Volume 18, Number 1, 2026, pp 139 – 162, Jurnal Akuntansi, Program Studi Akuntansi, Fakultas Hukum dan Bisnis Digital, Universitas Kristen Maranatha. ISSN 2085-8698 | e-ISSN 2598-4977. http://journal.maranatha.edu

Sustainability Reporting Readiness in Indonesian Mining Companies

Ayu Puspitasari[1*]
Department of Accounting,
Universitas Tanjungpura, Pontianak, Indonesia
ayu.puspitasari@ekonomi.untan.ac.id
*corresponding author

Ika Nur Azmi[2]
Department of Accounting,
Universitas Tanjungpura, Pontianak, Indonesia
ikanurazmi@ekonomi.untan.ac.id

Received 11 March 2026; Revised 15 April 2026; Accepted 20 April 2026

Abstract

Purpose – This study aims to assess the readiness of Indonesian mining companies to adopt the International Sustainability Standards Board (ISSB) reporting standards, specifically the IFRS S1 and IFRS S2 frameworks. The study identifies the key factors influencing this readiness, the challenges faced during the transition from GRI-based to ISSB-based sustainability reporting, and the best practices for ensuring a smooth adaptation process.
Design/Methodology/Approach – A qualitative exploratory approach was adopted for this research. Systematic content analysis was performed on the sustainability and annual reports of 41 mining companies listed on the Indonesia Stock Exchange for the fiscal year 2023. The analysis was conducted using NVivo 14 software, with a deductive coding framework grounded in the five ISSB pillars: Governance, Strategy, Risk Management, Metrics and Targets, and Climate-related Disclosures. Cohen's Kappa coefficient ($\kappa = 0.87$) was used to confirm inter-coder reliability.
Results – The study finds significant variation in readiness levels: 36.6% of companies exhibit high readiness, 48.8% show moderate readiness, and 14.6% are classified as low readiness. Key gaps identified include limited integration of ESG factors with financial data, lack of scenario analysis capabilities, and insufficient disclosure of Scope 3 emissions. The internal organizational capabilities, such as governance quality, ESG human resource capacity, and

technology infrastructure, were found to be the most influential determinants of readiness.

Research limitations/Implications – This study is limited to the mining sector in Indonesia, using publicly available sustainability reports from companies listed on the Indonesia Stock Exchange for fiscal year 2023. The findings may not be generalizable to other industries or countries with different regulatory and institutional contexts. Furthermore, the study is based solely on content analysis, which relies on the quality and comprehensiveness of the available reports. Despite these limitations, the findings suggest that regulators should create sector-specific ISSB adoption roadmaps, and companies must invest in ESG data infrastructure, human resources, and governance structures to ensure substantive compliance.

Keywords: Content Analysis, IFRS S1, IFRS S2, ISSB, Mining Sector, Sustainability Reporting

Introduction

The establishment of the International Sustainability Standards Board (ISSB) by the IFRS Foundation in 2021 and the subsequent launch of IFRS S1 and IFRS S2 in June 2023 represent a fundamental shift in global sustainability reporting, moving from voluntary, multistakeholder-oriented disclosure toward mandatory, investor-focused financial reporting (IFRS Foundation, 2023). This paradigm shift poses a significant challenge for companies in emerging markets, where sustainability reporting has predominantly followed the Global Reporting Initiative (GRI) framework, which operates under an entirely different philosophy of accountability (Adams & Abhayawansa, 2022). Consequently, while developed economies are actively preparing for ISSB adoption, the readiness of companies in developing countries such as Indonesia remains critically underexamined.

In Indonesia, the regulatory foundation for sustainability reporting was established through POJK No. 51/POJK.03/2017, which mandates financial service institutions and public companies to implement sustainable finance principles (OJK, 2017). Despite this regulatory commitment, Gunawan & Hermawan (2021) found that sustainability report disclosure positively influences financial performance in Indonesian companies, suggesting that companies have economic incentives to improve disclosure quality, while Wardhani & Rossieta (2022) found that foreign investors demonstrate selective responsiveness to Indonesian sustainability disclosures, with disclosure quality significantly influencing foreign investor decisions only when accompanied by substantive rather than symbolic reporting practices. Therefore, the introduction of ISSB standards

confronts Indonesian companies with a dual challenge: not merely adopting a new reporting framework, but fundamentally transforming how sustainability risks are identified, measured, and communicated as financially material information.

The Indonesian mining sector constitutes a particularly critical and urgent context for this investigation. Contributing seven to ten percent of national GDP while simultaneously generating significant carbon emissions, land degradation, and social conflicts with local communities, the mining sector faces the highest ESG risk exposure of any Indonesian industry (Rahmawati & Subardjo, 2022; Setianingrum & Sari, 2023). Furthermore, global investor pressure on extractive industries has intensified substantially, with foreign-owned companies facing far greater demands for ESG transparency than their domestically-owned counterparts (Christensen, Hail & Leuz, 2021). Nevertheless, comprehensive empirical evidence on how Indonesian mining companies position themselves in relation to ISSB requirements remains absent from the literature.

Three significant research gaps justify this study. Empirically, existing ISSB readiness studies are dominated by developed economy contexts (Adams & Abhayawansa, 2022), with virtually no studies examining extraction-sector readiness in Southeast Asian emerging markets where institutional and regulatory environments differ substantially. Methodologically, prior readiness assessments have relied on single-dimensional frameworks, either regulatory compliance checklists or disclosure frequency counts, without integrating institutional, technical, and strategic dimensions into a comprehensive evaluation framework (Hapsari & Mardijuwono, 2024). Contextually, Indonesia's distinctive institutional characteristics, including mining-specific reclamation obligations, GRI-dominated disclosure culture, and fragmented domestic regulation, potentially produce ISSB adoption patterns that cannot be explained by models derived from developed country research (Putri & Rahardjo, 2023).

