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Gap Analysis in Implementing IFRS S1 and IFRS S2: A Case Study at Bank X in Indonesia

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Abstract:

On June 2023, the ISSB published two sustainability disclosure standards IFRS S1 and IFRS S2. This study aims to analyze the disclosure of climate-related reports based on IFRS S1 and S2 standards. Four primary aspect Governance, Strategy, Risk Management, and Metrics and Targets need to be disclosed based on IFRS S1 and S2. The author identified a total of 29 main criteria that need to be disclosed. This study used qualitative research approach through literature studies, documents, and interviews. This research was conducted in one of the Indonesian companies in the banking sector. The findings demonstrated that, of the four primary aspect, Governance (9/9) has been evaluated in compliance with IFRS S1 and S2, but due to various stages of the development process, Strategy (8/12), Risk Management (1/3), and Metrics and Targets (3/5) have not yet been completely disclosed. Primarily in part to issues with technology and data, such as merging climate risk to "transverse risk" in the scenario analysis process, the company has not been able to quantitatively integrate climate-related risks and opportunities with financial performance and financial position.

Keywords: *Sustainability Report; IFRS S1 and S2; ISSB; Climate Related Disclosure, Banking*

1. Introduction

Since 2015, the world's financial regulator have taken note of the impact of climate on financial stability, recommending that the Financial Stability Board (FSB) improve its analysis of climate-related risks (FSB, 2020). In 2015, the FSB created a task force and two years later issued the Task Force on Climate-related Financial Disclosure Recommendation (TCFD, 2017). This increased awareness also initiated the world's largest investor movements such as Climate Action 100+ to the Paris Agreement which was ratified by 195 parties (UNFCC, 2015). On June 2023 the International Sustainability Standard Board (ISSB) premiered two sustainability disclosure standards International Financial Reporting Standard S1 - General Requirements for Disclosure of Sustainability-Related Financial Information (IFRS S1, 2023) and S2 - Climate-Related Disclosures (IFRS S2, 2023) which will become effective on January

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2024. In October 2023 through its official website, the TCFD informed that the TCFD was discontinued and the monitoring status of climate-related reporting had been transferred from the FSB to the IFRS Foundation suppor global implementation of IFRS S1 and S2 (TCFD, 2024).

The banking sector is crucial in the transition to a low-carbon economy (Campiglio, 2016; Maulida, 2022). Banks as one of the sources of external funding can encourage the transition process by providing green financing for debtors that support the transition to a greener process. Some countries such as Singapore, New Zealand, and Switzerland already have regulations that require climate-related disclosures targeting specific corporations by size or sector (Maulida, 2022). In 2023, SGX targets climate-related disclosures to be mandatory for (i) the financial sector, (ii) agriculture, food and forestry industry, (iii) energy industry and then in 2024 climate-related disclosures to be mandatory for (iv) construction materials industry and (v) transportation. This case study was carried out at Bank X, which is mostly owned by governments and business entities that are concerned about ESG issues. The majority of these business entities investors are from Asia Pacific, Europe, and North America. Upon the termination of TCFD, Bank X plans to publish climate related disclosure based on IFRS S1 and IFRS S2 standards by the end of 2024. As a first step in implementation, Bank X plans to analyze the gap between ISSB standards and current bank sustainability disclosures.

The link between management and shareholders is effectively explained by agency theory. Agency relationship is a contractual arrangement whereby one or more shareholders, acting as principals, appoint firm management as their agents, granting the agents the right to take action and make certain decisions (Jensen & Meckling, 1976). Potential conflicts between principals and agents can arise, one of which is due to different leadership and risk management approaches between shareholders and company management. The relationship between agents and principals has the potential to cause asymmetric information, a condition where company management has better information than shareholders (Berg et al., 2018). In relation to climate change, the approach in viewing the opportunities and risks of climate change can lead to asymmetric information between company management and shareholders. (Jensen & Meckling, 1976) define agency cost as the sum of three types of agency costs: (i) cost monitoring, (ii) cost of bonding, and (iii) residual loss. Companies with high agency costs will try to increase governance activities and voluntary disclosures to reduce agency costs. In order to be useful to users, the information in the report must be relevant and faithfully represented.

