

ARE BRAZILIAN COMPANIES READY FOR THE ISSB STANDARDS? ANALYSIS OF SUSTAINABILITY-RELATED FINANCIAL INFORMATION REQUIRED BY IFRS S1

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ABSTRACT: The objective of this study was to analyze the disclosure of sustainability-related financial information by listed companies in Brazil. For this purpose, a metric with four categories was developed, based on IFRS S1 – General Requirements for Disclosure of Sustainability-related Financial Information. The disclosures made in the financial year 2022 were analyzed using the content analysis technique. The study sample consisted of the 81 companies that made up the Ibovespa portfolio in the period September–December 2023. Among the main results, the following stand out: companies that already follow the TCFD recommendations tend to provide most of the expected disclosures; the Board of Directors is generally the body responsible for monitoring sustainability-related risks and opportunities; disclosures about strategy are comprehensive but not necessarily integrated with the company's business model; most companies mentioned the use of a materiality matrix in risk management; and virtually all companies disclosed targets and metrics. Regarding the main implications of the research, especially for the adoption of the ISSB standards in Brazil, it was noted that there is a need to improve disclosures, focusing on the information needs of shareholders and creditors, and that the requirement for reasonable assurance will tend to require improvements in sustainability-related practices and policies, as well as in internal controls.

KEYWORDS: Disclosure. Sustainability. ESG. IFRS. ISSB.

AS EMPRESAS BRASILEIRAS ESTÃO PREPARADAS PARA OS PADRÕES DO ISSB? ANÁLISE DAS INFORMAÇÕES FINANCEIRAS RELACIONADAS À SUSTENTABILIDADE EXIGIDAS PELO IFRS S1

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RESUMO: O objetivo deste estudo foi analisar a divulgação de informações financeiras relacionadas à sustentabilidade por companhias abertas no Brasil. Para tal, foi desenvolvida uma métrica com quatro categorias, baseada no IFRS S1 – Requisitos Gerais para Divulgação de Informações Financeiras Relacionadas à Sustentabilidade. As divulgações realizadas no exercício de 2022 foram analisadas por meio da técnica de análise de conteúdo. A amostra do estudo foi composta pelas 81 empresas que compunham a carteira do Ibovespa no período de setembro a dezembro de 2023. Dentre os principais resultados, destacam-se: empresas que já seguem as recomendações do TCFD tendem a fornecer a maioria das informações esperadas; o Conselho de Administração é, em geral, o órgão responsável pelo monitoramento de riscos e oportunidades relacionados à sustentabilidade; as divulgações sobre a estratégia são abrangentes, mas não necessariamente integradas ao modelo de negócios da empresa; a maioria das empresas mencionou a utilização de matriz de materialidade na gestão de riscos; e praticamente todas as empresas divulgaram metas e métricas. Em relação às principais implicações da pesquisa, especialmente para a adoção dos padrões ISSB no Brasil, observou-se a necessidade de aprimorar as divulgações, com foco nas necessidades de informação de acionistas e credores, e que a exigência de assegurar razoável tenderá a exigir melhorias nas práticas e políticas relacionadas à sustentabilidade, bem como nos controles internos.

PALAVRAS-CHAVE: Divulgação. Sustentabilidade. ESG. IFRS. ISSB.

1 INTRODUCTION

Although it is not a new topic, corporate sustainability – also known by the acronym ESG (environmental, social and governance) – has gained greater attention from financial market agents in recent years.

From a shareholder's perspective, a company's value can be defined in terms of the cash flows it generates for its investors over the course of its existence. From this perspective, sustainability issues have the potential to impact a company's value by affecting its ability to continue as a going concern. The same reasoning applies to creditors as such risks may affect the company's ability to pay its debts.

In this context, sustainability-related risks represent one of the greatest threats to companies' ability to deliver sustainable and predictable results over time (SHEEHAN et al., 2023). According to these authors, a recent Bank of America study showed that 24 ESG-related accidents had an impact of more than \$500 million on US companies in the period 2014-2019.

Of course, in addition to the risks, there are also opportunities in the capital market, such as the ability to raise funds at attractive rates. According to Mariz (2022), the issuance of sustainable debt securities (bonds) reached US\$ 883 billion worldwide in 2021, more than double the previous year. Specifically in Brazil, the issuance of these bonds accounted for 14% of total operations in the same period.

In this scenario, where corporate sustainability is becoming increasingly important, market participants' demand for additional non-financial information is growing (VILLIERS; DIMES, 2023). According to Smith (2008), the response of investors and the market as a whole to this new scenario has been predictable and understandable: provide us with information so that we can assess and price risks and opportunities.

According to Chua et al. (2022), in recent years, investors have started to demand useful information on how companies' activities affect and are affected by the environment and climate change, as well as other sustainability-related risks. According to Sheehan et al. (2023), with the growing importance of the issue, investment funds, analysts and creditors in general have started to demand ESG reports and information. Thus, companies are encouraged by the market to disclose information related to social and environmental aspects, in addition to that of a financial nature (GARCÍA-SANCHEZ; NOGUERA-GÁMES, 2017).

In this environment, the role of corporate disclosure is particularly important. After all, information is the "fuel" that feeds the capital market. The provision of rigorous, reliable and comparable sustainability information tends to enable capital providers to make informed and considered decisions. As a result, disclosure promotes the efficiency and proper functioning of the capital market.

