristics. The regression model selected in the panel data regression test may be the ordinary least squares (OLS) model or, known by another name, the common effect model (CEM), the random effect model (REM), or the fixed effect model (FEM).

Panel Data Model Test

To select the most appropriate model used in managing panel data, several tests can be performed, namely: (1) Chow Test (Common Effect vs Fixed Effect), (2) Hausman Test (Fixed Effect vs Random Effect), and (3) Lagrange Multiplier Test (Random Effect vs Common Effect). The following is the application of model selection in this study:

Table 2

Panel Data Model Test

Chow test results			
	Model 1	Model 2	Model 3
Prob > F	0.608	0.000	0.004
α	0.05	0.05	0.05
Results of The Lagrange-Multiplier test			
Chibar2(01)	64.22	39.35	34.58
Prob > chibar2	0.000	0.000	0.000

(continues)

ISSN 1678-6971 • *RAM. Rev. Adm. Mackenzie*, São Paulo, *26*(5), eRAMF250129, 2025
https://doi.org/10.1590/1678-6971/eRAMF250129

Table 2 (conclusion)

Panel Data Model Test

Chow test results			
	Model 1	Model 2	Model 3
Hausman Test Results			
Chi2(10)	11.71	47.33	24.05
Prob > chi2	0.305	0.000	0.008

Note: Model 1: random effect; Model 2 & 3: fixed effect. Prob > F: Probability value from the Chow test to compare Common Effect and Fixed Effect. α: Significance level used as the limit for accepting/rejecting the hypothesis. Chibar2: Lagrange Multiplier test statistic to compare Random Effect with Common Effect. Prob > chibar2: Probability value from the Lagrange Multiplier test. Chi2: Hausman test statistic to compare Fixed Effect with Random Effect. Prob > chi2: Probability value from the Hausman test.

Chow Test

The Chow test used panel data to determine the appropriate regression model between the common effect/ordinary. Based on the results in Table 2 above, it can be concluded that based on the Chow Model 1 test fit using the Ordinary Least Square model, Model 2 fits with the Fixed Effect Model, while Model 3 fits with the Fixed Effect Model.

Lagrange-Multiplier Test

The Lagrange Multiplier test is carried out to determine whether the panel data fits the common effect. Based on the results of the LM test in Table 2 above, it can be concluded that Model 1, Model 2, and Model 3 all fit the Random Effect model.

Hausman Test

The Hausman test was carried out to find the proper method to use between the fixed and random effect models.

Based on the results of the Hausman test in Table 2 above, it can be concluded that Model 1 is fit with the Random Effect model, while Models 2 and 3 are fit with the Fixed Effect model. So, for the panel data regression model used in this study, Model 1 is a random effect model, while Models 2 and 3 use a fixed effect model.

ISSN 1678-6971 • *RAM. Rev. Adm. Mackenzie*, São Paulo, *26*(5), eRAMF250129, 2025
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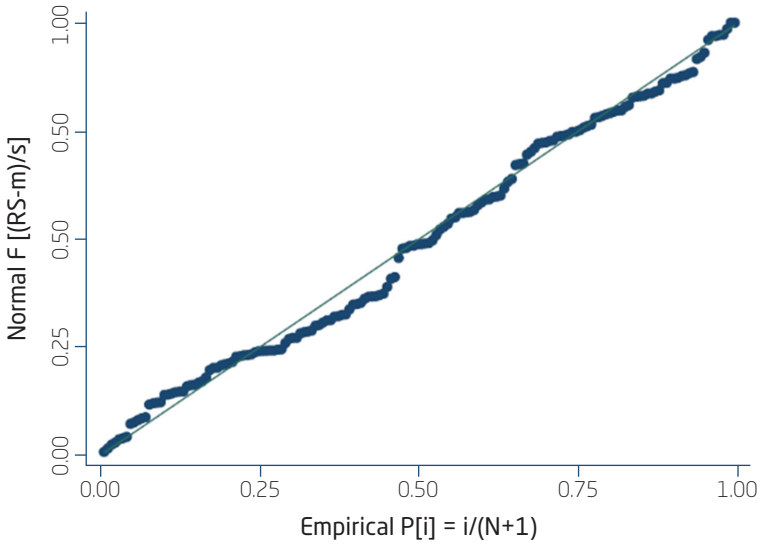
Normality test