Addressing these gaps, this study poses three interrelated research questions. First, what is the current readiness level of Indonesian mining companies to adopt ISSB-based sustainability reporting standards across five core dimensions? Second, what internal organizational capabilities and external institutional pressures explain variation in readiness levels? Third, what are the primary barriers companies face in transitioning from GRI-based to ISSB-based reporting, and what strategies distinguish high-readiness companies?

This study contributes to the literature in three specific ways. First, it provides the first systematic empirical evidence on ISSB adoption readiness in the Indonesian mining sector, thereby addressing a pronounced geographical and sectoral gap in emerging market sustainability reporting research. Second, it introduces a multi-theoretical readiness assessment framework integrating institutional theory, resource-based view, signaling theory,

and legitimacy theory, which moves beyond single-lens analyses to capture the multidimensional nature of standard adoption processes. Third, by identifying concrete barriers and best practices grounded in document-level evidence from 41 companies, this study generates actionable insights for regulators designing ISSB adoption roadmaps and for practitioners managing sustainability reporting transitions. Unlike prior studies that measure readiness through disclosure frequency alone, this research evaluates the substantive alignment of sustainability reports with ISSB principles, an approach that reveals the gap between symbolic compliance and genuine implementation readiness.

Theoretical Review

Understanding corporate readiness to adopt ISSB-based sustainability reporting requires a multi-theoretical lens, given that readiness is simultaneously shaped by organizational capabilities, external institutional pressures, stakeholder demands, and information asymmetry conditions. Therefore, this study integrates five complementary theoretical perspectives: Legitimacy Theory, Stakeholder Theory, Resource-Based View, Institutional Theory, and Signaling Theory.

Legitimacy Theory provides the foundational explanation for why companies, particularly those operating in high-impact sectors such as mining, engage in sustainability disclosure in the first place. According to Suchman (1995), legitimacy is a generalized perception that organizational actions are desirable and appropriate within socially constructed systems of norms and values. When a gap exists between corporate behavior and societal expectations, organizational survival becomes threatened, and companies consequently employ disclosure strategies to restore or maintain social legitimacy (Deegan, 2002). In the ISSB adoption context, legitimacy theory explains why companies facing significant environmental and social scrutiny are more likely to demonstrate readiness for comprehensive sustainability reporting frameworks, since substantive disclosure serves as a legitimacy-maintenance mechanism rather than merely a compliance obligation.

Stakeholder theory, developed by Freeman (1984), extends this explanation by positing that organizational success depends not solely on shareholder value maximization but on satisfying all parties affected by or affecting corporate operations. In the mining industry, this theoretical lens is particularly relevant because companies simultaneously face pressure from investors seeking financially material ESG information, local communities affected by environmental impacts, regulators demanding transparency, and international capital markets requiring standardized disclosures. Consequently, ISSB standards reinforce the stakeholder orientation by directing companies to disclose material information relevant to a broad range of information users,

thereby elevating sustainability reporting from a voluntary gesture to a strategic accountability mechanism (IFRS Foundation, 2023).

The Resource-Based View (RBV), originally articulated by Barney (1991), shifts analytical attention from external pressures to internal organizational capabilities as the primary determinants of competitive advantage. Within this framework, company resources encompass assets, capabilities, organizational processes, and knowledge that enable the design and implementation of effective strategies (Barney, 1991). In the sustainability reporting context, RBV posits that readiness to adopt ISSB standards depends fundamentally on whether companies possess rare and difficult-to-imitate internal capabilities, including robust ESG data infrastructure, competent human resources in sustainability accounting, and top management commitment to integrated reporting (Hart, 1995). Furthermore, Dynamic Capabilities theory extends RBV by emphasizing an organization's ability to integrate, build, and reconfigure internal competencies in response to rapidly evolving environmental demands, which is particularly relevant given the transformative nature of the shift from GRI to ISSB standards (Teece, 2007).

Institutional theory provides the macro-level explanatory framework for understanding how regulatory, normative, and mimetic pressures collectively shape organizational behavior toward sustainability reporting convergence. According to DiMaggio & Powell (1983), three isomorphic mechanisms drive organizations to adopt similar practices: coercive isomorphism arising from regulatory mandates, normative isomorphism stemming from professional and educational standards, and mimetic isomorphism resulting from imitation of successful peer organizations. In the Indonesian context, North (1990) further argues that formal institutional rules and informal normative constraints jointly shape organizational behavior and economic performance. Accordingly, Indonesian mining companies face coercive pressure from POJK No. 51/POJK.03/2017, normative pressure from global accounting and sustainability professions advocating ISSB adoption, and mimetic pressure from multinational peers that have already implemented ISSB-aligned reporting systems.

Signaling theory, originally developed by Spence (1973) in labor market contexts and subsequently applied extensively to corporate disclosure research, addresses the role of information asymmetry between companies and external stakeholders. The theory posits that companies with superior ESG performance have strong incentives to signal their quality through comprehensive and verifiable disclosures, thereby differentiating themselves from lower-performing peers (Connelly, Certo, Ireland & Reutzel, 2011). In the ISSB adoption context, companies demonstrating high readiness effectively signal their commitment to long-term value creation and transparency, which in turn reduces information asymmetry for investors and lowers the cost of

capital. Notably, ISSB standards strengthen signal credibility by requiring comparable and decision-useful information, making it considerably more difficult for companies with symbolic rather than substantive sustainability commitments to obscure performance deficiencies behind narrative-only disclosures.

To synthesize the five theoretical perspectives discussed above, this study proposes an integrated conceptual framework in which ISSB readiness is shaped by the interaction between internal organizational capabilities and external institutional pressures. These interacting forces are reflected in the five core ISSB readiness dimensions used in this study, namely governance, strategy, risk management, metrics and targets, and climate-related disclosures, as illustrated in Figure 1.

