Endogenous Determinants of IFRS S2-Based Climate Disclosure in Indonesian State-Owned Enterprises

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Climate change creates substantial risks for corporate operations and financial prospects, increasing the need for transparent and comparable climate-related disclosure. This study examines the endogenous determinants of IFRS S2-based climate disclosure among Indonesian listed State-Owned Enterprises (SOEs) and SOE-affiliated companies. The endogenous factors include board size, independent commissioners, audit committee size, independent audit committee members, institutional ownership, government ownership, firm size, profitability, leverage, and the COVID-19 period. A quantitative approach was applied to 22 companies selected through purposive sampling during 2020–2023, resulting in 88 firm-year observations. IFRS S2-based disclosure was measured using content analysis covering 57 items across governance, strategy, risk management, and metrics and targets. Panel-data regression was performed using the Random Effect Model. The results demonstrate that profitability has a positive and significant effect on IFRS S2-based disclosure, whereas the COVID-19 period has a negative and significant effect. Meanwhile, corporate governance mechanisms, ownership structure, firm size, and leverage have no significant effects. These findings indicate that economic resources and crisis conditions are more influential in determining climate-disclosure quality than formal governance structures. Therefore, Indonesian SOEs should strengthen climate-governance competence, sustainability information systems, and the integration of climate-related risks into corporate strategies and decision-making processes.

Keywords: Climate-Related Disclosure; Corporate Governance; IFRS S2; Profitability; State-Owned Enterprises.

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1. Introduction

The growing global concern regarding sustainability has increased corporate responsibility for disclosing environmental, social, and governance information. Sustainability reporting has become an important mechanism for strengthening corporate transparency, accountability, and long-term value creation [1][2][3]. Among the various sustainability challenges facing businesses, climate change has attracted particular attention because of its potential implications for corporate operations, asset values, financing costs, and long-term financial performance. Climate-related physical risks, including extreme weather events and environmental disasters, may disrupt business activities, while transition risks associated with regulatory changes, technological developments, and shifts in market preferences may influence corporate competitiveness. He et al[4] explained that carbon accounting and climate-related reporting have developed in response to increasing demands for reliable and transparent information about corporate environmental impacts. These developments highlight the growing importance of climate-related disclosure in supporting corporate accountability and informed stakeholder decision-making.

Indonesia faces substantial exposure to climate-related risks, including floods, droughts, extreme weather, and other environmental disasters. The National Disaster Management Agency reported 1,261 extreme

weather events in 2023, compared with 1,068 events in 2022, representing an increase of 18.07% (Badan Nasional Penanggulangan Bencana[5]. These conditions demonstrate that climate-related challenges extend beyond environmental concerns and may affect business continuity, production activities, supply chains, infrastructure, and corporate financial performance. Companies operating in environmentally sensitive sectors may face additional pressures associated with changing regulatory requirements, operational disruptions, and stakeholder expectations. Consequently, transparent climate-related disclosure is increasingly necessary to communicate how businesses identify, manage, and respond to environmental risks and opportunities that may influence their financial prospects.

The International Sustainability Standards Board (ISSB) responded to the growing demand for comparable climate-related information by issuing IFRS S2 Climate-related Disclosures in June 2023. The standard became effective for annual reporting periods beginning on or after January 1, 2024 [6]. IFRS S2 establishes requirements for disclosing material climate-related risks and opportunities that could reasonably affect corporate cash flows, access to financing, or cost of capital over the short, medium, and long term. Its disclosure framework encompasses four interconnected components: governance, strategy, risk management, and metrics and targets. These components provide a structured basis for evaluating corporate climate-related responsibilities, strategic responses, risk-management practices, and performance measures. The introduction of IFRS S2 therefore represents an important development in sustainability reporting by emphasizing the financial relevance and comparability of climate-related information.

The importance of climate-related disclosure can be understood through Legitimacy Theory and Stakeholder Theory. Legitimacy Theory suggests that companies seek to maintain societal acceptance by demonstrating that their operations and reporting practices are consistent with prevailing social expectations[7]. Within this perspective, environmental disclosure may function as a mechanism for communicating corporate responsibility and maintaining organizational legitimacy. Stakeholder Theory further emphasizes that companies have responsibilities toward various parties affected by their activities, including shareholders, creditors, employees, customers, governments, and communities[8]. Climate-related disclosure enables these stakeholders to assess corporate exposure to environmental risks, evaluate management responses, and understand the potential implications of climate-related developments for long-term business sustainability. Together, these perspectives provide a theoretical foundation for examining the corporate characteristics associated with the extent of climate-related reporting.

Climate-related disclosure is particularly relevant for Indonesian State-Owned Enterprises (SOEs), which perform dual functions as commercial organizations and instruments of national development. SOEs and their affiliated companies operate across strategically important sectors, including energy, mining, infrastructure, transportation, telecommunications, construction, and financial services. Their activities are frequently associated with substantial public expectations concerning economic performance, environmental responsibility, and sustainable development. Government ownership also creates distinctive accountability arrangements because corporate decisions may affect public resources and national development priorities. As a result, the transparency of SOEs is important not only for investors and creditors but also for regulators, policymakers, and society. Previous studies have highlighted the significance of corporate transparency and environmental, social, and governance disclosure in supporting accountability and corporate sustainability (KPMG International, 2022; Fujianti, Azizah, & Rizal, 2024). Nevertheless, the presence of public ownership and formal governance arrangements does not necessarily ensure that companies provide comprehensive climate-related information.

In Indonesia, sustainability reporting has been supported by Financial Services Authority Regulation No. 51/POJK.03/2017 and Financial Services Authority Circular Letter No. 16/SEOJK.04/2021. These

regulations have encouraged companies to report sustainability-related policies, activities, and performance. However, the introduction of IFRS S2 has established a more specific framework for communicating climate-related financial risks and opportunities, including their implications for business strategy, risk management, and financial prospects. Wahyoeni et al. (2025) indicated that Indonesian public companies remain at an early stage of readiness for IFRS S2-based sustainability disclosure. This condition raises an important empirical question concerning the extent to which corporate sustainability reports already contained information consistent with IFRS S2 requirements before the standard became effective. Examining historical disclosures from this perspective may provide useful evidence regarding reporting alignment and areas requiring further improvement, without assuming that companies were formally required to comply with IFRS S2 during the observation period.

Corporate governance mechanisms represent potential determinants of climate-related disclosure because they influence managerial oversight, accountability, and reporting practices. The board of commissioners performs a supervisory function, while independent commissioners are expected to strengthen objective monitoring and reduce potential conflicts of interest (Fama & Jensen, 1983). Audit committees and independent audit committee members may further contribute to reporting quality through their responsibilities for internal control, compliance, and financial oversight. Previous research has examined the relevance of corporate governance mechanisms to reporting integrity and ESG disclosure (Cahyo et al., 2022; Fujianti, Rizal, et al., 2024). However, formal governance characteristics, such as the number of commissioners or the proportion of independent members, may not adequately reflect the technical competence and substantive involvement required for climate-related financial reporting. This distinction creates an empirical basis for examining whether conventional governance indicators are associated with disclosure alignment under the more specialized requirements of IFRS S2.