The normality test was carried out to determine whether the research data was normally distributed. The skewness kurtosis test is used to test the normality of the data in this study, where the data can be said to be normal if it has a skewness of less than 3 and a kurtosis of less than 10. The researcher also uses analysis of histogram data graphs and normal probability plot graphs (P-Plot).

There is abnormal data for the ROA variable, so it is necessary to normalize the data using Winsorized Treatment. Winsorized Treatment is carried out using a percentage of 2%.

Figure 1

P-Plot and Histogram Normality Graphs for ECOSP, ENVSP, SOCSP



The P-Plot graph above shows that the data in this study have been distributed according to the diagonal line, and no spread is too wide from the diagonal line. The histogram displays a symmetric pattern, with frequencies tapering evenly on both sides, not skewed to the right or left. It indicates that the research data for Economic Sustainability Performance, Environment Sustainability Performance, and Social Sustainability Performance have been normally and well distributed.

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https://doi.org/10.1590/1678-6971/eRAMF250129

Multicollinearity Test

The multicollinearity test is based on the Variance Inflation Factor (VIF) value of each independent variable in Table 3.

Table 3

Multicollinearity Test Results

Variable	VIF	Tolerance
BOCSize	1.81	0.552
BOCEdu	1.11	0.899
BOCGend	1.13	0.884
TMTSize	1.56	0.641
TMTEdu	1.06	0.946
TMTGend	1.35	0.741
Lev	1.78	0.560
AgeFirm	1.22	0.820
SizeFirm	1.77	0.565
ROA_w	1.57	0.638
IE	1.13	0.885
Mean VIF	1.41	

Based on the data processing results, no independent variable has a VIF value greater than 10, so multicollinearity does not occur between the independent variables.

Autocorrelation Test

Autocorrelation in panel data was tested using the Wooldridge test. This test examines whether there is serial correlation in the residuals of the panel data model. The null hypothesis states that there is no autocorrelation. If the probability value ($Prob > F$) is smaller than the significance level ($\alpha = 0.05$), the null hypothesis is rejected, indicating autocorrelation. The test was applied to Model 1 (Random Effect), Model 2 (Fixed Effect), and Model 3 (Fixed Effect) as determined from the panel model selection tests.

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Table 4

Autocorrelation Test Results

	Model 1	Model 2	Model 3
F (1, 55)	4.555	1.983	3.423
Prob > F	0.037	0.165	0.070

Note: Model 1: Random Effect; Model 2 & 3: Fixed Effect. F: Wooldridge test statistic to detect autocorrelation in panel data. Prob > F: The probability value of the autocorrelation test; if this value is smaller than the significance level (α), then there is autocorrelation in the model.

Based on the results of the autocorrelation test using the Wooldridge test for autocorrelation in panel data, using $\alpha = 0.05$, Models 2 and 3 are free from autocorrelation problems, while Model 1 has autocorrelation problems.

Heteroscedasticity Test

The heteroscedasticity test in Model 1 was not carried out because it uses a random effect model. Meanwhile, for Models 2 and 3, heteroscedasticity tests were carried out because they used the fixed effect model.

Table 5

Model 2 and Model 3 Heteroscedasticity Test Results

	Model 2	Model 3
$Chi^2(56)$	17585.26	4.5e+06
Prob > Chi^2	0.000	0.000

Note: Models 2 & 3: Fixed Effects. Chi^2: Modified Wald test statistic to detect heteroscedasticity in panel data with a fixed effects model. Prob > Chi^2: Probability value from the Modified Wald test; if this value is less than the significance level (α), then heteroscedasticity is present in the model.