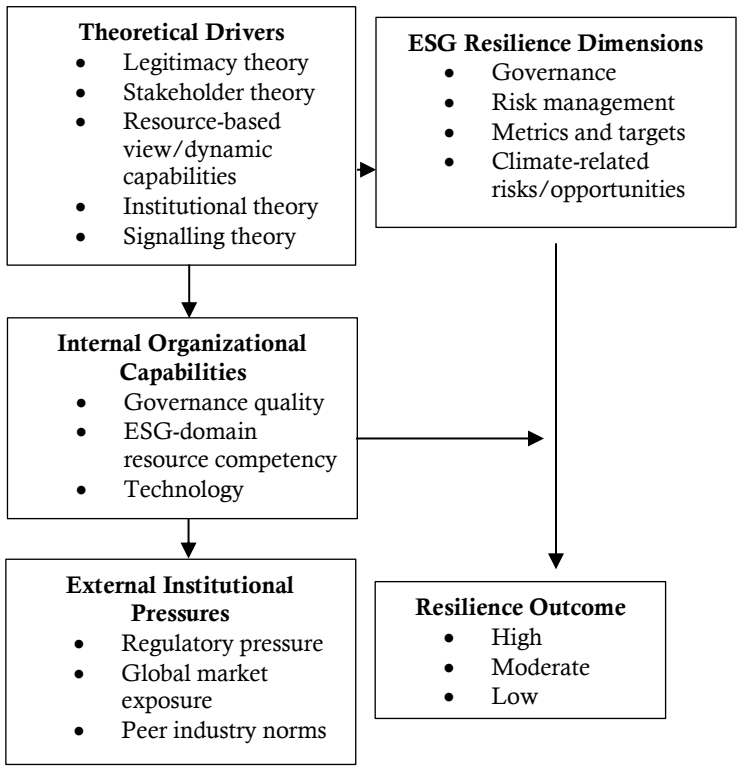

Figure 1
Multi-Theoretical Framework of ISSB Readiness in Indonesian Mining Companies

Figure 1 illustrates that ISSB readiness is not conceptualized as a purely technical reporting outcome, but as a multidimensional organizational condition emerging from the interplay of legitimacy concerns, stakeholder expectations, internal strategic resources, institutional pressures, and signaling incentives. In this study, these theoretical drivers are translated

into internal and external determinants that shape the degree to which Indonesian mining companies are prepared to meet the substantive requirements of ISSB-based sustainability reporting.

Empirical Review

Empirical research on sustainability reporting readiness has grown substantially following the ISSB's establishment, though significant geographical and sectoral gaps remain. Adams & Abhayawansa (2022) conducted a comprehensive review of sustainability reporting practices across 45 countries, finding that readiness levels vary considerably based on regulatory framework maturity and institutional development, with governance structure and reporting infrastructure identified as primary determinants of implementation success. Similarly, Barth, Cahan, Chen & Venter (2017) demonstrated that companies with higher integrated reporting quality achieve better market valuations, thereby providing economic rationale for proactive ISSB adoption among companies seeking favorable investor assessments.

In the Asian context, a survey conducted by the Japanese Institute of Certified Public Accountants documented that only 35 percent of large Japanese corporations demonstrated adequate preparation for TCFD-aligned climate disclosure, despite Japan's relatively advanced regulatory environment (Higashida & Kawamura, 2021). This finding is particularly instructive for the Indonesian context, since it suggests that even in institutionally developed settings, readiness gaps remain substantial when reporting frameworks demand quantitative financial integration rather than narrative disclosure. In Indonesia specifically, Hapsari & Mardijuwono (2024) examined banking sector readiness for sustainable finance regulations and concluded that internal capability gaps, particularly in data systems and human resource competencies, constitute the most critical barriers to implementation. Furthermore, Rahmawati & Subardjo (2022) found that ESG disclosure quality in Indonesian resource extraction industries is positively correlated with foreign ownership levels and board independence, suggesting that external ownership structures and governance quality are key enabling conditions for advanced sustainability reporting.

Studies focusing specifically on the mining sector reveal a persistently compliance-oriented approach to sustainability disclosure among Indonesian companies. Cahyono & Nurharjanti (2021) found that while social and environmental disclosure scores among Indonesian mining companies have increased over time, overall disclosure quality remains significantly below international standards, with limited quantitative data and inadequate materiality assessments. Moreover, Pratiwi & Setiawan (2021) confirmed that corporate governance attributes significantly influence sustainability disclosure quality in the mining sector, with board-level engagement and committee structures serving as critical

governance enablers. Setianingrum & Sari (2023) further documented that climate risk disclosure practices in Indonesian mining companies remain largely narrative and insufficiently linked to financial impact assessments, representing a fundamental misalignment with IFRS S2 requirements.

At the broader institutional level, Christensen, Hail & Leuz (2021) conducted an extensive analysis of mandatory CSR and sustainability reporting regulation across multiple jurisdictions, concluding that mandatory disclosure requirements generally improve reporting quality, though the magnitude of improvement depends heavily on enforcement capacity and pre-existing institutional infrastructure. This finding carries important implications for Indonesia, where regulatory mandates exist but enforcement mechanisms and supporting infrastructure remain underdeveloped. Additionally, Gunawan & Hermawan (2021) documented that Indonesian corporate sustainability reporting is predominantly compliance-driven rather than strategically integrated, while Wardhani & Rossieta (2022) demonstrated that Indonesian companies face differentiated investor scrutiny based on disclosure quality, with foreign investors responding more strongly to substantive ESG disclosures than to compliance-based reporting, underscoring the strategic importance of transitioning toward investor-centric frameworks such as ISSB.

Gaps in The Literature

Notwithstanding the growing body of empirical evidence reviewed above, three significant and interrelated gaps in the existing literature justify the present study. Empirically, existing ISSB readiness research is overwhelmingly concentrated in developed economy contexts, with Adams & Abhayawansa (2022) acknowledging that emerging market contexts remain severely underrepresented in readiness assessments. Studies that do engage with developing countries tend to examine broad sustainability reporting adoption rather than ISSB-specific readiness, leaving the question of how Indonesian mining companies position themselves against the five substantive pillars of IFRS S1 and S2 entirely unaddressed. This geographical and sectoral gap is particularly consequential given that the Indonesian mining sector operates under a distinctively different combination of regulatory, institutional, and market conditions compared to the developed economies that dominate existing research.