Ownership structure may also be associated with the extent of climate-related disclosure. Institutional investors generally possess resources and analytical capabilities that enable them to monitor corporate management and demand relevant information for investment decisions. Government ownership, meanwhile, may encourage public accountability and alignment with national sustainability priorities. Nevertheless, the association between ownership characteristics and climate disclosure may depend on the extent to which shareholders actively prioritize environmental transparency and climate-risk management. Financial characteristics provide another perspective because firm size, profitability, and leverage may influence reporting resources and incentives. Larger companies may experience greater stakeholder scrutiny, while profitable companies may possess greater financial capacity to establish sustainability information systems and develop climate-related reporting practices. Ching et al. (2017) investigated the relationship between sustainability-reporting quality and financial performance, whereas Liu et al. (2017) examined the relationships among environmental performance, environmental disclosure, and financial outcomes. These studies provide a foundation for evaluating financial characteristics in relation to corporate environmental reporting, although their measurement approaches differ from an IFRS S2-based disclosure assessment.

Apart from governance, ownership, and financial characteristics, extraordinary economic conditions may also be associated with changes in corporate disclosure priorities. The COVID-19 pandemic created substantial disruptions to corporate operations, liquidity management, reporting activities, and financial performance. Under such circumstances, companies may have allocated greater attention and resources to immediate operational concerns rather than long-term environmental initiatives. Albitar et al. (2021) examined the relationships among ESG disclosure, corporate performance, and governance mechanisms, providing a perspective on the importance of organizational conditions in sustainability-related reporting. In contrast, Azizah (2022) reported no significant difference in Indonesian green-accounting practices

associated with the COVID-19 period. Although these studies examined different aspects of sustainability-related reporting, their findings suggest that the relationship between crisis conditions and environmental disclosure should not be assumed to be uniform. Further empirical investigation is therefore required to determine whether the COVID-19 period was associated with differences in climate-disclosure alignment among Indonesian listed SOEs.

Despite the growing literature on sustainability reporting, ESG disclosure, and environmental accounting, several specific research gaps remain. First, previous studies have predominantly examined broader sustainability and environmental reporting outcomes rather than the alignment of corporate climate-related information with IFRS S2 requirements. For example, Ching et al. (2017) and Liu et al. (2017) focused on sustainability or environmental reporting in relation to corporate financial performance, while Fujianti, Rizal, et al. (2024) investigated corporate governance and ESG disclosure in Indonesia. Although these studies provide important evidence concerning reporting determinants, their analytical focus differs from evaluating climate-related disclosure through an index derived from IFRS S2. Second, existing studies do not fully explain how conventional governance indicators and ownership characteristics are associated with this more specific form of disclosure among Indonesian listed SOEs. The distinction is relevant because formal monitoring structures and shareholder composition may not necessarily capture the organizational capacity required to identify, quantify, and communicate climate-related financial information.

A further research gap concerns the simultaneous examination of governance mechanisms, ownership characteristics, financial capacity, and crisis conditions within the institutional context of Indonesian SOEs. These companies operate under distinctive arrangements involving commercial objectives, government participation, and public accountability, which may create different incentives for climate-related reporting. Previous research addressing governance and ESG disclosure (Fujianti, Rizal, et al., 2024), financial characteristics and sustainability reporting (Ching et al., 2017; Liu et al., 2017), and pandemic-related environmental accounting (Azizah, 2022) provides relevant but differently focused evidence. Integrating these factors within a panel-data framework allows their respective statistical relationships with IFRS S2-based disclosure to be examined while accounting for other variables included in the model. Furthermore, the 2020–2023 observation period offers an opportunity to assess historical climate-disclosure alignment before the effective date of IFRS S2, thereby distinguishing the study from investigations of formal post-implementation compliance.

Accordingly, this study aims to examine the endogenous determinants of IFRS S2-based climate disclosure among 22 Indonesian listed SOEs and SOE-affiliated companies during 2020–2023. Specifically, the study investigates four corporate governance indicators, comprising board size, the proportion of independent commissioners, audit committee size, and the proportion of independent audit committee members; two ownership indicators, consisting of institutional ownership and government ownership; three financial characteristics, namely firm size, profitability, and leverage; and the COVID-19 period. The dependent variable is measured using a 57-item disclosure index developed from the four core components of IFRS S2. The contribution of this study lies in combining a climate-specific disclosure measurement framework with an integrated assessment of corporate and contextual determinants in the distinctive institutional setting of Indonesian listed SOEs. Rather than evaluating formal IFRS S2 compliance during 2020–2023, the study provides empirical evidence on the extent of pre-implementation disclosure alignment and the factors statistically associated with it. The findings are expected to contribute to sustainability accounting and corporate governance literature while providing relevant insights for SOE management, regulators, and policymakers seeking to strengthen climate-related corporate reporting.

2. Literature Review and Problem Statement

IFRS S2-Based Climate Disclosure

IFRS S2 is a global sustainability disclosure standard issued by the International Sustainability Standards Board to provide decision-useful information concerning climate-related risks and opportunities. These risks and opportunities may affect corporate cash flows, access to finance, and cost of capital over the short, medium, and long term. IFRS S2 organizes climate-related disclosure into four core components: governance, strategy, risk management, and metrics and targets (IFRS Foundation, 2023).

Governance disclosure explains the corporate bodies and procedures responsible for overseeing climate-related risks and opportunities. Strategy disclosure describes the effects of climate-related issues on corporate business models, strategies, and financial planning. Risk-management disclosure addresses the processes used to identify, assess, prioritize, and monitor climate risks. Metrics and targets disclose the quantitative indicators and objectives employed to evaluate corporate climate performance.

Because IFRS S2 was issued in June 2023 and became effective in January 2024, the disclosure examined during the 2020–2023 period represents the extent of corporate reporting alignment or readiness rather than formal implementation throughout the entire observation period. In this study, IFRS S2-based disclosure is measured using a disclosure index comprising 57 items developed from its four core components.

Legitimacy Theory

Legitimacy Theory explains that companies attempt to ensure that their operations are perceived as consistent with the norms, values, and expectations of society. Environmental and sustainability disclosures can be employed to demonstrate corporate responsibility and maintain public acceptance (Deegan, 2002). Companies facing substantial environmental exposure or public scrutiny generally have stronger incentives to disclose information concerning their environmental impacts and climate-related activities.

For Indonesian State-Owned Enterprises (SOEs), legitimacy is particularly important because these companies manage public resources and operate as agents of national development. Accordingly, IFRS S2-based disclosure may help SOEs demonstrate their commitment to environmental responsibility, climate-risk management, and sustainable development. However, the quality of such disclosure may depend on corporate resources, governance effectiveness, ownership characteristics, and external conditions.

Stakeholder Theory

Stakeholder Theory states that companies have responsibilities toward various parties that affect or are affected by corporate activities, including shareholders, creditors, employees, customers, regulators, governments, and communities (Freeman, 1984). Each stakeholder group requires relevant information to evaluate the consequences of climate-related risks and corporate responses to such risks.

IFRS S2-based disclosure provides stakeholders with information concerning climate governance, strategies, risk-management processes, emissions, climate targets, and the financial consequences of climate change. Governance mechanisms and ownership structures may therefore influence the extent to which companies respond to stakeholder demands for transparent climate information.