Based on the results of the heteroscedasticity test using the Modified Wald test for groupwise heteroscedasticity in the fixed effect regression model, the results show that Model 2 and Model 3 have heteroscedasticity problems.

Descriptive Statistics

Table 6 below shows the descriptive statistics of this study. The table shows each variable's mean, standard deviation, minimum, and maximum

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value. In this study, the data used as samples to test the hypotheses built are from non-financial companies listed on the Indonesia Stock Exchange (IDX) from 2019 to 2021.

Descriptive statistical analysis test is an analytical test that aims to see the characteristics of each variable in a research model, namely corporate sustainability performance, BOC size, president of BOC's education, BOC Gender, TMT Size, president of TMT's education, TMT gender, leverage, Firm Age, Firm Size, ROA and Industrial Effect. This test looks at the mean (average), standard deviation, minimum and maximum values.

Table 6

Results of Descriptive Statistics After Normalization

Variable	Obs	Mean	Std. Dev	Min	Max
ECOSP	168	0.314	0.170	0	0.9411765
ENVSP	168	0.372	0.214	0	0.90625
SOCSP	168	0.346	0.171	0.025	0.8
BOCSize	168	5.179	1.832	2	10
BOCEdu	168	1.577	0.865	0	3
BOCGend	168	0.087	0.137	0	0.75
TMTSize	168	5.958	1.884	3	13
TMTEdu	168	1.530	0.568	0	2
TMTGend	168	0.106	0.145	0	0.6
Lev	168	0.549	0.248	0.103	1.850
AgeFirm	168	40.893	19.771	5	103
SizeFirm	168	30.570	1.289	27.527	33.537
ROA	168	0.035	0.081	-0.229	0.302
IE	168	0.411	0.493	0	1

Table 6 shows the results of the descriptive statistical test on each variable in the study with a total sample of 168 companies in the 2019-2021 period.

1. Economic Sustainability Performance

Based on the descriptive statistics in the table above, the ECOSP variable has an average value of 0.3144258, which means that within 3 years, the

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average sample company can show that the quality of the sustainability performance of the economic sector in the sustainability report is 31%. This figure is classified as a relatively low economic sustainability performance.

2. Environment Sustainability Performance

Based on the descriptive statistics in the table above, the ENVSP variable has an average value of 0.3716518, which means that within 3 years, the average sample company can show that the quality of the environmental sector's sustainability performance in the sustainability report is 35%. This figure is relatively low in terms of environmental sustainability performance carried out by the sample companies.

3. Social Sustainability Performance

Based on the descriptive statistics in the table above, the SOCSP variable has an average value of 0.3458333, which means that within 3 years, the average sample company can show the quality of social sector sustainability performance in the sustainability report is 34.58%. This figure is relatively low regarding social sustainability performance disclosures by companies.

4. Board of Commissioner's Size (BOCSize)

The BOCSize variable in Table 6 above is measured based on the number of commissioners in the sample company. The average value resulting from the statistical test is 5.178571, which states that the average number of members of the board of commissioners is 5 people in the company sample. The Financial Services Authority Regulations (POJK), No. 33/POJK. 04/2014 states that the board of commissioners consists of a minimum of 2 people; this indicates that the average sample company complies with the applicable OJK regulations. The table shows that the commissioners are at least 2 people and a maximum of 10 people (Otoritas Jasa Keuangan, 2014).

5. President of the Board of Commissioner's Education (BOCEdu)

The BOCEdu or president of BOC's education variable is measured by looking at the educational background of the president commissioner. In this variable, the mean value is 1.577381, which indicates that the average commissioner president of the company sample has an educational background or a higher degree than a bachelor's degree. The minimum value of this variable is 0, which indicates that there is a commissioner president from the sample company who does not have a minimum bachelor's degree. The maximum value of the variable is 3, which indicates that a presidential commissioner has a doctoral degree.