As IFRS-Accounting disclosures, IFRS S1 and S2 support disclosures that have the fundamental qualitative characteristics of relevant and faithful representation. In the context of relevance, the Bank needs to disclose material topics based on the SASB Commercial Banking standard which consists of six topics (i) financed emissions, (ii) data security, (iii) financial inclusion and capacity building, (iv) incorporation of ESG factors in credit analysis, (v) business ethics, (vi) systemic risk management. Based on the Industry-based Guidance on implementing Climate-related Disclosures IFRS S2 (ISSB, 2023) and Climate Technical Bulletin (SASB, 2023), the two material topics that are considered most relevant in climate-related risks for Commercial Banks are (i) incorporation of ESG factors in credit analysis, and (ii) financed emissions. Information that is comparable, verifiable, timely, and comprehensible can improve the value of financial statement data pertaining to sustainability. The increasing demand for climate change financial disclosures that have a substantial impact on business models and firm resilience has made systematic reporting with these components important (IFAC; IOSCO, 2021).

Companies must report on four primary aspects under IFRS S1 and S2, which are: (i) Governance; (ii) Strategy; (iii) Risk Management; and (iv) Metrics and Targets. A mix of procedures and structures designated as governance are used to guide, oversee, control, and keep an eye on organizational operations in order to achieve objectives (IIA, 2020). ISSB (2023) encourages disclosure of the structures, processes, controls and procedures that companies use to monitor, manage and oversee sustainability-related risks and opportunities. Indonesia is a country that adheres to a two-tier system so that it separates the management and supervisory functions of each to the board of directors and commissioners who are assisted by committees. Based on POJK the commissioners have at least audit; risk monitoring; remuneration and nomination committees. The board of directors or commissioners' structure at which sustainability-related oversight should occur is not specified by the ISSB. Governance disclosures are integrated rather than declared separately for each sustainability-related risk and opportunity when businesses employ the same governance and oversight procedures for several sustainability-related risks and opportunities (ISSB, 2023).

Second, strategy disclosures cover information such as impacts on business models and value chains; impacts on corporate strategy and decision-making; impacts on financial position and performance; and so on, in an effort to help investors understand the company's strategy for managing risks and opportunities related to sustainability as well as company resilience (ISSB, 2023). The business model relates to the system that transforms inputs into outputs through company activities and outcomes aimed at meeting strategic objectives and creating value for the company so as to generate short, medium and long-term cash flows. The value chain is an extensive network of connections, exchanges, and resources pertaining to the business model and external operational environment of the company. The development of the concept of sustainability in the last two decades has expanded the concept of sustainability from CSR activities to business models (Naciti et al., 2022). Good management and governance capabilities are key to the success of business models in dealing with sustainability-related risks and opportunities. Resiliency is the ability of an organization to adapt to developments, changes, or uncertainties associated to climate change. Companies must perform scenario analysis in order to evaluate this resilience.

Third, risk management disclosures aim to inform entities of their processes for identify, assess, prioritize and monitor sustainability-related risks and opportunities, especially climate-related for IFRS S2; and assessing the entity's overall risk profile and risk management processes (ISSB, 2023). To identify climate-related risks, banks can conduct scenario analysis. Since 2020, the Network for Greening Financial System (NGFS) has developed a scenario analysis methodology for banks in dealing with climate risks. In 2023 NGFS has released Scenario Analysis Phase IV, the scenario is also the scenario analysis adopted by OJK for Indonesian banks through the 2024 Banking Climate Risk Management and Scenario Analysis (CRMS) document released in March 2024 (NGFS, 2023; OJK, 2024). Climate risks can transition into financial risks that impact conventional risks (NGFS, 2023; OJK, 2023; BCBS, 2023) or referred to as "transverse risk" (GARP, 2023) which includes credit risk, market risk, operational risk, liquidity risk, strategic risk, and reputation risk. The Basel Committee on Banking Supervision (BCBS) also conducted a study on the scenario analysis approach to climate risk (Bolton et al., 2020); to the disclosure of climate-related financial risks (BCBS, 2023). Risk management disclosures are integrated rather than declared individually for each sustainability related risk and opportunity if businesses employ the same approach to identify, evaluate, prioritize, and monitor sustainability-related risks and opportunities (ISSB, 2023).

