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How Managerial Ability and Board Profiles Drive Sustainability Perfomance: Evidence From Indonesia Manufacturing Firms

Tutik Siswanti
Accounting Departement, Universitas Dirgantara Marsekal Suryadarma, Jakarta, Indonesia
* Corresponding Author: tutysis12@gmail.com

Abstract:
This study examines the influence of managerial competence and board characteristics on corporate sustainability performance, emphasizing the moderating role of green-oriented chief executive officers (CEOs). The research focuses on manufacturing firms listed on the Indonesia Stock Exchange (IDX) from 2018 to 2022, using a purposive sampling technique to obtain 39 firm-year observations. Managerial ability is measured through efficiency-based financial indicators, while board characteristics are represented by directors' accounting backgrounds and international experience. The study employs panel data regression analysis using EViews to test the proposed hypotheses. The empirical findings indicate that managerial ability and directors with international exposure significantly enhance corporate sustainability performance. In contrast, the proportion of board members with accounting backgrounds does not show a significant effect. Moreover, the moderating analysis reveals that the presence of green-oriented CEOs strengthens the positive association between managerial competence and sustainability outcomes. These results highlight the importance of leadership quality and global experience in fostering sustainable business practices within emerging markets. The study contributes to the growing literature on sustainable corporate governance and provides practical implications for firms aiming to integrate managerial capability and eco-conscious leadership into their strategic agenda

Keywords: Managerial ability, Board characteristics, Green CEO, Corporate sustainability, Environmental leadership, Emerging markets

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INTRODUCTION

In recent years, sustainability has emerged as a central concern in corporate strategy and governance. Organizations are increasingly expected not only to achieve financial success but also to address environmental and social responsibilities. As global awareness of sustainable development goals (SDGs) continues to rise, companies face mounting pressure from stakeholders investors, regulators, and society to integrate sustainability principles into their decision-making processes. Consequently, the determinants of corporate sustainability performance (CSP) have become a critical area of investigation, particularly in developing economies such as Indonesia.

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Managerial ability plays a vital role in determining a firm's performance and strategic direction. Highly capable managers tend to utilize resources more efficiently and make informed decisions that support long-term sustainability objectives. Prior studies suggest that competent managers are more likely to adopt proactive environmental strategies, enhance operational transparency, and align business practices with sustainability goals (Demerjian et al., 2012); (Harymawan et al., 2020). In this context, managerial ability is not only a measure of efficiency but also a reflection of leadership quality in responding to complex environmental and social challenges.

Equally important are the characteristics of the board of directors, which represent the primary governance mechanism within a corporation. The board's educational background, professional expertise, and international exposure can shape its strategic vision and influence sustainability-related decisions. For instance, directors with accounting or financial backgrounds may emphasize accurate sustainability reporting, while those with international experience are more likely to adopt global best practices in corporate responsibility (Walls & Berrone, 2017). Therefore, board composition becomes a determining factor in how firms implement and monitor sustainability initiatives.

Another emerging aspect in sustainable corporate governance is the leadership orientation of the chief executive officer (CEO). The rise of environmentally conscious or "green" CEOs introduces a new leadership paradigm that integrates ecological awareness into corporate strategy. A green-oriented CEO is expected to champion eco-friendly innovation, allocate resources for sustainable projects, and foster a culture that values environmental responsibility(Ullah Khan et al., 2023) . Such leadership may strengthen the link between managerial ability and sustainability performance by ensuring that managerial decisions align with environmental objectives.

Despite the growing literature on sustainability, empirical evidence from emerging markets, particularly Indonesia, remains limited. Indonesian manufacturing firms face unique challenges in balancing profitability and sustainability due to regulatory constraints, resource limitations, and varying stakeholder expectations. This study seeks to fill this gap by examining the effect of managerial ability and board characteristics on corporate sustainability performance, while also exploring the moderating role of green-oriented CEOs.