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6. Board of Commissioner's Gender (BOC Gender)

The BOC Gender variable is measured based on the ratio of the board of commissioners with a female gender compared to the total number of commissioners. The average value for the BOCGend variable based on Table 9 is 0.0872024, which means that, on average, the ratio of the board of commissioners with a female gender is only 8.7% of the total number of commissioners. It shows that men still dominate 93.3% of the members of the Board of Commissioners.

7. Top of Management's Size (TMTSize)

The TMTSize variable in Table 6 above is measured based on the number of members of the board of directors in the sample company. The average value resulting from the statistical test is 5.958333, which states that the average number of members of the board of directors is nearly 6 people in the company sample. The Financial Services Authority Regulations (POJK), No. 33/POJK.04/2014 states that the board of directors consists of a minimum of 2 people; this indicates that the average sample company complies with the applicable OJK regulations. From the table, it can be seen that the number of board of directors is at least 3 people and a maximum of 13 people (Otoritas Jasa Keuangan, 2014).

8. Top of Management's Education (TMT Edu)

The TMTEdu or Top of Management education variable is measured by looking at the educational background of the chairman of the board of directors or president director (CEO). In this variable, the mean value is 1.529762, which indicates that the average CEO of the company sample has an educational background or a higher degree than a bachelor's degree. The minimum value of this variable is 0, which indicates that there are CEOs from the sample companies who do not have a minimum S1 education. At the same time, the maximum value of the variable is 2, which indicates that there are CEOs with a Master's degree.

9. Top of Management's Gender (TMT Gender)

The TMT Gender variable is measured based on the ratio of the board of directors with a female gender compared to the total number of board members. The average value for the TMTGender variable based on Table 6 is 0.106015, which means that, on average, the ratio of the board of directors with a female gender is only 10.6% of the total board of directors. It shows that men still dominate the board of directors members at 89.6%.

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10. Leverage

The LEV or leverage variable is the control variable used in this study. The goal is to determine the company's ability to mark company activities. This variable is measured by the company's total liabilities divided by the company's total assets. In this variable, the mean value is 0.5492707 or 54.9%. It indicates that more than half of the sample companies used in the study are highly dependent on loans to finance assets or fund company activities.

11. Firm Age

AgeFirm or Firm Age variable is the control variable used in this study. This variable is measured by calculating the time the company was founded. In this variable, the mean value is 40.89286. It indicates that the average sample companies used in the study have been established for 40 years. Some companies have only been established for five years, while the oldest company has been established for 103 years.

12. Firm Size

Firm Size is one of the control variables used in this study. It is measured using the natural logarithm of the total assets as reported in the companies' financial statements. The mean value is 30.57, which corresponds to an average total asset value of approximately IDR 18.9 trillion.

13. Return on Asset

Return on Assets (ROA) is one of the control variables used in this study. This variable is measured by dividing profit after tax by the company's total assets. In this variable, the mean value is 0.0353196. It indicates that the average sample company can generate the maximum possible profit of 3.53 %.

14. Industrial Effect

Industrial Effect (IE) is one of the control variables used in this study. This variable is measured by giving 1 to manufacturing companies and 0 to the others. The mean value for this variable is 0.4107143; this indicates that the number of manufacturing companies sampled is less than 50% of the total data.

Hypothesis testing

The following testing stage is to test the hypotheses formulated in the research. This test was carried out using the coefficient of determination test (R^2) and partial regression test (t-test).