Board of Commissioners and IFRS S2-Based Disclosure

The board of commissioners performs an essential supervisory function by monitoring management and ensuring that corporate activities comply with stakeholder interests and applicable regulations. A larger

board may provide more diverse knowledge, experience, and supervisory capacity. These characteristics may strengthen oversight of sustainability policies and climate-related reporting.

However, board size does not necessarily guarantee effective climate oversight. An excessively large board may experience coordination problems and slower decision-making. In addition, commissioners without sufficient climate-related competence may focus primarily on financial reporting and regulatory compliance. Nevertheless, from the perspectives of agency and stakeholder oversight, a larger board is expected to encourage broader IFRS S2-based disclosure.
H1: Board size positively affects IFRS S2-based climate disclosure.

Independent Commissioners and IFRS S2-Based Disclosure

Independent commissioners are expected to provide objective supervision because they have no material relationship with management or controlling shareholders. Their presence may reduce conflicts of interest and encourage companies to disclose information more transparently (Fama & Jensen, 1983). In Indonesia, Financial Services Authority Regulation No. 33/POJK.04/2014 requires independent commissioners to constitute at least 30% of the board when the board comprises more than two members.

Independent commissioners may strengthen corporate accountability by monitoring whether management has adequately identified and reported climate-related risks and opportunities. Nevertheless, their influence depends on substantive involvement and climate-related competence, rather than merely fulfilling regulatory requirements.
H2: The proportion of independent commissioners positively affects IFRS S2-based climate disclosure.

Audit Committee and IFRS S2-Based Disclosure

The audit committee supports the board of commissioners in supervising reporting quality, regulatory compliance, risk management, and internal control. Although its traditional responsibility concerns financial reporting, the growing significance of climate-related financial information has expanded its role to include sustainability reporting.

A larger audit committee may provide greater supervisory capacity and a broader range of expertise. It may also strengthen the internal control of climate data and improve consistency between annual reports, sustainability reports, and financial statements. Governance mechanisms are theoretically expected to enhance corporate transparency and ESG disclosure (Fujianti, Rizal, et al., 2024).
H3: Audit committee size positively affects IFRS S2-based climate disclosure.

Independent Audit Committee and IFRS S2-Based Disclosure

The independence of the audit committee is expected to strengthen the objectivity of its monitoring function. Independent members may be more willing to question incomplete or symbolic disclosures and request evidence supporting environmental claims. Their monitoring can improve the credibility, completeness, and reliability of climate-related information.

Nevertheless, independence alone may not be sufficient when committee members lack competence in sustainability accounting, climate-risk management, carbon measurement, or assurance. Despite this limitation, a higher proportion of independent audit committee members is expected to improve the quality of IFRS S2-based disclosure.
H4: The proportion of independent audit committee members positively affects IFRS S2-based climate disclosure.

Institutional Ownership and IFRS S2-Based Disclosure

Institutional ownership refers to shares held by financial institutions, investment companies, pension funds, banks, insurance companies, and other institutional investors. Institutional investors generally possess stronger analytical capabilities and greater resources for monitoring management than individual investors. Growing investor attention to environmental, social, and governance issues may encourage institutional shareholders to demand more comprehensive climate information. IFRS S2-based disclosure assists investors in evaluating climate exposure, transition strategies, capital allocation, and long-term corporate prospects. Consequently, greater institutional ownership is expected to increase pressure on management to improve climate disclosure.

H5: Institutional ownership positively affects IFRS S2-based climate disclosure.

Government Ownership and IFRS S2-Based Disclosure

Government ownership is an important characteristic of SOEs because the government acts both as a shareholder and a public-policy authority. As representatives of public ownership, governments are expected to encourage SOEs to support sustainable development, climate commitments, and the transition toward a low-carbon economy.

Higher government ownership may increase political and public accountability and encourage companies to provide more comprehensive climate information. However, government ownership may not produce better disclosure when climate performance is not explicitly incorporated into corporate evaluation and supervisory mechanisms. Nevertheless, based on Legitimacy Theory and Stakeholder Theory, government ownership is expected to increase IFRS S2-based disclosure.

H6: Government ownership positively affects IFRS S2-based climate disclosure.

Firm Size and IFRS S2-Based Disclosure

Firm size reflects the scale of corporate operations and the availability of organizational resources. Large companies generally have more complex operations, wider stakeholder exposure, and greater environmental impacts. They are therefore subject to stronger public and regulatory scrutiny.

Large companies also tend to have more financial, technological, and human resources to establish sustainability information systems, measure emissions, assess climate risks, and prepare comprehensive reports. Due to their greater visibility and resources, large companies are expected to provide more extensive IFRS S2-based disclosure.

H7: Firm size positively affects IFRS S2-based climate disclosure.

Profitability and IFRS S2-Based Disclosure

Profitability represents a company's capacity to generate income from its resources. Highly profitable companies have greater financial capacity to establish sustainability teams, develop information systems, perform climate-risk assessments, and prepare high-quality climate disclosures. Profitability may also encourage companies to disclose sustainability information to reinforce their reputation and demonstrate that strong financial performance is accompanied by environmental responsibility.

Liu et al. (2017) showed that environmental performance and disclosure were related to corporate financial conditions, while Ching et al. (2017) demonstrated a relationship between sustainability-reporting quality and corporate financial performance. Accordingly, profitable SOEs are expected to have greater resources and incentives to align their reports with IFRS S2 requirements.

H8: Profitability positively affects IFRS S2-based climate disclosure.

Leverage and IFRS S2-Based Disclosure

Leverage reflects the extent to which corporate assets are financed through liabilities. Companies with higher leverage face greater monitoring from creditors because climate-related risks can affect cash flows, asset values, and debt-repayment capacity. Accordingly, highly leveraged companies may disclose more climate-related information to reduce information asymmetry and reassure creditors regarding their risk-management practices.

Conversely, companies experiencing substantial debt pressure may prioritize financial stability and restrict resources allocated to sustainability reporting. Despite these competing arguments, stakeholder pressure from creditors is expected to encourage more extensive climate disclosure.
H9: Leverage positively affects IFRS S2-based climate disclosure.

COVID-19 and IFRS S2-Based Disclosure

The COVID-19 pandemic created substantial operational, financial, and reporting disruptions. During the crisis, companies may have redirected managerial attention and resources from long-term sustainability initiatives toward liquidity management, operational continuity, employee protection, and cost efficiency. Consequently, climate-related reporting may have received lower priority.

Albitar et al. (2021) indicated that crisis conditions affected the relationship between ESG disclosure, corporate performance, and governance mechanisms. Nevertheless, Azizah (2022) found no significant difference in green-accounting practices associated with the COVID-19 period in Indonesia. These different findings demonstrate that the effect of the pandemic on sustainability disclosure remains inconclusive and requires further investigation.
H10: The COVID-19 pandemic negatively affects IFRS S2-based climate disclosure.

Problem Statement

Previous studies have investigated sustainability disclosure, ESG reporting, environmental performance, and corporate governance. However, empirical evidence concerning corporate alignment with IFRS S2 remains limited, particularly among Indonesian listed SOEs. This limitation is understandable because IFRS S2 is a relatively new standard. Existing research has also tended to examine governance, ownership, financial characteristics, or crisis conditions separately, resulting in an incomplete understanding of the endogenous factors determining climate-related disclosure.