Methodologically, prior readiness assessments have predominantly relied on single-dimensional frameworks, either measuring regulatory compliance checklists or counting disclosure frequencies without evaluating substantive alignment quality (Hapsari & Mardijuwono, 2024). Such approaches are insufficient for capturing the multidimensional nature of ISSB readiness, which simultaneously encompasses governance preparedness, strategic

integration, risk management capability, and metric development, each of which may exhibit different readiness levels within the same organization. As a result, existing studies risk generating an incomplete and potentially misleading picture of actual implementation capacity by conflating the presence of disclosure with the quality of substantive alignment.

Contextually, Indonesia's distinctive institutional characteristics, including mining-specific reclamation obligations, a GRI-dominated disclosure culture shaped by two decades of multistakeholder reporting philosophy, fragmented domestic regulation, and significant variation in foreign ownership structures across mining subsectors, potentially produce ISSB adoption patterns that cannot be adequately explained by frameworks derived from developed country experience (Putri & Rahardjo, 2023). Accordingly, the absence of context-sensitive empirical evidence from the Indonesian mining sector represents not merely an academic gap but a practical deficit, since regulators and companies currently lack the evidence base needed to design effective, contextually appropriate ISSB adoption roadmaps.

Research Propositions

Drawing from the multi-theoretical framework and empirical review presented above, this study advances four research propositions that guide the qualitative inquiry and analytical framework. These propositions are not intended as statistically testable hypotheses but rather as theoretically grounded analytical orientations that direct the content analysis and interpretive process, consistent with established practice in qualitative exploratory inquiry (Creswell & Poth, 2018).

Proposition 1: Indonesian mining companies exhibit significant heterogeneity in ISSB readiness levels across the five core ISSB pillars, with governance and strategy dimensions demonstrating relatively higher readiness compared to metrics, risk quantification, and Scope 3 disclosures.

This proposition is grounded in Institutional Theory, which suggests that coercive regulatory pressure from POJK No. 51/POJK.03/2017 would drive companies toward establishing formal governance and strategy structures, while the more technically demanding quantitative dimensions of ISSB, which lack clear domestic regulatory anchors, would exhibit substantially lower readiness levels.

Proposition 2: Internal organizational capabilities, specifically governance quality, ESG human resource competency, and technology infrastructure, constitute the primary determinants of variation in ISSB readiness levels among Indonesian mining companies.

This proposition draws directly from the Resource-Based View and Dynamic Capabilities Theory, which posit that companies possessing superior and difficult-to-imitate internal resources will demonstrate higher capacity for substantive standard adoption, regardless of the uniform institutional pressures they face.

Proposition 3: External institutional pressures, particularly foreign investor ownership structures and global capital market exposure, moderate the relationship between internal capabilities and ISSB readiness, with globally integrated companies demonstrating significantly higher readiness than domestically oriented companies.

This proposition integrates signaling theory and institutional theory by suggesting that companies facing sophisticated international investors are simultaneously subject to stronger mimetic isomorphism pressure and possess stronger incentives to invest in credible ESG signals, thereby compounding the effect of internal capability differences.

Proposition 4: The primary barriers to ISSB adoption in the Indonesian mining sector reflect structural misalignments between GRI's multistakeholder philosophy and ISSB's investor-centric materiality approach, manifested most critically in the absence of integrated ESG-financial data systems, limited scenario analysis capability, and insufficient Scope 3 emission tracking across supply chains.

This proposition is grounded in Legitimacy theory and the empirical findings of Gunawan & Hermawan (2021), who documented the compliance-driven rather than strategically integrated nature of Indonesian sustainability reporting practices, corroborated by Wardhani & Rossieta (2022), whose findings on selective foreign investor responsiveness to disclosure quality underscore the practical consequences of this structural gap.

Research Method

This study adopts a qualitative exploratory research design, positioned within an interpretivist epistemological framework that treats corporate sustainability reports as socially constructed texts reflecting organizational choices, capabilities, and institutional responses rather than objective representations of ESG performance. A qualitative approach is appropriate for this investigation because the central research questions require understanding patterns, variations, and contextual factors that cannot be adequately captured through numerical measurement alone (Creswell & Poth, 2018). Furthermore, given that ISSB-specific readiness assessment frameworks for emerging market mining companies do not yet exist in the literature, an exploratory design is epistemologically necessary to generate theoretically grounded insights prior to any future quantitative operationalization (Miles, Huberman & Saldana, 2019).

Content analysis was selected as the primary analytical method because of its systematic capacity to examine large volumes of textual data while maintaining methodological rigor and replicability. Specifically, this study employs the systematic content analysis framework proposed by Krippendorff (2018), which treats documents as meaningful communicative acts that can be analyzed through structured and

reproducible coding procedures. Content analysis is particularly well-suited to this study because sustainability and annual reports represent the primary institutional channel through which companies communicate their ESG governance, strategy, and performance, making them the most direct and accessible source of evidence for readiness assessment. The unit of analysis comprises complete sustainability report and annual report documents for fiscal year 2023, with analytical focus directed toward sections containing ESG governance structures, sustainability strategies, climate risk disclosures, and quantitative ESG performance data.

The research population comprises all mining companies listed on the Indonesia Stock Exchange (BEI) that had publicly published sustainability reports as of December 2023. Purposive sampling was applied as the sampling strategy because the research objective requires selecting information-rich cases that can illuminate ISSB readiness patterns in depth rather than achieving statistical representativeness (Patton, 2015). Four inclusion criteria guided sample selection: first, the company must operate in the mining sector, encompassing coal, metal minerals, oil and gas, and related subsectors; second, the company must hold public company status and be listed on BEI; third, the company must have published a sustainability report covering fiscal year 2023 that is publicly accessible; and fourth, the complete document must be retrievable through official company websites or the BEI disclosure platform. Based on these criteria, 41 mining companies were identified and included as the research sample. The distribution of sample companies across mining subsectors is presented in Table 1.