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Table 7

Results of Model 1, Model 2 and Model 3

	Model 1		Model 2		Model 3	
	Coef.	P > |t|	Coef.	P > |t|	Coef.	P > |t|
BOCSize	0.025	0.003***	.005	0.187	.003	0.595
BOCEdu	-0.020	0.149	-.0133	0.303	-.008	0.318
BOCGend	-0.199	0.024**	.069	0.475	.163	0.167
TMTSize	-0.023	0.003***	.001	0.942	.003	0.505
TMTEdu	0.050	0.017**	-.036	0.000***	-.043	0.000***
TMTGend	0.200	0.028**	-.110	0.132	.045	0.294
Lev	0.014	0.819	-.0433	0.245	-.136	0.031**
AgeFirm	-0.001	0.094*	.0689	0.000***	.052	0.000***
SizeFirm	0.027	0.019**	.063	0.229	.001	0.987
ROA_w	0.116	0.507	.001	0.987	.019	0.725
IE	-0.104	0.000**	-	-	-	-
cons	-0.493	0.131	-4.286	0.009	-1.688	0.271
Sig	0.000		0.506		0.172	
R-square	0.026		0.263		0.218	
N	168		168		168	

Note: *p-value < 0.1; **p-value<0.05; ***p-value<0.01. Model 1: random effect; Model 2 & 3: fixed effect. "Coef." refers to the regression coefficient, while "P > |t|" indicates the p-value from the t-test used to assess statistical significance of the coefficient.

Determination Coefficient Test (R^2)

This test is conducted to obtain information about the ability of the regression model to define the dependent variable. If the value of R^2 is close to 1, it can be predicted that there is a strong relationship between the independent and dependent variables of the regression model.

Based on the test results in Table 7 the R^2 value for model 1 of economic sustainability performance is 0.0265 or 2.65%. It indicates that the influence of the independent variables BOC Size, BOC Edu, BOC Gender, TMTSize, TMT Edu, TMT Gender and the control variables LEV, AGE, SIZE, ROA, and IE on the dependent variable Economic Sustainability Performance of non-financial companies in the 2019-2021 which, is listed on the Indonesia

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Stock Exchange, is 2.65%. At the same time, the remaining percentage is the influence of other external factors or other variables not used by researchers.

From the test results of Table 7, the R^2 value for model 2 of Environment Sustainability Performance is 0.2629 or 26.29%. It indicates that the effect of the independent variables BOC Size, BOC Edu, BOC Gender, TMTSize, TMT Edu, TMT Gender, and the control variables LEV, AGE, SIZE, ROA, and IE on the dependent variable environment sustainability performance of non-financial companies in the 2019-2021, which is listed on the Indonesia Stock Exchange, is 26.29%.

According to the results in Table 7, the R^2 value for model 3 of social sustainability performance is 0.2177 or 21.77%. It indicates that the effect of the independent variables BOCSize, BOC Edu, BOC Gender, TMTSize, TMT Edu, TMT Gender and the control variables LEV, AGE, SIZE, ROA, and IE on the dependent variable social sustainability performance of non-financial companies in 2019-2021 listed on the Indonesia Stock Exchange is 21.77%. At the same time, the remaining percentage is the influence of other external factors or other variables not used by researchers.

Partial Regression Test (t-test)

The t-test was conducted to determine how much each independent variable influences the dependent variable. If the significance value is <0.05 or 0.10, it can be concluded that the independent variable has an influence on the dependent variable, or it can be concluded that the hypothesis is accepted. Meanwhile, if the opposite occurs, it can be concluded that the hypothesis is rejected. The following explains the data processing results from hypothesis testing in Table 7.

1. Board of Commissioner Size

The Board of Commissioner Size (BOCSize) has a probability value of 0.003, with a positive direction towards Economic Sustainability Performance (ECOSP) in Model 1 using a significance level of 5% (0.003 <p = 0.05). It means that the BOCSize variable significantly affects ECOSP, in which the more members in the BOC, the better the ECOSP and the company will be. Furthermore, BOCSize has a probability value of 0.187 (0.187 > p = 0.05) in Model 2 and a probability value of 0.595 (0.595 > p = 0.05) in model 3. It shows that the BOCSize variable has no significant effect on Environmental Sustainability Performance (ENVSP) and Social Sustainability Performance (SOCSP), in which the more members of the BOC, the better the ENVSP of a company.