Fourth, the disclosure of metrics and targets enables users of financial statements to understand the entity's performance in relation to sustainability risks and opportunities, including targets that the entity has set and targets that need to be met under laws and regulations (ISSB, 2023). Metrics disclosures for banking under IFRS S1 and S2 are based on the SASB disclosure topics for Commercial Banking. As explained earlier, based on two topics that are considered most relevant in climate-related risks for Commercial Banks, namely the incorporation of ESG factors in credit analysis, and financed emissions.

Climate-related risks and opportunities covered under IFRS S2 are transition risk and physical risk. There are two types of physical risk: acute physical risk and chronic physical risk. Acute physical risk refers to event-driven risks such as floods and forest fires, while chronic physical risk is caused by long-term changes in climate patterns (gradually worsening) such as sea level and temperature rise. Transition risks are risks that arise as a result of the transition to a low carbon economy. Companies must disclose the extent of their greenhouse gas (GHG) emissions by referencing the GHG Protocol, which is broken down into three categories. GHG emissions from sources that the corporation owns and controls are included in scope 1. Indirect greenhouse gas emissions from the company's usage of power, heating, and cooling systems are included in scope 2. Indirect GHG that arises both upstream and downstream in the company's value chain and is not covered by scope 2 is referred to as scope 3.

In Indonesia, sustainability reporting obligations are regulated through POJK 51/2017 and SEOJK 16/2021 (OJK, 2017; OJK, 2021). According to POJK 51/2017 and SEOJK 16/2021, reporting entities are required to submit a sustainability report that can be prepared either in a separate document or as an integral part of the annual report. To support climate-related disclosures, OJK also issued the Banking CRMS 2024 which is a support in managing climate risks for banks. Supported by various regulations, according to Maulida (2022) Indonesia already has a solid foundation to make climate-related disclosures mandatory. In addition to the regulations already mentioned, Indonesia also has Presidential Regulation No. 111 of 2022 on the Implementation of Achieving the SDGs (Perpres 111/2022) which outlines various targets and actions needed to reduce GHG emissions, especially in relation to Indonesia's commitment to the Paris Agreement. Through the ratification of the Paris Agreement, Indonesia through Law No. 16/2016 committed to reduce GHG emissions by 29% by 2030 or up to 41% through international support towards carbon neutral by 2060.

IFRS S1 and S2 has just been published in 2023, so based on the author's observations, research examining these two standards is still limited. The researcher found several publications that examine the readiness of IFRS S1 implementation in Southeast Asian companies, including Indonesia, Malaysia, and Thailand (Pratama et al., 2022); IFRS S1 and S2 mapping with SEOJK 16/2021 (Setiawan et al., 2023); a study of exposure indicators of the IFRS S2 draft involving several experts using the Delphi method (Saptono et al., 2023); preparation of sustainability reporting under the exposure draft IFRS S1 and S2 in Poland (Indyk, 2022); readiness for the implementation of IFRS S1 and S2 in Malawi (Phiri, 2023); accounting mechanisms for measuring environmental impacts under IFRS S1 and S2 on industries in the Aburra Valley Colombia (Gaviria et al., 2023).

Based on the research that has been discussed above, the research of Pratama et al., (2022) is the closest research to this study. Some of the points that distinguish and become the advantages of this research include (i) the research of Pratama et al., (2022) still discusses ESG in general based on IFRS S1 standards but has not considered IFRS S2 (ii) the research of Pratama et al., (2022) is carried out in a quantitative descriptive manner while this research is a case study study so that it allows researchers to examine more deeply the implementation of IFRS S1 and IFRS S2 in banking entities that are the object of the case study.

2. Methodology

The research stage is carried out with the following steps: (i) Conduct a literature study and design the initial criteria for IFRS 1 and S2 standards; The linkages between literature are described below:

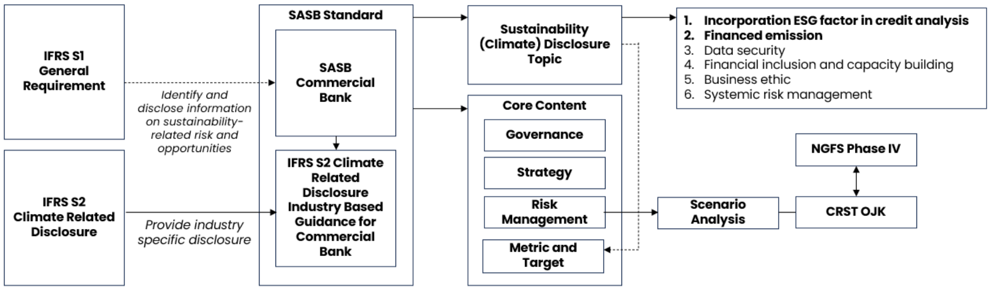

Figure 1. Linkage Between Literature
Source: ISSB, SASB, NGFS, OJK, processed

(ii) Establish the main criteria for IFRS 1 and S2 standards (detail in Appendix); (iii) Compare the main criteria with secondary data information so that the results of the analysis are obtained (iv); Determine the results of the gap analysis of the implementation of the report based on IFRS S1 and S2 standards; (v) Conduct interviews with resource persons to confirm the preliminary findings; (vi) Provide effective and implementable recommendations in the implementation of IFRS S1 dan IFRS S2. Based on the IFRS S1 and IFRS S2 standards, there are 29 points that can be used as the initial criteria for IFRS S1 and S2.

This research was conducted in one of Indonesian banks that already disclose a sustainability report based on regulations, standards and sustainability recommendations that are mandatory and voluntary. Mandatory regulations in Indonesia are POJK 51/2017 since 2017 and SEOJK 16/2021 since 2021. Voluntary standards and recommendations experienced by company include SASB and TCFD. Researchers also benchmarked with HSBC Holding with the consideration that HSBC Holding received an award from Euromoney as the Best Bank for Sustainable Finance 2023 in Asia for six consecutive years and obtained an ESG Rating AA rating from MSCI.

Data collection is carried out by triangulation method, which combine various existing collection techniques and data sources (Hikmawati, 2020). Primary data was obtained through semi-structured interviews with ESG Team Bank X (two interviewee) and Banking Association for Risk Management (BaRa) for deep insight about CRMS application and risk management certification in banking (one interviewee). Before conducting interviews with resource persons, the researcher had first compared the main criteria IFRS S1 and S2 with secondary data from (i) company publications including Sustainability Report 2023, Annual Report 2023, and Revinitive Eikon (ii) Benchmark entities HSBC Holdings, which can be accessed at the ESG Reporting Centre, including the Annual Report and Account 2022 and 2023, as well as the ESG Data Pack 2023 (HSBC, 2023).

3. Empirical Findings/Result and Discussion

Based on the results of the main criteria, the researcher compared four primary aspects: (i) Governance, (ii) Strategy, (iii) Risk management, (iv) Metrics and Targets. Based on the governance, Bank X needs to disclose the governance structure and management roles as follows:

Table 1. IFRS S1 and S2 Criteria – Governance

Governance	Rating Points*)	Conformity	
		Appropriate	Not yet
Corporate governance structure responsible for overseeing climate-related risks and opportunities*).	G1 – G6	G1, G2, G3, G4, G5, G6	-
The management function in the governance processes, controls, and procedures for risks and opportunities related to climate change that are monitored, managed, and overseen*)	G7 – G9	G7, G8, G9	-

**) For IFRS S1, sustainability disclosure*
***) Detail in appendix*

In general, Bank X has a sustainability governance structure in accordance with IFRS S1 which is integrated with climate-related governance in accordance with IFRS S2. Bank X has a sustainability governance structure consisting of oversight by the BOD through the Risk and ESG Committee (G1 and G2). Commissioners and BOD are also informed of the latest issues related to climate risk, one of which is through refreshment of Risk Management Certification (G3). To improve management competence, Bank has also conducted Certified Sustainability Reporting Specialist (CSRS) certification for almost all of the ESG Team. The BOD and Commissioners receive reports from the ESG Team through ESG Dashboard (G4) and regular meeting. Bank integrates the process of monitoring risks related to climate with general sustainability risks through financing policy activities and portfolio quality (G5). In order to achieve sustainability targets, consideration of ESG aspects and ESG ratings by external parties are taken into account in the BOD's key performance indicators (G6). Regarding the role of management in the governance process (G7 and G8), the BOD mandates responsibility to the ESG Team in implementing strategies related to sustainability and climate change and has a role in overseeing their direction and control. The ESG Team is established under Director to execute the strategy and coordinate with others internal division in implementing the strategy related to sustainability and climate change. Regarding point G9, Bank X also has procedures and various policies in certain sectors.