Table 1
Sample Distribution by Mining Subsector

Mining Subsector	Number of Companies	Percentage
Coal Mining	24	58.5
Metal Mineral Mining	11	26.8
Oil and Gas	6	14.7
Total	**41**	**100.0**

Source: Indonesia Stock Exchange (2024)

Category development followed a deductive coding framework derived directly from IFRS S1 and IFRS S2 standards, organized around five primary ISSB disclosure pillars: Governance, Strategy, Risk Management, Metrics and Targets, and Climate-related Disclosures. Each pillar was operationalized into specific coding indicators grounded in the substantive disclosure requirements of the two standards. For example, the Governance pillar encompassed indicators such as board-level sustainability oversight, sustainability committee existence, and ESG integration into executive remuneration systems. The strategy pillar included indicators such as the presence of transition roadmaps, scenario analysis implementation, and demonstrable linkage between ESG strategy and financial performance projections. The risk management pillar covered physical and transition climate risk identification, quantitative financial impact assessment, and

supply chain risk integration. The metrics and targets pillar included Scope 1, 2, and 3 emission reporting, quantitative GHG reduction targets, and third-party ESG verification. The climate-related disclosures pillar addressed climate scenario analysis depth and alignment with IFRS S2 qualitative and quantitative requirements.

The coding process was conducted using NVivo 14 software, combining deductive and inductive thematic coding in a two-phase procedure following the analytical framework of Miles, Huberman & Saldana (2019). In the first phase, deductive coding was applied by systematically identifying and classifying text segments according to the pre-established ISSB pillar categories. Each text passage containing disclosure relevant to the five categories was tagged, and the depth and specificity of disclosure were assessed according to a three-level scoring rubric: a score of one was assigned when disclosure was absent or limited to generic statements; a score of two was assigned when disclosure was present in narrative form but lacked quantitative data or analytical depth; and a score of three was assigned when disclosure was comprehensive, including verifiable quantitative data and demonstrable alignment with ISSB principles. In the second phase, inductive thematic coding was applied to identify emergent patterns across companies that were not captured by the deductive framework alone, particularly regarding implementation barriers, organizational characteristics associated with high readiness, and contextual factors specific to the Indonesian institutional environment.

The coding framework comprised a total of 25 indicators distributed across the five pillars: Governance (5 indicators), Strategy (5 indicators), Risk Management (5 indicators), Metrics and Targets (6 indicators), and Climate-related Disclosures (4 indicators). The complete indicator list is available from the corresponding author upon request.

Following the completion of coding, each company's overall readiness level was determined through a composite mean score across all five ISSB pillars. Readiness classification thresholds were established a priori based on the substantive disclosure requirements of IFRS S1 and S2 and refined through pilot coding of ten percent of documents prior to full-sample analysis: companies with a composite mean score of 2.50 to 3.00 were classified as high readiness, scores of 1.50 to 2.49 as moderate readiness, and scores below 1.50 as low readiness. This numeric classification approach enabled transparent and reproducible cross-company comparison while remaining grounded in the substantive requirements of IFRS S1 and S2.

Research trustworthiness was established through four criteria advanced by Lincoln & Guba (1985): credibility, transferability, dependability, and confirmability. Credibility was strengthened through source triangulation, whereby sustainability reports and annual

reports were analyzed in parallel for each company to identify consistencies and discrepancies in disclosure across document types. Additionally, peer debriefing was conducted involving two independent coders who coded a randomly selected sub-sample of ten percent of documents independently, after which discrepancies were discussed and resolved through consensus to refine the coding framework. Inter-coder reliability was formally measured using Cohen's Kappa coefficient, yielding a value of 0.87, which indicates substantial agreement and confirms the reliability of the coding procedure (Landis & Koch, 1977). Transferability was addressed through thick description of the research context, sampling criteria, and analytical procedures, enabling readers to assess the applicability of findings to comparable emerging market contexts. Dependability was ensured through systematic audit trails maintained in NVivo, documenting all coding decisions, revisions, and analytical memos throughout the research process. Confirmability was established by grounding all interpretive conclusions in direct textual evidence from the documents, with representative quotations and coded passages retained in the NVivo project as an evidentiary record.

Results and Discussion

Content analysis of sustainability and annual reports from 41 Indonesian mining companies reveals a landscape of significant heterogeneity in ISSB readiness, where the majority of companies occupy an intermediate zone of capability that is neither comprehensively prepared nor entirely unprepared for IFRS S1 and S2 adoption. This pattern of variation, rather than uniform readiness or uniform unreadiness, is itself a theoretically meaningful finding that reflects the simultaneous operation of convergent institutional pressures and divergent internal organizational capabilities, consistent with the multi-theoretical framework advanced in this study. The overall distribution of readiness levels is presented in Table 2.

Table 2
Distribution of ISSB Readiness Level

Readiness Level	Number	Percentage	Key Characteristics
High	15	36.6%	Comprehensive governance, quantitative metrics, verified data, scenario analysis
Moderate	20	48.8%	Adequate narrative disclosure, limited quantitative depth, partial pillar coverage
Low	6	14.6%	Minimal disclosure, basic compliance only, no strategic integration

Source: Processed Data (2025)

These findings partially support Proposition 1, which anticipated significant heterogeneity across readiness levels. Moreover, the concentration of companies in the moderate category, representing 48.8 percent of the sample, is particularly instructive: it suggests that domestic regulatory pressure through POJK No. 51/POJK.03/2017 has been sufficiently strong to move most companies beyond minimal compliance, yet insufficiently demanding to drive substantive ISSB-aligned integration. This finding extends the institutional theory argument of DiMaggio & Powell (1983) by demonstrating that coercive isomorphism produces convergence at a threshold of adequacy rather than at the frontier of best practice.