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2. President of BOC's education

The President of BOC's education (BOCEdu) has a probability value of 0.149 with a negative direction towards ECOSP using a significance level of 10% (0.149 > p = 0.10), a probability of 0.303 with a negative direction towards ENVSP (0.303 > p = 0.10), and a probability value of 0.318 with a negative direction towards SOCSP (0.318 > p = 0.10). These three results show no significant effect between BOCEdu on ECOSP, ENVSP, and SOCSP, which means that the higher education level of the chairman of the board of commissioners has no significant effect on the sustainability performance of non-financial companies listed on the IDX in 2019-2021.

3. Board of Commissioner Gender

The Board of Commissioner Gender (BOCGend) has a probability value of 0.024, with a negative direction towards Economic Sustainability Performance (ECOSP) in model 1 using a significance level of 5% (0.024 <p = 0.05). It means that the BOCGend variable has a significant negative effect on ECOSP, in which the more members of the board of commissioners with a female gender on the BOC, the lower the level of disclosure on the company's ECOSP. Furthermore, BOCGender has a probability value of 0.475 (0.475 > p = 0.05) in model 2 and a probability value of 0.167 (0.167 > p = 0.05) in model 3. It shows that the BOCGender variable does not significantly influence Environmental Sustainability Performance (ENVSP) and Social Sustainability Performance (SOCSP).

4. Top of Management Size

Top of Management Size (TMTSize) has a probability value of 0.003, with a negative direction towards Economic Sustainability Performance (ECOSP) in model 1 using a significance level of 5% (0.003 <p = 0.05). It means that the TMTSize variable has a significant negative effect on ECOSP, in which more members of the TMT will reduce the company's ECOSP disclosure level. Furthermore, TMTSize has a probability value of 0.942 (0.942 > p = 0.05) in model 2 and a probability value of 0.505 (0.505 > p = 0.05) in model 3. It shows that the TMTSize variable has no significant effect on Environmental Sustainability Performance (ENVSP) and Social Sustainability Performance (SOCSP), in which more TMT members will not affect a company's ENVSP and SOCSP disclosures.

5. Top of Management Education

Top of Management Education (TMTEdu) has a probability value of 0.017 with a positive direction towards ECOSP using a significance level of 5% (0.017 <p = 0.05), a probability of 0.000 with a negative direction towards

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ENVSP (0.000 <p = 0.05), and a probability value of 0.000 with a negative direction towards SOCSP (0.000 < p = 0.05). These three results significantly affect TMTEdu on ECOSP, ENVSP, and SOCSP.

6. Top of Management Gender

Top of Management Gender (TMTGend) has a probability value of 0.028, with a positive direction towards Economic Sustainability Performance (ECOSP) in model 1 using a significance level of 5% (0.028 <p = 0.05). It means that the TMTGend variable has a significant positive effect on ECOSP, in which more members of the board of directors with a female gender on TMT will increase the amount of disclosure on the company's ECOSP. Furthermore, TMTGender has a probability value of 0.132 (0.132 > p = 0.05) in model 2 and a probability value of 0.294 (0.294 > p = 0.05) in model 3. It shows that the TMTGender variable does not significantly influence the disclosure of Environmental Sustainability Performance (ENVSP) and Social Sustainability Performance (SOCSP).

7. Leverage

The leverage variable has an LEV probability value for ECOSP of 0.819 with a positive direction and an LEV probability for ENVSP of 0.245 with a negative direction. Using a significance level of 5%, LEV does not affect ECOSP (0.819 > p = 0.05) and also does not affect ENVSP (0.245 > p = 0.05). However, the probability value of LEV on SOCSP is 0.031 (0.031 < p = 0.05) in a negative direction, indicating that LEV has a significant negative effect on SOCSP. The results show that if the LEV variable partially has a negative effect on SOCSP, the larger the company's loans obtained from external sources, the more negative the effect will be on the company's social sustainability performance.