According to research by Pratama et al. (2022) of 224 Southeast Asian companies studied, the disclosure of the Governance aspect in IFRS S1 shows the best consistency and existence among the other four aspects. Saptono et al. (2023), underlines the point that is related to the development of competencies and abilities to oversee strategies related to climate risks and opportunities need to be a concern for companies (in this study point G3). The individual or body responsible for climate change issues is expected to improve accountability and quality of disclosure on relevant topics in order to improve performance and build stakeholder trust. In IFRS S2, IAI also commented on the need for criteria to be used as an assessment of the ability of management and committees to monitor climate-related risks and opportunities that are globally acceptable. At this point, researchers consider that the commitment to provide CSRS certification is a significant step in developing sustainability competencies for company management. Confirmed by a interviewee from BaRa, for level 6 and 7 risk management certification aimed at Commissioners and BOD, the association has begun to include refreshment topics related to climate risk but has not made climate risk one of the assessment modules in the certification exam.

Table 2 IFRS S1 and S2 Criteria – Strategy

Strategy	Rating Points**)	Conformity	
		Appropriate	Not yet
Climate-related risks and opportunities*);	S1 to S4	S2, S3, S4	S1
Current and anticipated impacts on business models and value chains.	S5 to S6	S5, S6	

Table 3 IFRS S1 and S2 Criteria – Strategy (Continued)

Strategy	Rating Points**)	Conformity	
		Appropriate	Not yet
Impact on the company's strategy and decision-making. Including how bank plan to achieve climate-related targets*)	S7 to S9	S7, S9	S8
Information on climate risks and opportunities that affect the bank's cash flows, financial performance, and position both qualitatively and quantitatively	S10		S10
Resilience assessment that helps financial statement users comprehend the bank's effects, areas of uncertainty, and ability to handle climate*) risk and opportunity	S11 to S12	S11	S12

**) For IFRS S1, sustainability disclosure*
***) Detail in appendix*

In this section, the authors provide notes on point S1 related to the identification of sustainability risks and opportunities based on IFRS S1 while based on IFRS S2 it is considered appropriate. As explained in the Introduction section of this study, to help identify material topic of sustainability reporting, IFRS S1 and S2 refer to SASB standards. However, SASB does not detail the process for assessing and prioritizing sustainability risks and opportunities. The authors then compared the process with an adaptation by the Singapore Exchange (SGX, 2023), which illustrates that the process of prioritizing material sustainability factors is similar to the practice of Enterprise Risk Management (ERM) processes.

To anticipate the current climate impacts (S5) Bank X issued a green bond and sustainable loan product to facilitate borrowers transitioning to greener processes. Sustainable loan product also provides incentives and disincentives to debtors who are able to achieve emission reduction targets. Bank X has also identified the largest emitters by sector and asset type (S6). In line with NZE Indonesia 2060 and Paris Agreement 2050, Bank X has targets almost half reduction in Scope 1 and Scope 2 by 2030 and then NZE by 2050 (S7). To meet the resources required for the strategy (S8), Bank X has developed a decarbonization strategy, which is currently under development and is planned to be published in 2024. Various advances towards the plan have also been disclosed (S9) including, increased green bond issuance and etc. Bank X has prepared scenario analysis based on NGFS qualitatively on operational risk and carbon price increase but has not been able to quantify the impact of credit risk and market risk (S10). The quantification results on credit risk and market risk are planned to be published in 2024 in line with the CRST submitted to OJK.

The results of scenario analysis of credit risk and market risk (S10) and resource requirements in the decarbonization strategy document (S8) which is currently in the preparation stage may have an impact on financial position, financial performance and cash flow. Detail scenario analysis also explained in risk management section. Based on the interview, Bank X is currently upgrading the scenario analysis method as recommended by OJK's CRMS document. The improvement of this method allows Bank X to assess the impact of climate risk on credit risk and market risk quantitatively (S12) so as to assess the impact on financial performance to capital. The improved method also allows for the addition or adaptation of strategies in line with a more integrated identification of climate risk. It is confirmed that all decarbonization strategies being developed are projected to reduce emissions and reduce costs in the long term, thereby increasing the company's resilience to climate risk.