LITERATURE REVIEWS

Managerial Ability

Managerial ability reflects the extent to which managers effectively utilize corporate resources to generate superior performance (Demerjian et al., 2012). Competent managers tend to make well-informed strategic decisions that enhance operational efficiency, innovation, and sustainability integration. High managerial ability also implies a greater capacity to adapt to environmental challenges and align corporate actions with long-term sustainability goals. Empirical studies demonstrate that capable managers are more likely to adopt eco-friendly business practices, engage in transparent sustainability reporting, and implement social responsibility initiatives that strengthen corporate reputation (Khan, Naeem, et al., 2022; Khan, Zahid, et al., 2022)

Therefore, managerial ability is regarded not only as a determinant of financial outcomes but also as a key driver of corporate sustainability performance (CSP). Based on this rationale, the study hypothesizes that firms led by managers with higher abilities will exhibit better sustainability outcomes because these managers can efficiently

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allocate resources toward environmental and social investments while maintaining profitability.

Board Characteristics

The board of directors serves as a central governance mechanism that oversees management and ensures strategic alignment with stakeholder interests. Board characteristics, including educational background, expertise, gender diversity, and international experience, significantly influence board effectiveness and corporate outcomes (Almaqtari et al., 2023)

Directors with accounting or financial expertise may improve the quality of sustainability disclosure through enhanced understanding of performance metrics and risk management systems (Liao et al., 2015). Meanwhile, international experience equips directors with broader perspectives on global sustainability practices and exposure to international environmental standards, enabling them to promote more proactive sustainability strategies (Walls & Berrone, 2017)).

Prior research has shown mixed results regarding the effect of board composition on sustainability. While some studies find that diversity and expertise enhance CSP(Arayssi et al., 2020), others report insignificant effects depending on firm size and industry (Shaukat et al., 2016). Given these inconsistencies, further investigation in emerging market settings such as Indonesia is warranted to clarify the influence of specific board traits particularly accounting background and international exposure on corporate sustainability.

Corporate Sustainability Performance (CSP)

Corporate sustainability performance encompasses a company's achievement in economic, environmental, and social dimensions—often referred to as the triple bottom line (Eccles et al., 2014). CSP is increasingly used as an indicator of long-term corporate success because it reflects a firm's ability to balance profitability with environmental and social responsibilities. Sustainability performance measurement typically involves ESG (Environmental, Social, and Governance) indicators or disclosure indices aligned with the Global Reporting Initiative (GRI) framework. Companies with higher CSP are generally perceived as more trustworthy and resilient, leading to stronger investor confidence and improved market valuation (Crisóstomo et al., 2019) . In developing countries, including Indonesia, CSP is still evolving as a strategic objective rather than merely a compliance issue. Thus, identifying the managerial and governance factors that drive sustainability performance becomes essential for advancing responsible corporate behavior in such contexts.

Green-Oriented CEO

Leadership orientation is a critical factor influencing how organizational strategies are translated into action. A green-oriented CEO embodies an environmental leadership style characterized by ecological awareness, sustainability advocacy, and ethical stewardship (J. Li et al., 2025). Such CEOs not only promote environmental initiatives but also cultivate a corporate culture that values sustainability across all levels of operation. Green leadership can amplify the effect of managerial ability by providing strategic direction and moral commitment toward environmental performance. When top executives prioritize sustainability, managers are more likely to channel their capabilities toward eco-innovation, energy efficiency, and social engagement (X. Li et al., 2024).Conversely, in the absence of green leadership, even highly capable managers may face institutional or cultural barriers that limit their sustainability impact.

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Hence, the moderating role of a green-oriented CEO is expected to strengthen the positive relationship between managerial ability and CSP. This relationship underscores the importance of leadership vision in translating managerial competence into measurable sustainability outcomes.

RESEARCH METHODOLOGY

Research Design

This study employs a quantitative research approach with an explanatory design, aiming to examine the influence of managerial ability and board characteristics on corporate sustainability performance (CSP), as well as the moderating effect of a green-oriented CEO. The research model integrates both direct and moderating relationships to test the hypotheses developed in the literature review. Panel data regression analysis was selected to capture both cross-sectional and time-series variations, enabling more robust statistical inferences. The analysis was conducted using EViews 12 software.

Population and Sample

The research population comprises manufacturing companies listed on the Indonesia Stock Exchange (IDX) over the five-year period from 2018 to 2022. The manufacturing sector was chosen because it is one of the primary contributors to Indonesia's economic growth and environmental challenges, making it a relevant context for sustainability studies. A purposive sampling technique was used to select companies that met the following criteria:

a) The company published complete annual reports during 2018–2022.
b) The company disclosed sustainability or ESG-related information in accordance with the GRI framework.
c) The required financial and governance data were available for analysis.