8. AgeFirm

Firm Age (AgeFirm) has a probability value of 0.094 with a negative direction towards ECOSP with a significance level of 10% (0.094 < p = 0.10) and a probability value of 0.000 with a positive direction towards ENVSP with a significance level of 5% (0.000 < p = 0 .05), and a probability value of 0.000 with a positive direction towards SOCSP with a significance level of 5% (0.000 <p = 0.05). These results indicate that Firm Age significantly affects ECOSP, ENVSP, and SOCSP.

9. Size Firm

Firm Size (Firm Size) has a probability value of 0.019 with a positive direction towards ECOSP with a significance level of 5% (0.019 <p = 0.05); this

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indicates that Firm Size has a significant positive effect on ECOSP. However, the probability value of Firm Size to ENVSP is 0.229 (0.229 > p = 0.05) and the probability value of Firm Size to SOCSP is 0.987 (0.987 > p = 0.05), showing that Firm Size does not influence the level of disclosure of ENVSP and SOCSP.

10. Return on Asset

The Return on Asset (ROA) has a probability value of 0.507 with a positive direction towards ECOSP using a significance level of 10% (0.507 > p = 0.10), a probability of 0.229 with a positive direction towards ENVSP (0.229 > p = 0.10), and a probability value of 0.725 with a positive direction towards SOCSP (0.725> p = 0.10). These three results show no significant effect between ROA on ECOSP, ENVSP, and SOCSP.

11. Industrial Effect

The Industrial Effect (IE) probability value is 0.000 in a negative direction towards ECOSP with a significance level of 5% (0.000 <p = 0.05); this indicates that IE has a significant negative effect on the disclosure of Economic Sustainability Performance. At the same time, the probability value of the effect of IE on ENVSP and SOCSP cannot be determined because the fixed effect model is used in panel data.

DISCUSSION

Table 7 shows that BOCSize significantly and positively affects economic sustainability performance. Thus, the results of this hypothesis support agency theory. These findings indicate that the more board members, the better the economic sustainability performance of the company. Following research findings by Tjahjadi et al. (2021), the results of this study indicate that the proportion of the size of the company's board of commissioners can affect the quality of the company's sustainability performance, especially the economic aspect. Thus, a more significant board of commissioners can positively affect companies disclosing economic sustainability performance. As for environmental and social performance, it shows that the size of the board has no significant effect on this performance. Thus, the hypothesis *Ib* and *Ic* are rejected. These results are also supported by research by Hussain et al. (2018), who found no effect between the number of board members on environmental and social sustainability performance.

Table 7 shows that the number of TMT members has a positive and significant effect on the performance of the economic environment. Thus, H4a

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is accepted and supports the upper echelons theory, in which the number of top management members significantly influences decision-making (Tjahjadi et al., 2021). The decision is influenced by top management's trust, judgment, and evaluation (Díaz-Fernández et al., 2020). The larger the board size, the more diverse the composition of the team members and the more diverse the thoughts of each member are for making decisions that can improve the company's sustainability performance. This research is also supported by Tacheva et al. (2020) and Chams and García-Blandón (2019), who found that there is a significant influence on the company's sustainability performance; in other words, companies that have more top management members will contribute more to improving the company's sustainability performance.

Meanwhile, for the environment and social sustainability performance, there is no significant effect on top management team size; thus, the H4b and H4c hypotheses are rejected. The results of this study are also supported by the findings of Lai and Liu (2018), Tjahjadi et al. (2021), and Hussain et al. (2018), who found that the number of TMT members did not affect sustainability performance. The size of the TMT has a negative impact on investment because the interaction between board members becomes inefficient, and the decisions taken are biased (Lai & Liu, 2018); this result is in line with the findings of Rovelli (2020), which found that the size of the TMT does not have a significant impact on decision making, especially on the company's sustainability performance.