Listed SOEs represent a relevant research setting because they combine commercial objectives, government ownership, public accountability, and strategic responsibilities for national development. Nevertheless, formal governance structures do not necessarily produce substantive climate oversight. The number and independence of commissioners and audit committee members may satisfy regulatory requirements without ensuring that climate risks are integrated into corporate supervision and reporting. Similarly, government and institutional ownership may not improve disclosure unless shareholders actively demand measurable climate information.

3. Method

Research Design

This study employed a quantitative approach with an explanatory research design to examine the endogenous determinants of IFRS S2-based climate disclosure among Indonesian listed State-Owned Enterprises (SOEs) and SOE-affiliated companies. The study investigated the relationships between corporate governance mechanisms, ownership structure, financial characteristics, the COVID-19 period,

and climate-related disclosure. Secondary data were collected from audited annual reports and standalone sustainability reports published through the Indonesia Stock Exchange (IDX) and the official websites of the respective companies. The observation period covered four consecutive years, from 2020 to 2023.

A panel-data approach was adopted because the dataset combined cross-sectional observations across companies with time-series observations over four reporting periods. This approach enabled the study to examine variations in climate-related disclosure across companies and over time while estimating the statistical relationships between the explanatory variables and IFRS S2-based disclosure.

Population and Sample Selection

The study population comprised Indonesian listed SOEs and SOE-affiliated companies on the Indonesia Stock Exchange during 2020–2023. The sample was selected using purposive sampling based on predetermined criteria concerning listing continuity, ownership classification, sustainability-report availability, reporting language, audited financial statements, and completeness of the required research data.

The sample-selection process was designed to ensure that the selected companies provided sufficiently consistent and comparable information throughout the observation period. Table 1 presents the selection criteria and the information required to document the number of companies retained or excluded at each stage.

Table 1. Sample Selection Process

No.	Sample Selection Criteria	Number of Companies
1	Initial population of listed SOEs and SOE-affiliated companies as of 2023	37
2	Companies not continuously listed during 2020–2023	-3
3	Companies not meeting the specified SOE or SOE-affiliated classification	-4
4	Companies without complete standalone sustainability reports during 2020–2023	-4
5	Companies without Indonesian-language sustainability reports	-1
6	Companies without complete audited annual reports during 2020–2023	0
7	Companies with incomplete data for the research variables	0
8	Total additional exclusions pending classification	-12
9	Final sample	22
10	Observation period	4 years
11	Total firm-year observations	88

Source: Ministry of State-Owned Enterprises (2023) and authors' research data (2026).

As presented in Table 1, the initial population comprised 37 State-Owned Enterprises (SOEs) and SOE-affiliated companies listed on the Indonesia Stock Exchange as of 2023. The sample was selected using purposive sampling based on predetermined criteria to ensure the consistency, availability, and completeness of corporate reporting data during the 2020–2023 observation period. Three companies were excluded because they were not continuously listed throughout the observation period. Furthermore, four companies were excluded because they did not meet the specified SOE or SOE-affiliated classification, while another four companies were excluded due to the unavailability of complete standalone sustainability reports. One additional company was excluded because its sustainability reports were not available in Indonesian. Meanwhile, no companies were excluded due to incomplete audited annual reports or missing data for the research variables.

Following the sequential screening process, the final sample consisted of 22 companies that met the eligibility criteria. Each company was observed over four consecutive years, resulting in a balanced panel dataset of 88 firm-year observations. This sample provided the basis for examining the relationships between corporate governance mechanisms, ownership structures, financial characteristics, the COVID-19 period, and IFRS S2-based climate disclosure using panel-data regression analysis.

Measurement of IFRS S2-Based Climate Disclosure

The dependent variable was IFRS S2-based climate disclosure, measured using a disclosure index developed from the requirements of IFRS S2 Climate-related Disclosures issued by the International Sustainability Standards Board (ISSB). IFRS S2 was issued in June 2023 and became effective for annual reporting periods beginning on or after January 1, 2024 (IFRS Foundation, 2023). Therefore, the analysis of corporate reports published during 2020–2023 was intended to assess the extent of historical disclosure alignment with IFRS S2 rather than formal compliance with a standard that was not yet effective during the observation period.

The disclosure index consisted of 57 items organized into four core disclosure components: governance, strategy, risk management, and metrics and targets. Governance addressed the oversight and management responsibilities associated with climate-related risks and opportunities. Strategy concerned the potential implications of climate-related issues for corporate business models, strategic planning, and financial prospects. Risk management covered the identification, assessment, prioritization, and monitoring of climate-related risks. Metrics and targets concerned the quantitative and qualitative information used to assess climate-related performance, including emissions-related information and corporate climate objectives.

The measurement framework was based on IFRS S2 (IFRS Foundation, 2023). For methodological transparency, the final disclosure checklist should identify the 57 operational indicators, their respective IFRS S2 paragraph references, and their classification into the four disclosure components.

Table 2. IFRS S2-Based Climate Disclosure Components

isclosure Component	Scope of Assessment	Number of Items
Governance	Climate oversight, management responsibilities, and governance processes	12
Strategy	Climate-related risks and opportunities, strategic implications, and financial effects	21
Risk Management	Identification, assessment, prioritization, and monitoring of climate risks	15
Metrics and Targets	Climate-related performance indicators, emissions, and targets	9
Total		**57**

Source: Disclosure framework developed from IFRS Foundation (2023)

As presented in Table 2, IFRS S2-based climate disclosure was measured using 57 disclosure items classified into four main components: governance, strategy, risk management, and metrics and targets. The governance component comprised 12 items addressing climate-related oversight, management responsibilities, and corporate governance processes. The strategy component consisted of 21 items covering climate-related risks and opportunities, strategic implications, and potential financial effects. Meanwhile, the risk management component included 15 items assessing the identification, evaluation, prioritization, and monitoring of climate-related risks. The metrics and targets component comprised nine

items focusing on climate-related performance indicators, greenhouse gas emissions, and corporate climate objectives.

Among the four components, strategy accounted for the largest proportion of disclosure items, followed by risk management, governance, and metrics and targets. Each item was assessed using a binary scoring system, assigning a value of 1 when the relevant information was disclosed and 0 when it was not disclosed. The total disclosure score was divided by 57 to obtain the IFRS S2-based disclosure index, with higher values indicating greater alignment with the disclosure framework. This measurement approach enabled a consistent assessment of climate-related information reported by Indonesian listed SOEs and SOE-affiliated companies during 2020–2023, prior to the effective implementation of IFRS S2.

Content Analysis and Scoring Procedure

The disclosure assessment employed a quantitative content-analysis approach. Corporate annual reports and standalone sustainability reports were examined to identify information corresponding to the established climate-disclosure indicators. The unit of analysis was each company's disclosure for a particular reporting year, while the unit of scoring was each item in the 57-item checklist.

A binary scoring system was used to measure the presence or absence of the required information. An indicator received a score of 1 when the relevant information was disclosed and a score of 0 when the information was not disclosed. Each indicator contributed equally to the total disclosure index, regardless of the length or detail of the narrative provided.
The scoring criteria were defined as follows:

a. Score 1: The report explicitly disclosed information corresponding to the relevant IFRS S2-based indicator.
b. Score 0: The report did not provide information corresponding to the relevant indicator.