Based on these criteria, 39 firm-year observations were obtained as the final research sample.

Data Collection

The study relies on secondary data, obtained from official sources such as annual reports, sustainability reports, and financial statements published on the IDX website and company portals. Managerial ability, board characteristics, and green-oriented CEO data were manually extracted from the reports, while financial data were compiled from audited statements.

Operational Definitions and Variable Measurement

a) Corporate Sustainability Performance (CSP)

CSP represents the company's ability to achieve balanced performance across economic, environmental, and social dimensions (Eccles et al., 2014). It is measured using the Environmental, Social, and Governance (ESG) disclosure index, adapted from the Global Reporting Initiative (GRI) standards. Each GRI indicator disclosed in the company's sustainability report receives a score of 1, while undisclosed items score 0. The CSP value is calculated as the proportion of disclosed items to total indicators.

b) Managerial Ability (MA)

Managerial ability is quantified using the efficiency-based model, which isolates the portion of firm efficiency attributable to managerial competence (Demerjian et al., 2012). The model uses Data Envelopment Analysis (DEA) to estimate firm efficiency scores, followed by regression to derive managerial ability residuals after controlling for firm-specific factors such as size, age, and leverage.

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c) Board Characteristics (BC)

Two dimensions of board characteristics are analyzed: Accounting Background (BAC) – measured as the proportion of board members holding academic or professional qualifications in accounting or finance. International Experience (BIE) – measured as the proportion of board members with prior work or educational experience outside Indonesia (Disli et al., 2022).

d) Green-Oriented CEO (GCEO)

The moderating variable captures the environmental orientation of the CEO. A Green-Oriented CEO is identified through qualitative content analysis of company reports—particularly CEO statements, sustainability messages, or official disclosures emphasizing environmental responsibility, innovation, and eco-friendly policies. Firms with evidence of such leadership are coded as 1; otherwise, 0 (Deng et al., 2024).

Data Analysis Technique

The study employs panel data regression analysis, which accounts for both temporal and cross-sectional variations. Three regression models are estimated to test the hypotheses:

Model 1: Examines the direct effect of managerial ability and board characteristics on CSP.

Model 2: Includes the moderating variable (GCEO) to assess its direct influence on CSP.

Model 3: Tests the interaction terms between GCEO and managerial ability to determine the moderating effect. The general form of the model is expressed as follows:

$$CSPit=\beta0+\beta1MAit+\beta2BCit+\beta3GCEOit+\beta4(MAit\times GCEOit)+\varepsilon it$$

Validity and Reliability

All data were cross-verified from multiple sources to ensure accuracy. The ESG disclosure index was validated against the GRI checklist, while managerial ability and board characteristics were double-checked through triangulation using independent audit and company profile data. Statistical reliability was tested through multicollinearity, heteroskedasticity, and autocorrelation diagnostics to confirm the robustness of the regression results.

RESULTS AND DISCUSSION

Table 1 Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Standard Deviation
Corporate Sustainability Performance (CSP)	39	0.31	0.88	0.61	0.14
Managerial Ability (MA)	39	-0.40	1.33	0.37	0.35
Board Accounting Background (BAC)	39	0.00	0.89	0.41	0.25
Board International Experience (BIE)	39	0.00	0.65	0.22	0.19
Green-Oriented CEO (GCEO)	39	0	1	0.33	0.48

(Source: Data processed, 2022)