This study found that BOC education did not significantly affect social, economic, and environmental sustainability performance. Thus, the hypotheses H2a, H2b, and H2c are rejected; these results are also supported by Ratmono et al. (2021), who state that the level education board cannot improve sustainability performance. According to the findings of Suripto (2012), the supervisory ability and insight of the board of commissioners are not derived from education but experience.

TMT education has a positive and significant effect on economic performance. Thus, the H5a hypothesis is accepted, thus supporting the upper echelons theory, which states that the high level of CEO education affects the development of strategies that impact company performance (Hambrick & Mason, 1984). The higher the CEO's education, the more knowledge one has (Tran & Pham, 2020), and they can represent their ability to manage the company, which can improve the company's performance (Tjahjadi et al., 2021). The results of this study also supported Cho et al. (2019), Tran and Pham (2020), and Malik et al. (2021) who found that the higher the education level of TMT, the higher the company's sustainability performance. In

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addition, the results of this study also found that TMT education had a significant and negative effect on environmental and social sustainability performance. Thus, the hypotheses H5b and H5c are rejected and do not support the upper echelons theory. The findings show that getting a higher TMT education lowers the company's sustainability performance, especially for social and environmental performance. These results follow research by Tjahjadi et al. (2021) and Lee et al. (2018), who found that the higher the education level of the CEO, the lower the company's environmental performance.

This study also found that board gender significantly and negatively affected economic sustainability performance, so hypothesis H3a was rejected. Moreover, the results of this study also found that board gender had no effect on social and environmental performance, and hypotheses H3b and H3c were rejected. Erkut et al. (2008) stated that with a lower proportion of women on the board, it is not easy to have their voices heard and that more women are needed to make a difference. These results are also supported by research by Zaid et al. (2020) and Erkut et al. (2008), who found no significant effect of board gender on sustainability performance.

In addition, this study also found that gender TMT has a positive and significant effect on economic sustainability performance; thus, hypothesis H6a is accepted. This study's results found that women's presence in TMT could increase economic sustainability performance (Galletta et al., 2022). The results of this study are also supported by the findings of Galletta et al. (2022) and Naciti et al. (2019), who found that the presence of female directors in top management encouraged the company to increase the company's sustainability performance.

The results of the control variable test for the higher level of company age and company age will improve sustainability performance, and the lower the level of debt, the higher the sustainability performance. Also, the level of profitability cannot increase the company's sustainability performance.

CONCLUSION

The results of this study conclude that the number of board and TMT members could improve economic sustainability performance but could not improve social and environmental sustainability performance in non-financial companies in 2019-2021. For the BOC education level test, it was found that it did not have a significant effect on sustainability performance. In contrast, top management education significantly affected social, economic,

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and environmental financial performance. In addition, gender diversity in BOC has a negative and significant effect on the performance of economic environmental sustainability, while it has a positive effect on gender diversity in TMT.

The implications of this study provide information for regulators, stakeholders, and investors that a high level of education and a more significant proportion of women as CEOs will allow for an increase in sustainability performance, and the number of board members can also increase economic sustainability performance.

This study has limitations, including: 1. It concentrated on a sample of non-financial companies listed on the Indonesia Stock Exchange (IDX) from 2019 to 2021; hence, the findings may not apply to financial sector companies. 2. Effective corporate governance was assessed based on the dimensions of size, expertise, gender diversity, age, and educational qualifications of the board of commissioners and the executive management team. Additional possibly significant elements were not taken into account. Lastly, the results are context-specific to Indonesia's two-tier governance system and may differ in countries with other governance structures. The limits of this study may inform future research on the attributes of the board of commissioners and other senior management teams, as well as investigations into companies within the financial industry for the most recent year.

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