The item scores were aggregated and divided by the maximum number of disclosure indicators, namely 57. Accordingly, the disclosure index ranged from 0 to 1, with higher values representing a greater extent of alignment with the IFRS S2-based checklist.
The disclosure index was calculated as follows:

$$IFRS_S2it = (\sum Xjit) / 57$$

where:
IFRS_S2it = IFRS S2-based disclosure index for company i in year t;
Xjit = disclosure score for indicator j for company i in year t, with a value of 1 when disclosed and 0 otherwise;
57 = total number of disclosure indicators.
For example, a company disclosing 40 of the 57 indicators would obtain a disclosure index of 0.7018, equivalent to approximately 70.18% of the checklist.

Research Variables

The study included ten explanatory variables representing corporate governance mechanisms, ownership structure, financial characteristics, and the COVID-19 period. Corporate governance was represented by board size, the proportion of independent commissioners, audit committee size, and the proportion of independent audit committee members. Ownership structure was measured through institutional ownership and government ownership. Financial characteristics comprised firm size, profitability, and leverage. The COVID-19 period was included as a dummy variable to capture differences between the pandemic and subsequent observation periods.
The operational definitions and measurements are presented in Table 3.

Table 3. Operationalization of Research Variables

Variable	Symbol	Measurement
IFRS S2-based climate disclosure	IFRS_S2	Number of disclosed items divided by 57
Board size	DK	Total number of commissioners
Independent commissioners	DKI	Number of independent commissioners divided by total commissioners
Audit committee size	KA	Total number of audit committee members
Independent audit committee members	KAI	Number of independent audit committee members divided by total audit committee members
Institutional ownership	KSI	Institutionally owned shares divided by total outstanding shares
Government ownership	KSP	Government-owned shares divided by total outstanding shares
Firm size	SIZE	Natural logarithm of total assets
Profitability	ROA	Net income divided by total assets
Leverage	LEV	Total liabilities divided by total assets
COVID-19 period	COVID	Dummy variable: 1 for 2020–2021 and 0 for 2022–2023

The corporate governance and ownership variables were obtained from the governance and shareholder information presented in corporate annual reports. Financial variables were calculated using information from audited financial statements. The COVID-19 dummy variable distinguished the 2020–2021 observation period from 2022–2023. This classification captures a period difference and should not be interpreted as an isolated causal effect of the pandemic.

Data Analysis Technique

The data were analyzed using panel-data regression with EViews. The analysis involved descriptive statistics, panel-data model selection, regression estimation, hypothesis testing, and evaluation of model explanatory power.

Descriptive statistics were used to summarize the characteristics of each research variable, including the mean, median, maximum, minimum, and standard deviation. These statistics provided an overview of variations in corporate governance, ownership structure, financial characteristics, and climate-related disclosure across the 88 firm-year observations.

Three panel-data estimation approaches were considered: the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). Model selection was conducted using the Chow, Hausman, and Lagrange Multiplier tests. The Chow test compared the Common Effect and Fixed Effect Models, while the Hausman test examined the suitability of the Fixed Effect and Random Effect Models. The Lagrange Multiplier test was used to compare the Common Effect and Random Effect Models.
The panel-data regression equation was specified as follows:

$$IFRS_S2it = \beta 0 + \beta 1DKit + \beta 2DKIit + \beta 3KAit + \beta 4KAIit + \beta 5KSIit + \beta 6KSPit + \beta 7SIZEit + \beta 8ROAit + \beta 9LEVit + \beta 10COVIDt + \varepsilon it$$

where:
IFRS_S2it = IFRS S2-based climate disclosure index of company i in year t;
β0 = regression intercept;
β1–β10 = regression coefficients for the explanatory variables;
DKit = board size of company i in year t;

DKIit = proportion of independent commissioners;
KAit = audit committee size;
KAIit = proportion of independent audit committee members;
KSIit = institutional ownership;
KSPit = government ownership;
SIZEit = natural logarithm of total assets;
ROAit = return on assets;
LEVit = leverage;
COVIDt = COVID-19 period dummy variable;
εit = composite regression error term;
i = company observation;
t = observation year.

For the Random Effect Model, the error term can be represented as the combination of an unobserved company-specific random component and an idiosyncratic disturbance. This specification allows the model to account for unobserved differences among companies under the assumptions of random-effects estimation.

Hypothesis testing was conducted at the 5% significance level ($\alpha = 0.05$). Individual regression coefficients were evaluated using their probability values, with p-values below 0.05 indicating statistically significant relationships. The F-test was employed to assess the joint significance of the explanatory variables, while the adjusted coefficient of determination (Adjusted R^2) was used to evaluate the proportion of variation in IFRS S2-based disclosure explained by the regression model.

The interpretation of the estimated coefficients considered their signs, magnitudes, and statistical significance. Given the observational nature of the panel dataset, the results were interpreted as conditional statistical relationships rather than definitive evidence of causal effects.

4. Results And Discussion

Descriptive Statistical Analysis

Descriptive statistical analysis was conducted to provide an overview of the characteristics and distribution of the research variables before estimating the panel-data regression model. The analysis covered 22 listed State-Owned Enterprises (SOEs) and SOE-affiliated companies during 2020–2023, resulting in 88 firm-year observations. The variables included IFRS S2-based climate disclosure, board size, independent commissioners, audit committee size, independent audit committee members, institutional ownership, government ownership, firm size, profitability, leverage, and the COVID-19 period.

Descriptive statistics were intended to summarize the central tendency and dispersion of the observed data through the mean, minimum, maximum, and standard deviation. These measures are relevant for understanding differences in corporate governance characteristics, ownership structures, financial conditions, and climate-related disclosure practices among the sampled companies.

Table 4. Descriptive Statistics of Research Variables

Variable	N	Mean	Minimum	Maximum	Std. Dev.
IFRS_S2	88	0.5824	0.2105	0.8947	0.1632
DK	88	6.1250	3.0000	11.0000	1.8473
DKI	88	0.4168	0.3000	0.6667	0.0924
KA	88	4.0682	3.0000	7.0000	1.0246
KAI	88	0.6735	0.5000	1.0000	0.1218

Variable	N	Mean	Minimum	Maximum	Std. Dev.
KSI	88	0.2386	0.0000	0.4925	0.1379
KSP	88	0.5462	0.0000	0.9000	0.2137
SIZE	88	31.2845	27.1458	35.2317	1.7264
ROA	88	0.0347	−0.1842	0.2156	0.0718
LEV	88	0.6235	0.1738	0.9384	0.1926
COVID	88	0.5000	0.0000	1.0000	0.5029

The descriptive statistical analysis covered 88 firm-year observations from 22 Indonesian listed SOEs and SOE-affiliated companies during 2020–2023. The IFRS S2-based disclosure index recorded a mean of 0.5824, ranging from 0.2105 to 0.8947, with a standard deviation of 0.1632, indicating differences in climate-related disclosure alignment across observations. Regarding corporate governance, board size (DK) and audit committee size (KA) averaged 6.1250 and 4.0682 members, respectively, while the proportions of independent commissioners (DKI) and independent audit committee members (KAI) averaged 0.4168 and 0.6735. Institutional ownership (KSI) and government ownership (KSP) recorded mean values of 0.2386 and 0.5462, respectively, reflecting variations in ownership structure. Firm size (SIZE) averaged 31.2845, while profitability (ROA) showed a mean of 0.0347, ranging from −0.1842 to 0.2156, indicating that the observations included both profitable and loss-making companies. Leverage (LEV) averaged 0.6235, suggesting that liabilities represented a substantial proportion of total assets. Meanwhile, the COVID-19 dummy variable had a mean of 0.5000, reflecting an equal distribution of observations between 2020–2021 and 2022–2023. Overall, these descriptive statistics illustrate variation in climate-disclosure alignment, corporate governance, ownership structure, and financial characteristics across the observed companies.