Governance Dimension

Analysis of the governance pillar reveals a pattern of widespread formal commitment coexisting with limited substantive implementation. A total of 78 percent of sample companies explicitly documented board of directors commitment to sustainability policy oversight, reflecting the visible influence of coercive regulatory pressure from OJK requirements on governance-level disclosure. Nevertheless, the quality and depth of this commitment varies substantially across readiness categories. Among high readiness companies, 22 percent demonstrate governance policies explicitly integrated with core business strategy, including ESG considerations embedded within internal financial control mechanisms. In contrast, 56 percent of moderate readiness companies maintain sustainability policies that exist in parallel with, rather than integrated into, their financial risk management procedures. Furthermore, low readiness companies account for the remaining 22 percent, characterized by generic sustainability policy statements absent of measurable implementation mechanisms or performance indicators.

Critically, only 34 percent of companies demonstrate active board-level involvement in evaluating the financial impacts of sustainability risks, indicating that formal policy adoption has not been consistently translated into substantive governance practice. This finding aligns with Meyer & Rowan's (1977) concept of decoupling, whereby organizations adopt institutional structures for legitimacy purposes without necessarily integrating them into operational decision-making. From a resource-based view perspective, the governance gap between high and low readiness companies reflects differences in organizational capability rather than regulatory intent, since all companies face the same regulatory environment yet exhibit markedly different governance quality (Barney, 1991). Companies with dedicated board-level sustainability committees show 74 percent higher readiness scores compared to those without such structures, thereby confirming that governance infrastructure functions as a critical organizational resource that

enables rather than merely signals sustainability commitment.

Strategy and ESG Integration

The strategy pillar emerges as the primary differentiating dimension between high and low readiness companies, revealing the most pronounced capability gap across the entire sample. Although 72 percent of companies have documented sustainability strategies in narrative form, only 38 percent can demonstrate a direct and measurable linkage between ESG strategy and financial performance projections or cash flow impacts. This gap between narrative strategy and financially integrated strategy represents the central challenge of IFRS S1 adoption, which explicitly requires companies to disclose how sustainability-related risks and opportunities affect their financial position, performance, and cash flows (IFRS Foundation, 2023).

High readiness companies distinguish themselves through the development of specific, time-bound transition roadmaps that anticipate global standard developments rather than merely responding to existing regulatory requirements. Among these companies, 68 percent have allocated dedicated budgets for ESG strategy implementation, compared to only 23 percent among low readiness companies. Scenario analysis, a key IFRS S2 requirement for assessing business resilience under different climate pathways, has been implemented by 45 percent of high readiness companies (n=15), representing only 16 percent of the total sample, while no low readiness companies demonstrate comparable analytical capability. These findings strongly support Proposition 2 by confirming that internal organizational capabilities, specifically the capacity to integrate ESG considerations into financial planning processes, constitute the primary determinant of readiness variation. Consistent with Dynamic Capabilities theory (Teece, 2007), high readiness companies appear to possess the organizational capability to reconfigure their strategic planning systems in response to evolving reporting demands, while low and moderate readiness companies remain constrained by legacy compliance-oriented approaches inherited from the GRI framework.

Risk Management

The risk management pillar reveals the most significant implementation gap in the entire ISSB readiness assessment, with a particularly sharp divergence between the widespread narrative identification of climate risks and the very limited quantitative assessment of their financial implications. While 85 percent of sample companies have identified physical and transition climate risks within their sustainability reports, only 32 percent demonstrate the capacity to quantify the financial impacts of these risks, representing the most critical gap relative to IFRS S2 requirements. This finding directly supports Proposition 4, which anticipated that the structural misalignment between GRI's qualitative disclosure philosophy and ISSB's financially integrated risk assessment requirements would

manifest most acutely in risk management and metrics dimensions. Climate risk integration into operational risk management frameworks faces structural barriers that extend beyond data availability. Despite 67 percent of companies stating commitments to integrated risk management, only 41 percent can demonstrate explicit analytical linkages between identified climate risks and operational financial impacts. Supply chain risk management represents the most severely underdeveloped area, with only 23 percent of companies conducting climate risk assessments of their primary suppliers, despite Scope 3 emissions from supply chains constituting between 45 and 65 percent of total mining sector emissions. This systemic neglect of supply chain risk is theoretically consistent with the compliance-driven disclosure culture identified by Gunawan & Hermawan (2021), wherein companies report on risks that are visible and easily measured while systematically avoiding those that require cross-organizational data collection and analytical investment. From an institutional theory perspective, the absence of specific regulatory requirements for Scope 3 supply chain risk assessment in domestic Indonesian regulations creates a governance vacuum that neither coercive nor normative isomorphism has yet filled (North, 1990).

Metrics and Targets

The metrics and targets pillar represents the most technically demanding ISSB requirement and consequently the dimension where the gap between reporting aspiration and reporting practice is most pronounced. The detailed disclosure patterns across specific metric categories are presented in Table 3.

Table 3
Metrics and Targets Disclosure Levels

Disclosure Element	Companies Disclosing (%)
Scope 1 Emissions	78
Scope 2 Emissions	65
Scope 3 Emissions	28
Quantitative GHG Reduction Targets	35
Third-party ESG Verification	41
ESG-linked Executive Compensation	23

Source: Processed Data (2025)

The progressive decline in disclosure rates from Scope 1 (78 percent) through Scope 2 (65 percent) to Scope 3 (28 percent) reflects a pattern of disclosure effort that diminishes as measurement complexity and data collection demands increase, which is theoretically consistent with RBV predictions that companies disclose what their existing capabilities can produce rather than what standards require (Hart, 1995). Only 35 percent of companies have established specific quantitative greenhouse gas reduction targets, while the remaining 62 percent rely on narrative commitment statements without measurable baselines or time-bound milestones. This finding is particularly consequential for ISSB compliance, since IFRS S1 requires companies to disclose progress against targets in a manner that allows investors to assess

the credibility of sustainability commitments over time.