Table 4. IFRS S1 and S2 Criteria – Risk Management

Risk Management	Rating Points**)	Conformity	
		Appropriate	Not yet
Processes and policies to identify, assess, prioritize and monitor climate-related risks*)	R1	R1	
Processes and policies for identifying, assessing, prioritizing, and monitoring climate-related opportunities *)	R2		R2
How R1 and R2 integrated and informs the entire risk management process.	R3		R3

**) For IFRS S1, sustainability disclosure*
***) Detail in appendix*

To identify climate-related risks and opportunities (R1) Bank X has used scenario analysis for physical risks and transition risks and disclosed the assumptions and methodology used as well as the process for monitoring climate risks in the Sustainability Report 2023. In terms of procedures, Bank X has also implemented several policies, and monitoring corporate ratings from Ministry Environment and Forestry. Regarding climate risk opportunities, Bank X does not provide a detailed explanation of climate-related opportunities (R2). Based on discussion with interviewee, climate change is also an opportunity such as obtaining cheaper sources of funding through the issuance of sustainability and green bond. Identification of opportunities is also related to the disclosure of climate-related metrics where based on IFRS S2 paragraph 29, entities need to disclose metrics in the form of the number and percentage of assets or business activities that are in line with climate-related opportunities. In the process of integration with other risks (R3), Bank X has disclosed the qualitative impact of climate risk on physical and transition risk. According to CRMS (2024), banks need to quantify credit risk and market risk. For quantification, Bank X has challenges with the data and systems required and is working to overcome these challenges in 2024.

To quantify market risk, banks need to assess the fair value of financial asset instruments in the form of corporate debt securities and analyze the impact on profit and loss to capital. To quantify credit risk, banks need to assess credit assets in key lending sectors, changes in income received in these sectors, and the impact on bank capital. Key sectors are sectors that are considered to have a significant impact on the amount of lending and emissions generated. Key lending sector in line with NZE 2050 in Indonesia's 2022 Enhanced Nationally Determined Contribution (NDC). Banks are impacted by the debtor that are unable to adapt and do not have strong capitalization have the potential to increase expected credit losses (ECL). For comparison, HSBC identified that under the NZE scenario, the mining sector will experience an increase in ECL of up to 3x by 2035, resulting in the implementation of a thermal coal phase out policy strategy in the European Union (EU) market and OECD countries by 2030 and globally by 2040. As agency theory explains (Jensen & Meckling, 1976), differences in viewing risk management has potential assymetric information. This further demonstrates how integrated scenario analysis's deep identification may give businesses a more comprehensive perspective, enabling them to put mitigation plans into strategy and action sooner.

Table 5. IFRS S1 and S2 Criteria – Metrics and Targets

Governance Disclosure	**Rating Points[**)]**	**Conformity**	
		Appropriate	**Not yet**
Cross-industry metric	M1		M1
Industry-based metric	M2		M2
Qualitative and quantitative targets set by banks and targets required to be met by regulation	M3 – M4	M3, M4	
Bank approaches setting and reviewing each target	M5	M5	

**) For IFRS S1, sustainability disclosure*
***) Detail in appendix*

On metrics and targets, in part cross industry metric, Bank X has disclosed GHG Scope 1,2, and 3 include finance emission but has not disclosed (i) the number and percentage of assets and business activities affected by climate risks that are being developed through CRMS scenario analysis (OJK, 2024); (ii) capital expenditure to address sustainability risks and opportunities being developed in the decarbonization strategy document; (iii) number and percentage of assets or business activities aligned with climate-related opportunities; (iv) internal carbon price, which has been developed and implemented internally but not yet published. On industry-based metrics, based on IFRS S2 and (SASB, 2023), there are six topics for Commercial Banks of which two are relevant to IFRS S2: (i) financed emission; and (ii) incorporation of ESG factors in credit analysis. For the second topic "incorporation of ESG factors in credit analysis", the company needs to disclose the metric with code FN-CB-410a.2 where there are ten explanations and analysis that must be disclosed based on SASB (2023) standards but Bank X has not disclosed several points that need to be disclosed mainly related to integration process of climate risk to credit risk.