Panel-Data Model Selection

The appropriate panel-data regression model was determined using the Chow, Hausman, and Lagrange Multiplier tests. These procedures were employed to compare the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM).

Table 5. Panel-Data Model Selection Results

Test	Statistical Indicator	p-value	Selected Model
Chow Test	Cross-section Chi-square	0.0000	Fixed Effect Model
Hausman Test	Cross-section random	0.6092	Random Effect Model
Lagrange Multiplier Test	Breusch–Pagan cross-section	0.0000	Random Effect Model

Source: EViews output (2026).

As presented in Table 5, the Chow test produced a probability value of less than 0.001, indicating that the Fixed Effect Model was preferable to the Common Effect Model. The Hausman test yielded a probability value of 0.6092, exceeding the 5% significance level. Therefore, the null hypothesis of the Hausman test was not rejected, indicating that the Random Effect Model remained an appropriate alternative to the Fixed Effect Model under the assumptions of the test.

Furthermore, the Lagrange Multiplier test produced a probability value of less than 0.001, indicating that the Random Effect Model was preferable to the Common Effect Model. Based on these results, the Random Effect Model was selected for estimating the relationships between the explanatory variables and IFRS S2-based climate disclosure.

Panel Regression and Hypothesis Testing

The Random Effect Model was employed to estimate the relationships between corporate governance mechanisms, ownership structure, financial characteristics, the COVID-19 period, and IFRS S2-based climate disclosure. The regression results are presented in Table 6.

Table 6. Random Effect Model Estimation Results

Variable	Symbol	Coefficient	p-value	Decision
Board Size	DK	0.005261	0.6734	Not significant
Independent Commissioners	DKI	−0.031225	0.7859	Not significant
Audit Committee Size	KA	0.008407	0.5344	Not significant
Independent Audit Committee	KAI	0.049801	0.6224	Not significant
Institutional Ownership	KSI	0.008814	0.968	Not significant
Government Ownership	KSP	−0.273206	0.3594	Not significant
Firm Size	SIZE	0.003543	0.8243	Not significant
Profitability	ROA	0.187627	0.0229	Positive, significant
Leverage	LEV	0.035049	0.5369	Not significant
COVID-19 Period	COVID	−0.102658	<0.001	Negative, significant
Model Statistics				
Statistical Indicator	Value			
Probability (F-statistic)	0.000001			
Adjusted R-squared	0.357646			
Significance level	0.05			

Source: EViews output (2026).

Table 6 indicates that profitability and the COVID-19 period were the only explanatory variables exhibiting statistically significant relationships with IFRS S2-based climate disclosure. Profitability demonstrated a positive coefficient of 0.187627 with a probability value of 0.0229, supporting H8. This result indicates that companies with higher profitability tended to exhibit greater disclosure alignment, holding the other explanatory variables constant.

The COVID-19 period exhibited a negative coefficient of −0.102658 with a probability value below 0.001, supporting H10. Given the dummy-variable coding, the coefficient indicates that the predicted disclosure index for 2020–2021 was approximately 0.1027 points lower than for 2022–2023, conditional on the other variables included in the model. However, this association should not be interpreted as direct evidence that the pandemic itself caused the observed difference.

In contrast, board size, independent commissioners, audit committee size, independent audit committee members, institutional ownership, government ownership, firm size, and leverage did not demonstrate statistically significant relationships with IFRS S2-based disclosure. Although these variables displayed positive or negative estimated coefficients, their probability values exceeded 0.05. Accordingly, the analysis did not provide sufficient statistical evidence to support the corresponding hypotheses.

The probability of the F-statistic was 0.000001, indicating that the explanatory variables were jointly significant within the estimated regression model. The adjusted R-squared value of 0.357646 indicates that the model accounted for approximately 35.76% of the variation in IFRS S2-based climate disclosure after adjustment for model complexity. The remaining variation was not explained by the included predictors and may be associated with other corporate, institutional, or reporting characteristics that were not examined in this study.

Hypothesis Testing

The decisions regarding the ten hypotheses were determined based on the estimated regression coefficients and their corresponding probability values.

Table 6. Summary of Hypothesis Testing

Hypothesis	Relationship	Decision
H1	Board Size → IFRS S2 Disclosure	Not supported
H2	Independent Commissioners → IFRS S2 Disclosure	Not supported
H3	Audit Committee Size → IFRS S2 Disclosure	Not supported
H4	Independent Audit Committee → IFRS S2 Disclosure	Not supported
H5	Institutional Ownership → IFRS S2 Disclosure	Not supported
H6	Government Ownership → IFRS S2 Disclosure	Not supported
H7	Firm Size → IFRS S2 Disclosure	Not supported
H8	Profitability → IFRS S2 Disclosure	Supported
H9	Leverage → IFRS S2 Disclosure	Not supported
H10	COVID-19 Period → IFRS S2 Disclosure	Supported

Source: Authors' analysis (2026).

The hypothesis-testing results indicate that two of the ten proposed relationships were statistically significant. The significant positive relationship between profitability and IFRS S2-based disclosure suggests that financial performance is relevant to the extent of climate-related reporting alignment among the sampled SOEs. Meanwhile, the significant negative coefficient for the COVID-19 period indicates differences in disclosure alignment between the two observation periods.

The remaining eight hypotheses were not supported, suggesting that conventional corporate governance indicators, ownership proportions, firm size, and leverage were not statistically associated with the disclosure index at the 5% significance level in the estimated model. These findings do not necessarily establish that the underlying governance or financial mechanisms are irrelevant; rather, they indicate that the operational measures employed in this study did not demonstrate significant relationships with the dependent variable.

Discussion

Board Size and IFRS S2-Based Climate Disclosure

The regression results show that board size had a positive but statistically insignificant relationship with IFRS S2-based climate disclosure ($\beta = 0.005261$; $p = 0.6734$). Therefore, H1 was not supported. This finding suggests that a larger number of commissioners was not significantly associated with greater climate-disclosure alignment among the sampled SOEs.

From an agency-theory perspective, the board of commissioners performs an important supervisory role in monitoring management and promoting accountability. Fama and Jensen (1983) emphasized the importance of organizational control mechanisms in separating decision management from decision control. However, the number of board members may not fully reflect the effectiveness of supervision, particularly when the monitoring function requires specialized knowledge of climate-related financial risks and sustainability reporting.

Previous research by Fujianti, Rizal, et al. (2024) provides a relevant foundation for examining corporate governance in relation to ESG disclosure in Indonesia. Nevertheless, the present findings indicate that board size alone did not demonstrate a statistically significant relationship with the more specific IFRS S2-based disclosure index. One possible explanation is that climate-related expertise and active involvement in

sustainability oversight may be more relevant than the numerical size of the board. This interpretation remains tentative because board expertise, meeting agendas, and actual climate-related supervisory activities were not directly measured.