External verification represents another critical weakness: while 41 percent of companies engage third-party ESG data verification, only 15 percent of those apply assurance standards aligned with ISAE 3000, indicating that the majority of verification practices do not meet the credibility standards expected by sophisticated investors. Furthermore, only 23 percent of companies link ESG target achievement to executive incentive systems, and among those that do, the average ESG weight in executive performance assessments is merely 12.5 percent. This marginalization of ESG metrics in executive compensation systems signals, consistent with signaling theory (Spence, 1973), that the majority of companies have not yet aligned organizational incentive structures with their stated sustainability commitments, creating a fundamental credibility gap in their ISSB readiness posture.

Factors Influencing Readiness: Internal Determinants

Consistent with Proposition 2, analysis identifies three dominant internal factors that collectively explain the majority of variation in readiness levels across the sample. From a resource-based view perspective (Barney, 1991), these factors constitute the organizational capabilities that differentiate companies capable of substantive ISSB adoption from those limited to symbolic compliance.

Corporate governance quality emerges as the most influential internal determinant. High readiness companies consistently demonstrate comprehensive governance structures anchored by board-level sustainability committees, as evidenced by the 74 percent readiness score differential documented in the Governance Dimension findings above, confirming that formal governance infrastructure constitutes a prerequisite rather than merely a correlate of substantive ISSB readiness. This finding extends the empirical evidence of Pratiwi & Setiawan (2021), who identified board-level governance attributes as significant predictors of sustainability disclosure quality in Indonesian mining companies, by showing that the governance-readiness relationship is not merely correlational but reflects a causal pathway through which governance structures enable the systematic identification, measurement, and reporting of sustainability risks.

Human resource capacity for ESG constitutes the second critical internal determinant. High readiness companies systematically invest in specialized ESG staff recruitment and ongoing technical training in sustainability accounting and climate risk assessment, generating the human capital that converts governance intentions into credible disclosure outputs. Technology infrastructure represents the third determinant and, in many respects, the most practically binding constraint on readiness improvement. Companies that have implemented integrated ESG information systems and dedicated

data platforms demonstrate substantially superior capacity to collect, consolidate, and report quantitative sustainability data across business units and supply chains. High readiness companies allocate an average of 3.2 percent of their information technology budgets to ESG systems, compared to only 0.8 percent among low readiness companies, reflecting a four-fold difference in technological investment that translates directly into disclosure quality differentials.

Factors Influencing Readiness: External Determinants

External institutional pressures create the enabling environment within which internal capabilities either flourish or remain latent, thereby supporting Proposition 3. Regulatory pressure from POJK No. 51/POJK.03/2017 functions as the most foundational external driver, with 85 percent of companies explicitly citing OJK regulatory compliance as a primary motivation for sustainability report preparation. This finding confirms North's (1990) institutional framework, wherein formal regulatory rules shape the minimum threshold of organizational behavior. Nevertheless, regulatory compliance motivation alone is insufficient to explain variation in readiness, since all companies face the same domestic regulatory environment yet exhibit dramatically different readiness levels, indicating that regulation establishes a floor rather than a ceiling for disclosure quality.

Global investor pressure operates as the most powerful differentiating external factor. Companies with foreign ownership exceeding 30 percent demonstrate ESG metric disclosure completeness that is 55 percent higher than their domestically-owned counterparts, a finding that strongly supports Proposition 3 and is theoretically grounded in signaling theory (Spence, 1973). Globally integrated companies face more sophisticated investor scrutiny that creates strong incentives to develop the internal capabilities necessary for credible ESG signaling, thereby creating a virtuous cycle whereby external pressure generates internal investment that further enhances disclosure quality. Additionally, mimetic isomorphism (DiMaggio & Powell, 1983) operates through multinational peer influences, with large mining companies that maintain global operations demonstrating faster ISSB adoption trajectories that are subsequently observed and imitated by domestically-oriented peers, though often with a significant time lag and without equivalent depth of implementation.

Implementation Barriers and Best Practices

Three structural barriers consistently impede ISSB adoption across readiness categories, with their severity correlating inversely with readiness levels. The most critical technical barrier is limited analytical capacity for ESG-financial integration, with 78 percent of companies acknowledging insufficient

internal capability to demonstrate quantitative linkages between sustainability impacts and financial performance. Only 25 percent possess integrated information systems capable of consolidating ESG data across operational units and supply chains, confirming that data infrastructure deficiency is not a peripheral concern but a foundational constraint on ISSB adoption. Organizational culture barriers represent the second major impediment, with 62 percent of companies maintaining defensive, compliance-oriented disclosure approaches that are structurally misaligned with ISSB's principle-based, investor-centric philosophy. This cultural barrier is theoretically significant because it suggests that the transition from GRI to ISSB is not merely a technical reporting adjustment but a fundamental shift in organizational orientation toward transparency, consistent with Proposition 4. Supply chain data collection and the associated legal liability concerns regarding Scope 3 disclosures represent the third structural barrier, with 72 percent of companies reporting difficulties obtaining emissions data from suppliers, particularly small and medium-sized vendors that lack the capacity to generate standardized ESG data.

In contrast, high readiness companies demonstrate a consistent set of practices that distinguish them from their moderate and low readiness peers. Cross-functional collaboration through dedicated sustainability task forces is the most universally adopted best practice, with 82 percent of high readiness companies having established integrated teams comprising sustainability, finance, risk management, and operational representatives. This structural integration enables the substantive linkage between financial and non-financial information that forms the foundational principle of IFRS S1. Additionally, 75 percent of high readiness companies have established science-based emission reduction targets with verifiable progress reporting, while 68 percent have strategically aligned their ISSB reporting with complementary frameworks including GRI and TCFD, demonstrating that framework integration rather than framework substitution represents the most effective adoption pathway. Furthermore, 68 percent of high readiness companies actively utilize sustainable financial instruments including green bonds and sustainability-linked loans, indicating that ISSB readiness is embedded within a broader strategic orientation toward sustainable value creation consistent with Signaling Theory predictions (Connelly et al., 2011).