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Table 1 presents the descriptive statistics of the study variables, including managerial ability (MA), board characteristics—accounting background (BAC) and international experience (BIE)—green-oriented CEO (GCEO), and corporate sustainability performance (CSP). The results indicate that the average CSP score among Indonesian manufacturing firms during 2018–2022 is moderate, suggesting that while sustainability awareness has improved, disclosure and implementation remain uneven across firms. The mean managerial ability score shows relatively strong efficiency levels, implying that most managers effectively utilize firm resources. Regarding board characteristics, only a small portion of directors possess international experience, whereas a larger share have accounting backgrounds. This composition reflects that many boards are still dominated by financial experts rather than globally exposed professionals. Meanwhile, around one-third of the sample firms exhibit characteristics of green-oriented CEOs, signaling a growing but still limited adoption of environmentally conscious leadership in the Indonesian context. These preliminary findings underscore that managerial and governance factors vary widely among firms, providing a rich basis for subsequent regression analysis. The average CSP score (0.61) suggests that sustainability implementation among Indonesian manufacturing firms is moderate, with substantial variation across companies. The mean managerial ability (0.37) indicates that, on average, managers possess a relatively good efficiency level, though disparities remain. About 41% of board members have accounting backgrounds, while 22% have international experience, implying that boards are still dominated by financial expertise rather than global exposure. Approximately 33% of firms are led by green-oriented CEOs, showing a growing but still limited environmental leadership culture.

Table 2 Hypothesis Testing

Variable	Coefficient (β)	t-statistic	p-value
Constant	0.214	1.785	0.080
Managerial Ability (MA)	0.327	2.654	0.010
Board Accounting Background (BAC)	0.048	0.825	0.412
Board International Experience (BIE)	0.198	1.920	0.058
Green-Oriented CEO (GCEO)	0.273	2.273	0.025
MA × GCEO (Interaction Term)	0.314	2.493	0.015

(Source: Data processed, 2022)

Table 3 Model Summary

Model Summary			Model explains 48.7% of CSP variation
R-squared	0.487		Moderate explanatory power
Adjusted R-squared	0.441		Model statistically significant
F-statistic	10.54	**0.000**	Manufacturing firms (2018–2022)
Observations (N)	39		

(Source: Data processed, 2022)

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The panel data regression was conducted using the fixed-effects model, as determined by the Hausman test. The results are summarized in Table 2. Managerial Ability (MA) shows a positive and significant effect on corporate sustainability performance ($p < 0.05$). This finding suggests that managers with higher capabilities in resource allocation and operational efficiency tend to achieve better sustainability outcomes. Board Characteristics (BIE), particularly directors' international experience, exhibit a positive and significant impact on CSP ($p < 0.10$). Firms with globally experienced board members are more likely to implement sustainability strategies aligned with international standards. However, Board Accounting Background (BAC) has an insignificant effect, indicating that financial or accounting expertise alone does not necessarily translate into stronger sustainability performance.

Green-Oriented CEO (GCEO) exerts a direct positive influence on CSP ($p < 0.05$), implying that firms led by environmentally aware CEOs are more proactive in pursuing sustainability initiatives. The interaction term (MA × GCEO) is positive and significant ($p < 0.05$), confirming that the presence of a green-oriented CEO strengthens the relationship between managerial ability and sustainability performance. This result supports the hypothesis that leadership with environmental orientation amplifies the effectiveness of capable managers in driving sustainability-oriented strategies.

Discussion

The findings provide valuable insights into how internal managerial and governance factors influence corporate sustainability performance within the Indonesian manufacturing sector.

Managerial Ability and CSP

The significant positive effect of managerial ability aligns with prior research, reinforcing the notion that capable managers contribute not only to financial efficiency but also to sustainability achievements. Managers with higher analytical and strategic skills are better equipped to integrate environmental and social objectives into daily operations, ensuring the firm's competitiveness and long-term resilience (Cahyono et al., 2024) ; (Demerjian et al., 2012) ; Khan, Zahid, et al., 2022)

Board Characteristics and CSP

The mixed findings for board characteristics indicate that international exposure plays a more crucial role in enhancing sustainability performance compared to accounting expertise. Directors with international experience are more familiar with global sustainability trends, such as ESG integration, carbon disclosure, and circular economy practices, which they can adapt to local contexts. On the other hand, directors with accounting backgrounds may focus more on compliance and financial reporting rather than proactive sustainability innovation. This supports prior evidence by Walls and Berrone (2017) that global perspectives contribute to broader governance quality.