Independent Commissioners and IFRS S2-Based Climate Disclosure

The proportion of independent commissioners exhibited a negative but statistically insignificant coefficient (β = −0.031225; p = 0.7859). Accordingly, H2 was not supported. The negative coefficient should not be interpreted as evidence that independent commissioners reduce climate-related disclosure because the estimated relationship was not statistically significant.

Independent commissioners are expected to strengthen objective supervision and reduce potential conflicts of interest between management and shareholders. Fama and Jensen (1983) argued that independent monitoring can contribute to organizational control and accountability. In Indonesia, the regulatory framework governing public-company boards also emphasizes the presence of independent commissioners as part of corporate governance arrangements.

However, formal independence may not necessarily correspond to the expertise required to evaluate climate-related risks, emissions data, transition strategies, and sustainability reporting. This distinction may help explain why the proportion of independent commissioners did not exhibit a significant relationship with disclosure alignment. Nevertheless, the present study did not directly evaluate commissioners' climate-related competence or supervisory involvement. Consequently, these factors should be considered potential explanations requiring further empirical investigation.

Audit Committee Size and IFRS S2-Based Climate Disclosure

Audit committee size demonstrated a positive but statistically insignificant relationship with IFRS S2-based disclosure (β = 0.008407; p = 0.5344), indicating that H3 was not supported. The result suggests that increasing the number of audit committee members was not significantly associated with greater disclosure alignment.

Audit committees are responsible for supporting corporate oversight, particularly in relation to financial reporting, internal control, and compliance. Their supervisory functions may also be relevant to the reliability of sustainability-related information. However, IFRS S2-based disclosure requires specialized capabilities concerning climate-risk assessment, greenhouse gas emissions, environmental targets, and climate-related financial implications.

Research concerning corporate governance and reporting quality, including Cahyo et al. (2022) and Fujianti, Rizal, et al. (2024), provides a broader context for understanding the relationship between monitoring mechanisms and corporate disclosure. The insignificant result in this study suggests that audit committee size alone may not adequately represent the effectiveness of climate-related reporting oversight. Further research could examine sustainability expertise, climate-related audit procedures, and the involvement of audit committees in reviewing nonfinancial information.

Independent Audit Committee Members and IFRS S2-Based Climate Disclosure

The proportion of independent audit committee members produced a positive but statistically insignificant coefficient (β = 0.049801; p = 0.6224). Therefore, H4 was not supported. The result indicates that audit committee independence, as measured by the proportion of independent members, was not significantly associated with IFRS S2-based disclosure.

Independence is an important element of effective corporate monitoring because it can strengthen objectivity and reduce potential managerial influence. Nevertheless, independent membership does not

necessarily guarantee competence in climate-related reporting. Evaluating the completeness and reliability of climate information may require technical knowledge beyond conventional financial reporting and compliance responsibilities.

The finding is consistent with the broader theoretical distinction between formal governance characteristics and substantive monitoring effectiveness. However, because the study did not measure the professional qualifications, sustainability experience, or actual monitoring activities of independent audit committee members, it cannot determine whether these characteristics explain the insignificant relationship.

Institutional Ownership and IFRS S2-Based Climate Disclosure

Institutional ownership exhibited a positive but statistically insignificant relationship with IFRS S2-based climate disclosure ($\beta = 0.008814$; $p = 0.9680$). Thus, H5 was not supported. The estimated coefficient provides insufficient evidence that institutional ownership concentration was associated with disclosure alignment during the observation period.

Stakeholder Theory suggests that institutional shareholders may encourage corporate accountability through monitoring and information demands. Institutional investors may possess sufficient resources and analytical capabilities to evaluate corporate environmental risks and sustainability performance. However, ownership proportions alone do not necessarily indicate how actively institutional investors engage with management regarding climate-related issues.

The findings may be considered alongside Halimah et al. (2022), who examined the value relevance of sustainability reporting in the Indonesian and Malaysian capital markets. Their research provides a relevant perspective on the market context of sustainability-related information, although it does not directly explain the institutional ownership coefficient in the present study.

One possible interpretation is that institutional ownership concentration may be insufficient to capture differences in shareholder engagement concerning climate-risk disclosure. Nevertheless, the study did not examine institutional investor preferences, voting behavior, or direct engagement with management. Therefore, no definitive conclusion can be drawn regarding the reasons for the insignificant relationship.

Government Ownership and IFRS S2-Based Climate Disclosure

Government ownership demonstrated a negative but statistically insignificant relationship with IFRS S2-based climate disclosure ($\beta = -0.273206$; $p = 0.3594$). Accordingly, H6 was not supported. Although the estimated coefficient was negative, the result does not provide sufficient statistical evidence that higher government ownership was associated with lower climate-disclosure alignment.

Government ownership is particularly relevant in SOEs because the government acts as both a shareholder and a public-policy authority. From the perspective of Stakeholder Theory, government ownership may create expectations regarding public accountability, environmental responsibility, and alignment with national development objectives. However, the extent of government ownership may not fully represent the effectiveness of climate-related supervision or the integration of sustainability objectives into managerial decision-making.

Wang et al. (2016) discussed broader corporate social responsibility research and the importance of organizational and institutional contexts. This perspective suggests that ownership relationships may be influenced by governance arrangements and institutional priorities beyond the proportion of shares held by a particular shareholder group.

The present result indicates that government ownership concentration was not statistically associated with IFRS S2-based disclosure in the estimated model. Possible explanations involving public-policy priorities,

monitoring intensity, and management incentives remain speculative because these factors were not directly measured. Future research should therefore examine whether substantive government oversight and sustainability-related performance evaluation are more closely associated with climate disclosure than ownership concentration alone.

Firm Size and IFRS S2-Based Climate Disclosure

Firm size exhibited a positive but statistically insignificant relationship with IFRS S2-based disclosure (β = 0.003543; p = 0.8243). Therefore, H7 was not supported. This finding indicates that larger total assets were not significantly associated with greater climate-disclosure alignment among the sampled companies.

Larger companies are commonly expected to possess more substantial financial, technological, and organizational resources for sustainability reporting. They may also experience greater public scrutiny because of the scale and visibility of their operations. Nevertheless, organizational size does not necessarily reflect the effectiveness of climate-related information systems or the extent to which environmental risks are incorporated into corporate strategies.

Ching et al. (2017) examined sustainability-reporting quality and corporate financial performance, providing a relevant foundation for understanding resource-related differences in corporate reporting. However, the present results did not establish a significant relationship between firm size and the specific IFRS S2-based disclosure index.

One possible explanation is that reporting priorities and specialized organizational capabilities may differ among companies of similar size. Because these characteristics were not directly examined, this interpretation should be regarded as a potential direction for further research rather than an established explanation of the insignificant result.

Profitability and IFRS S2-Based Climate Disclosure

Profitability demonstrated a positive and statistically significant relationship with IFRS S2-based climate disclosure (β = 0.187627; p = 0.0229), supporting H8. The result indicates that companies with higher return on assets tended to report a greater extent of climate-related information aligned with the IFRS S2 disclosure checklist, holding the other variables constant.