Discussion of Research Propositions

Taken together, the findings systematically address the four research propositions advanced in the theoretical framework. Proposition 1, which anticipated significant heterogeneity with governance dimensions showing relatively higher readiness than quantitative metrics, is strongly supported: governance and strategy pillars demonstrate

comparatively higher coverage rates, while the metrics, risk quantification, and Scope 3 disclosure dimensions consistently exhibit the most pronounced readiness deficits. Proposition 2, positing internal organizational capabilities as primary determinants of readiness variation, is confirmed through the consistent patterns associating governance quality, ESG human resource capacity, and technology infrastructure with high readiness classification. Proposition 3, which anticipated that global capital market exposure moderates the internal capabilities-readiness relationship, is empirically supported by the finding that foreign-owned companies with global investor exposure demonstrate 55 percent higher disclosure completeness, even when operating under identical domestic regulatory conditions. Proposition 4, which identified GRI-ISSB philosophical misalignment as the root cause of structural implementation barriers, receives strong support from the finding that the most critical readiness gaps, namely ESG-financial integration, scenario analysis, and Scope 3 tracking, are precisely those dimensions that have no meaningful analog in GRI-based reporting practice.

Conclusion and Recommendation

Conclusion

This study set out to examine the readiness of Indonesian mining companies to adopt ISSB-based sustainability reporting standards, specifically IFRS S1 and IFRS S2, and to identify the internal capabilities, external institutional pressures, structural barriers, and organizational practices that explain variation in readiness levels. The most consequential finding is not simply that readiness varies, but rather that the dominant pattern of moderate readiness reflects a structural ceiling imposed by the GRI-rooted disclosure culture that has shaped Indonesian corporate sustainability reporting for two decades. Most companies have developed sufficient governance infrastructure and narrative strategy to satisfy domestic regulatory expectations, yet remain fundamentally unprepared to meet the substantive demands of ISSB standards, particularly the requirement to demonstrate verifiable, quantitative linkages between ESG risks and financial performance.

The governance dimension reveals that formal policy adoption has substantially outpaced substantive implementation, with 78 percent of companies documenting board-level sustainability commitments while only 34 percent demonstrate active board engagement in evaluating the financial impacts of sustainability risks. This decoupling between institutional form and organizational practice is theoretically consistent with Meyer & Rowan's (1977) concept of ceremonial adoption, wherein organizations acquire the visible structures of compliance without integrating them into decision-making processes. Furthermore, the strategy dimension exposes an equally critical gap: while 72 percent of companies articulate sustainability strategies in

narrative terms, only 38 percent can demonstrate direct linkages between ESG strategy and financial performance projections, indicating that the majority of companies continue to treat sustainability as a reputational exercise rather than a financially material strategic concern.

The metrics and targets findings carry the most direct implications for ISSB adoption feasibility. The progressive decline in disclosure rates from Scope 1 emissions at 78 percent to Scope 3 emissions at 28 percent, combined with the finding that only 35 percent of companies have established quantitative GHG reduction targets and merely 15 percent apply internationally recognized ESG assurance standards, collectively indicate that the Indonesian mining sector lacks the data infrastructure, measurement culture, and verification capacity that ISSB compliance fundamentally requires. These gaps are not incidental deficiencies that can be addressed through incremental reporting improvements; rather, they reflect deep organizational capability deficits in data systems, human resource competencies, and supply chain governance that require strategic investment and sustained institutional support to overcome.

Theoretically, this study demonstrates that institutional pressure alone, whether coercive through domestic regulation, normative through professional standards, or mimetic through peer imitation, is insufficient to drive substantive ISSB adoption when organizations lack the internal capabilities to translate institutional demands into credible disclosure practice. This finding extends institutional theory by identifying organizational capability as the critical mediating variable between external pressure and reporting quality, and extends resource-based view by demonstrating that ESG-specific capabilities, including data infrastructure, human capital, and governance structures, function as strategic resources that generate sustainable competitive differentiation in capital markets increasingly attentive to sustainability performance.

Recommendation

For regulators, particularly the Financial Services Authority (OJK) and the Ministry of Energy and Mineral Resources, the findings strongly suggest that a phased, sector-specific ISSB adoption roadmap is essential for the Indonesian mining sector. A regulatory approach that mandates immediate full ISSB compliance without addressing the foundational capability gaps identified in this study risks generating widespread ceremonial adoption, wherein companies produce ISSB-formatted reports that lack substantive alignment with the standards' underlying principles. Therefore, regulators should prioritize the development of sector-specific guidance documents that translate ISSB principles into operationally concrete requirements for mining companies, invest in capacity-building programs targeting ESG data infrastructure and human resource development, and design

differentiated compliance timelines that allow companies currently classified as moderate readiness to achieve high readiness before full mandatory adoption is imposed.

For mining companies, the findings affirm that ISSB readiness cannot be achieved through reporting-focused interventions alone. Companies in the moderate and low readiness categories should begin by conducting comprehensive internal gap assessments across the five ISSB pillars, using the scoring framework employed in this study as a diagnostic tool. Subsequently, investment priorities should be directed toward three foundational capabilities in sequence: first, establishing or strengthening board-level sustainability governance structures, since governance quality is the most consistently powerful predictor of overall readiness; second, investing in integrated ESG data infrastructure capable of consolidating Scope 1, 2, and 3 emission data across operational units and supply chains, since data system limitations are the most binding practical constraint on disclosure quality; and third, developing cross-functional sustainability taskforces that embed ESG expertise within finance, risk management, and operational planning functions, thereby enabling the financial integration that IFRS S1 demands.

For future research, this study opens several productive directions that its exploratory design cannot fully address. Longitudinal studies tracking readiness trajectories over time, particularly following the anticipated strengthening of OJK sustainability reporting regulations, would provide valuable evidence on the pace and determinants of readiness improvement. Mixed-methods studies combining document analysis with executive interviews would illuminate the organizational decision-making processes that drive investment in sustainability capabilities, thereby complementing the document-level evidence presented here. Furthermore, extending this readiness assessment framework to other high ESG-risk sectors in Indonesia, including plantation agriculture, fisheries, and construction, would generate comparative insights into whether the patterns identified in this study are mining-sector-specific or reflect broader characteristics of Indonesian corporate sustainability reporting culture.

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