4. Conclusions

There are four primary aspect that need to be disclosed based on IFRS S1 and IFRS S2 (i) Governance; (ii) Strategy (iii) Risk Management, and (iv) Metrics and Targets. The analysis concludes that the Governance aspect (9/9) is an aspect that is considered to have fulfilled while the other three aspects: Strategy (8/12), Risk Management (1/3), and Metrics and Targets (3/5) are still considered to have several points in the process of fulfillment. On the Governance point, the climate-integrated sustainability governance is considered adequate in accordance with IFRS S1 and IFRS S2. In Strategy, the company is still in the process of designing a decarbonization strategy nd developing scenario analysis. The development is expected to provide quantitative information on the impact of climate change on the entity's financial position, financial performance, and cash flows (OJK, 2024) as well as more comprehensive information related to climate resilience. Scenario analysis is related to Risk Management in integrating climate risk with "transverse risk" (GARP, 2023), especially to quantify credit risk and market risk. In the Risk Management aspect, the company has not yet detailed the opportunities because it is still in the process of preparation. In Metrics and Targets, there are several points that have not fully disclosed, related to cross industry metrics and industry-based metrics. In general, main criteria IFRS S1 and S2 presented in Bank X is predominantly considered sufficient as company has experience implementing SASB and TCFD. The material topics and metrics in IFRS S1 and S2 are related to SASB and primary aspect was developed from TCFD.

This study has limitations since it was carried out before reporting entities submitted sustainability reports based on IFRS S1 and S2. In the future, academics can compare their findings with those of other, more comprehensive, or ISSB-recommended institutions. Further research can also consider the use of Artificial Intelligence in text processing to compare climate disclosure between companies by extracting reports using the Large Language Model (LLM) such as research conducted by the Bank for

International Suttlement (BIS) and the European Central Bank (ECB) on TCFD Reports.

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APPENDIX

29 Main Criteria IFRS S1 and IFRS S2	
G1	The part of a bank's organizational structure responsible for overseeing climate-related*) risks and opportunities
G2	How G1 reflected in terms of reference, role description, and relevant policies
G3	How appropriate skills and competencies G1 will be developed;
G4	Processes and frequency G1 are informed about risks and opportunities
G5	How G1 takes risks and opportunities into account when overseeing the entity's strategy, decisions on major transactions, risk management processes, and policies.
G6	How G1 manages the establishment and tracking of climate targets (including the incorporation of pertinent performance metrics into remuneration policies)
G7	Management role in the governance processes, controls and procedures
G8	How management roles are delegated to specific level positions and how oversight is exercised over such positions;
G9	Management controls (procedures) to support oversight of climate-related risks and opportunities and how are these controls (procedures) integrated
S1	Climate risk and opprortunity*)
S2	Additional explanation for each climate related risk identified by the bank, whether physical risk or a transition risk.
S3	Assesing the effects of climate-related risk and opportunity over short, medium, or long timeframes may happen.
S4	Explanation of how the company defines the timeframe in S3 and how it relates to strategic decision-making.
S5	Explanation of the potential and actual effects on the company's value chain and business model of climate-related risks and opportunities.
S6	Explanation of the business model and value chain's concentration
S7	Description of the impact S1 on strategy and decision-making (includes how the company plans to achieve related climate targets and required by law or regulation)
S8	How the company obtains resources or plans to fulfill the resource requirements for the activities in point S.7
S9	Information, both quantitative and qualitative, regarding the company's progress toward the strategy as reported during the previous reporting period;
S10	Information on climate risks and opportunities that affect the bank's cash flows, financial performance, and position both qualitatively and quantitatively
S11	Explanation of detailed scenario analysis information
S12	Resilience assessment that helps financial statement users comprehend the bank's effects, areas of uncertainty, and ability to handle climate risk and opportunity
R1	Description of processes and policies used by the bank to identify, assess, prioritize and monitor climate-related risks*)
R2	R1 for opprotunities
R3	R1 and R2 integrated into overall enterprise risk management process.
M1	Cross-industry metric
M2	Industry based metric
M3	Explanation of target objectives and metrics used to set the target
M4	Detailed disclosure of GHG targets
M5	Bank approaches setting and reviewing each target

**) For IFRS S1, sustainability disclosure*