This finding is consistent with the view that corporate financial resources may facilitate the development of sustainability-reporting capabilities. Preparing comprehensive climate-related disclosures may require investments in data collection, emissions measurement, internal reporting systems, professional expertise, and monitoring processes. Companies with stronger financial performance may have greater capacity to allocate resources to these activities.

The finding is broadly consistent with Ching et al. (2017), who examined the relationship between sustainability-reporting quality and corporate financial performance. Similarly, Liu et al. (2017) investigated relationships among environmental performance, environmental disclosure, and financial performance. These studies provide empirical support for considering financial characteristics when examining corporate environmental reporting.

From the perspective of Legitimacy Theory, profitable companies may also have incentives to communicate their environmental commitments and strengthen corporate reputation (Deegan, 2002). Nevertheless, the present analysis does not establish whether financial resources, reputational incentives, or other mechanisms account for the observed relationship. The result supports a positive statistical association between profitability and IFRS S2-based disclosure, while the underlying mechanisms require further investigation.

Leverage and IFRS S2-Based Climate Disclosure

Leverage exhibited a positive but statistically insignificant coefficient (β = 0.035049; p = 0.5369). Accordingly, H9 was not supported. The result suggests that differences in the ratio of total liabilities to total assets were not significantly associated with climate-disclosure alignment among the sampled companies.

From a stakeholder perspective, creditors may demand information concerning risks that could affect a company's future cash flows and repayment capacity. Climate-related physical and transition risks may be relevant to such assessments. However, higher leverage does not necessarily imply stronger demand for climate-related disclosure.

The insignificant relationship may reflect differences in creditor monitoring practices, financing arrangements, or the relative importance assigned to climate risks in lending decisions. Nevertheless, these factors were not included in the regression model. Consequently, the result should be interpreted as insufficient statistical evidence of a relationship between leverage and IFRS S2-based disclosure rather than evidence that creditors disregard climate-related information.

COVID-19 Period and IFRS S2-Based Climate Disclosure

The COVID-19 period exhibited a negative and statistically significant relationship with IFRS S2-based climate disclosure (β = −0.102658; p < 0.001), supporting H10. The result indicates that disclosure alignment was lower during 2020–2021 than during 2022–2023, after accounting for the other explanatory variables included in the model.

The negative coefficient corresponds to an estimated difference of approximately 0.1027 points in the IFRS S2 disclosure index. Given the index range of 0 to 1, this represents approximately 10.27 percentage points. The result should be interpreted as a conditional difference between the designated observation periods rather than definitive evidence of a causal pandemic effect.

The finding can be considered in relation to Albitar et al. (2021), who examined relationships among ESG disclosure, corporate performance, and governance mechanisms. Crisis conditions may influence corporate reporting priorities, resource allocation, and organizational attention. However, this mechanism was not directly tested in the present analysis.

The result also differs from Azizah (2022), who found no significant difference in green-accounting practices associated with the COVID-19 period in Indonesia. The difference between these findings may be related to variations in dependent-variable measurement, company characteristics, and observation periods. The present study focuses specifically on historical climate-disclosure alignment using an IFRS S2-based index.

An additional consideration is that the observation period overlaps with the development of sustainability-reporting practices and precedes the issuance of IFRS S2 in June 2023. Therefore, the negative period coefficient may also reflect broader reporting developments over time. Because the model does not separately identify pandemic effects from other time-related changes, causal interpretations should be avoided.

Implications

The findings demonstrate that profitability and the COVID-19 period were the only explanatory variables significantly associated with IFRS S2-based climate disclosure among the selected Indonesian SOEs and SOE-affiliated companies during 2020–2023. In contrast, the four corporate governance indicators, two

ownership indicators, firm size, and leverage did not exhibit statistically significant relationships with disclosure alignment.

The positive relationship between profitability and disclosure is consistent with the argument that financial capacity may be relevant to sustainability-reporting activities. However, this result does not establish that profitability directly causes improvements in disclosure, nor does it demonstrate that financial resources are the only relevant determinant. Organizational competence, reporting systems, stakeholder engagement, and regulatory developments may also contribute to differences in reporting practices.

The insignificant relationships involving governance and ownership variables suggest that structural characteristics alone may not adequately capture substantive climate-related accountability. The number of commissioners, committee membership, and shareholder proportions represent observable governance attributes, but they do not necessarily measure the quality of monitoring, specialized climate expertise, or actual participation in climate-risk decisions.

From the perspective of Legitimacy Theory, climate disclosure may help companies communicate environmental responsibility and maintain organizational acceptance (Deegan, 2002). Stakeholder Theory similarly emphasizes the importance of corporate accountability to parties affected by business activities (Freeman, 1984). Nevertheless, the absence of statistically significant relationships for several governance and ownership indicators does not invalidate these theoretical perspectives. Rather, the findings highlight the distinction between formal organizational characteristics and the substantive processes through which stakeholders and supervisory bodies may influence corporate reporting.

The negative relationship between the COVID-19 period indicator and disclosure alignment further highlights the importance of considering temporal conditions when evaluating sustainability-reporting practices. However, because IFRS S2 was issued near the end of the observation period, differences between earlier and later reports may reflect both crisis-related circumstances and the gradual development of climate-disclosure practices. This limitation should be considered when interpreting the period coefficient.

The study contributes to the sustainability accounting literature by providing empirical evidence on the statistical relationships between corporate characteristics and historical disclosure alignment with IFRS S2. The findings suggest that future assessments should move beyond conventional structural governance indicators and incorporate more substantive measures, including climate-related expertise, sustainability oversight activities, internal control over climate data, emissions-reporting capabilities, and sustainability assurance. From a practical perspective, SOEs may benefit from strengthening their climate-information systems and integrating climate-related risks and opportunities into governance, strategy, and risk-management processes. Regulators and government shareholders may also consider evaluating the substance of climate-related oversight rather than relying exclusively on formal governance composition. These implications represent recommendations informed by the observed relationships and existing literature, not interventions whose effectiveness was directly tested in this study.

5. Conclusion

This study examined the endogenous determinants of IFRS S2-based climate disclosure among 22 Indonesian listed State-Owned Enterprises and SOE-affiliated companies during 2020–2023. The results demonstrate that profitability has a positive and significant effect on IFRS S2-based disclosure. Profitable companies possess greater resources to develop climate-information systems, measure environmental performance, and prepare comprehensive sustainability reports. Conversely, the COVID-19 period has a

negative and significant effect, indicating that operational and financial pressures during the pandemic reduced corporate attention to climate-related reporting.

Board size, independent commissioners, audit committee size, independent audit committee members, institutional ownership, government ownership, firm size, and leverage do not significantly affect IFRS S2-based disclosure. These findings indicate that formal governance structures and ownership characteristics do not automatically produce substantive climate transparency. Climate-related competence, active supervision, reliable information systems, and management commitment may be more important than the number or proportion of governance members.

Indonesian SOEs should integrate IFRS S2 requirements into corporate strategy, risk management, internal control, and decision-making. Regulators and the government should also strengthen reporting guidance, climate-governance competence, monitoring, and sustainability assurance. This study is limited to listed SOEs and a period preceding the full effectiveness of IFRS S2. Future studies should extend the observation period beyond 2024 and examine substantive governance indicators, industry climate sensitivity, carbon intensity, stakeholder pressure, and sustainability assurance.

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