Board Accounting Background (BAC) has no effect on Corporate Sustainability Performance (CSP) due to the alignment of competencies with the type of sustainability decisions. Directors and board members with a strong accounting background excel in reporting, internal control, and compliance, but CSP requires them to have the ability to make cross-functional strategic decisions, such as integrating ESG into business models, green product innovation, sustainable supply chain management, and calculating returns on long-term investments. Accounting skills play a greater role in the measurement and disclosure stages, such as sustainability reporting, assurance, or alignment with reporting standards, than in the stage of creating sustainable value. Some companies have sustainability agendas driven by regulations, stakeholder pressure, and overall corporate strategy rather than by the accounting background of their board of

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directors and board of commissioners. Therefore, although BACs improve monitoring and transparency, they do not automatically improve sustainability performance because the assessment and measurement dimensions of CSP are much broader than just reporting aspects.

Board International Experience (BIE) does not affect CSP because the international experience of the board of directors and board of commissioners does not necessarily translate into sustainability policies that are contextual to the country and industry in which the company operates. Global experience does have the potential to bring exposure to advanced ESG practices, but its implementation depends on the resources available to the company, the support of top management, domestic market pressures, and a governance structure that gives the board room to push the sustainability agenda. In addition, boards with international experience focus on issues of expansion, market competition, and financial performance in the global market rather than on sustainability programs that are costly and have long-term impacts. From the perspective of resource dependence and upper echelons, board characteristics will effectively influence performance if there is a “fit” with the company's strategy and if the board is truly involved in the sustainability decision-making process. If the internal context and mechanisms are not strong, then BIE becomes only a demographic characteristic at the board level that is not strong enough to explain CSP variations.

Green-Oriented CEO as a Moderator

The moderating role of a green-oriented CEO is one of the most significant findings of this study. The positive interaction between managerial ability and green leadership suggests that even highly skilled managers perform better in sustainability when guided by CEOs who prioritize environmental and ethical values. Such CEOs create a supportive culture that encourages eco-innovation, transparency, and long-term value creation. This result aligns with (Zhang & Zhang, 2025)who argue that sustainability oriented leadership can serve as a catalyst for organizational transformation.

From a theoretical standpoint, the study extends the upper echelon theory by demonstrating that CEO environmental orientation acts as a boundary condition that enhances the effect of managerial ability on CSP. Practically, the findings highlight the importance of recruiting and developing leadership talent with environmental awareness and international perspectives. Regulators and investors should also consider leadership orientation as a key criterion in assessing corporate sustainability governance.

CONCLUSION

This study investigates the effect of managerial ability and board characteristics on corporate sustainability performance (CSP) and examines the moderating role of green-oriented CEOs in Indonesian manufacturing firms. Using panel data from 39 firm-year observations between 2018 and 2022, the findings reveal several important insights. First, managerial ability has a significant positive influence on CSP, demonstrating that capable managers are better equipped to allocate resources efficiently and align business operations with sustainability objectives.

Second, board characteristics, particularly international experience, enhance sustainability performance, reflecting the value of global perspectives in adopting environmental and social best practices. However, the board’s accounting background does not significantly affect CSP, indicating that technical financial expertise alone is insufficient to drive sustainable performance.

Third, the presence of a green-oriented CEO directly improves CSP and also strengthens the relationship between managerial ability and sustainability performance.

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This finding highlights the crucial role of environmentally conscious leadership in translating managerial competence into meaningful sustainability actions. Overall, the results emphasize that sustainability outcomes are not only determined by managerial skills and board composition but also by the leadership mindset guiding the organization.

The results contribute to the upper echelons theory, which posits that organizational outcomes are shaped by the characteristics and values of top executives. The moderating role of green-oriented CEOs extends this theory by demonstrating how leadership orientation can amplify the positive impact of managerial ability on sustainability. Furthermore, the study enriches the corporate governance literature by identifying board international exposure as a significant factor influencing sustainability performance, especially in emerging markets.

From a managerial perspective, firms should prioritize the recruitment and development of leaders who possess both managerial competence and environmental awareness. Encouraging international exposure among board members can also facilitate the transfer of global sustainability practices. For policymakers and regulators, the results suggest the need to strengthen sustainability disclosure requirements and promote leadership programs that integrate environmental stewardship into executive education.Investors and stakeholders can use indicators such as managerial efficiency, board experience, and CEO orientation as benchmarks when evaluating a company's long-term sustainability potential.

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