To meet the financial market's need for sustainability information, the IFRS Foundation established the International Sustainability Standards Board (ISSB) in 2021. The ISSB was established with the specific goal of developing global standards for sustainability disclosures, similar to what already happens with financial information through the IFRS accounting standard.

The ISSB issued its first two standards in June 2023: IFRS S1 – General Requirements for Disclosure of Sustainability-related Financial Information and IFRS S2 – Climate-related Disclosures, both effective from 2024.

Both standards, IFRS S1 and IFRS S2, will be mandatory for listed companies in Brazil from the financial year 2026, with the possibility of voluntary adoption in 2024 and 2025.

Within this context, characterized by the growing relevance of the issue for the capital market in recent years and also by the adoption of international standards in Brazil and worldwide, this paper seeks to study the issue of disclosure of sustainability-related financial information. Therefore, the aim objective this study is to analyze the disclosure of sustainability-related financial information by listed companies in Brazil.

The subject of disclosure involves, among others, the disciplines of accounting, finance, economics and law (MURCIA, 2009). In this context, this research is a contribution to the accounting field, to the discussion of a topic that permeates several fields of knowledge.

It should also be noted that the Brazilian scenario is an excellent laboratory for this research. Brazil is home to the world's largest environmental asset, the Amazon rainforest, and has already developed a number of sustainable finance initiatives. In fact, the country is poised to become a global leader in the corporate sustainability movement.

It is also important to note that the existence of sustainability disclosure regulations is not the end result: they are the means to achieve the end (ALI et al., 2023). After all, the standard, the law, is the "way it should be" and it is not always followed. This research seeks to contribute in this sense, through an empirical analysis of the subject.

Finally, it is important to point out the unprecedented nature of this study, since it analyzes the disclosure of sustainability-related financial information from the perspective of the new ISSB international standards, especially IFRS S1. The research also presents a new metric, developed by the author, to analyze the requirements of the latest standard that will be mandatory in Brazil.

Therefore, this study hopes to contribute to the many different participants in the Brazilian capital market: (i) shareholders, (ii) creditors, (iii) regulators, (iv) rating agencies, (v) accountants and auditors, (vi) analysts, etc. After all, understanding the sustainability-related financial disclosures of Brazilian companies provides a diagnosis of current practices in the context of the mandatory adoption of the international ISSB standards in 2026. Such a diagnosis is fundamental for understanding the current stage and also for improving corporate disclosures, not only for legal compliance purposes, but also with a view to providing relevant and reliable information on the risks and opportunities related to corporate sustainability.

2 THEORETICAL FRAMEWORK

In June 2023, the ISSB issued its first two standards, IFRS S1 –General Requirements for Disclosure of Sustainability-related Financial Information and IFRS S2 – Climate-related Disclosures, beginning the process of standardizing sustainability disclosures. Both standards will become effective in 2024.

According to Avi (2023), IFRS S1 and IFRS S2 are structured so that companies provide comprehensive and consistent disclosures on sustainability in general and on climate-related issues. They are based on the notions of risks and opportunities so that companies can assess the impacts of sustainability on their business models, strategy and financial results in the short, medium and long term (INDYK, 2022).

IFRS S1 – which is the primary focus of this study – aims, according to its item 1: "To require the entity to disclose information about its sustainability-related risks and opportunities that is relevant to key users of general purpose financial reports when making decisions about allocating resources to the entity".

The main reason for issuing this standard was the demand from market participants for consistent, complete and comparable information that enables the assessment of a company's sustainability-related risks and opportunities. From the perspective of shareholders and creditors, this information complements what companies already disclose in their financial statements.

Because the ISSB standards are aimed at the capital market, they only require disclosure of information that is considered material, i.e., information that has the potential to influence the decisions of capital market participants.

IFRS S1 uses the concept of single materiality, or the "outside-in perspective," which requires companies to disclose sustainability information that affects their performance and future cash flows (GINER; LUCQUE-VÍLCHEZ, 2022).

In this context, the ISSB standards – at least to date – do not use the concept of "double materiality," which involves disclosing information about how the company affects people and the environment in which it operates, known as the "inside-out perspective". If such a materiality perspective were adopted, companies would need to disclose (i) how sustainability-related risks and opportunities affect their performance and (ii) how they affect the environment and people.

To achieve its proposed objective, IFRS S1 sets out general requirements for the content and presentation of disclosures, with a focus on sustainability-related risks and opportunities. These risks and opportunities arise from the company's relationship with a wide range of stakeholders, including employees, the community, capital providers and the environment.

The core content of the information that a company is required to disclose according to item 25 of IFRS S1 consists of four key topics:

- I. Governance: including the governance processes, controls and procedures used to monitor and manage sustainability-related risks and opportunities;
- II. Strategy: used to manage sustainability-related risks and opportunities;
- III. Risk Management: including policies, practices and processes for identifying, assessing and monitoring sustainability-related risks and opportunities;
- IV. Metrics and Targets: used to assess the entity's performance with respect to sustainability-related risks and opportunities.

In addition to the content to be presented, IFRS S1 also sets out general disclosure requirements, such as (i) the location of disclosures, (ii) the timing of the report, (iii) comparative information, (iv) sources of guidance and (v) statements of compliance. This standard also addresses judgments, uncertainties and the treatment of corrections of errors relating to previous periods.

It should therefore be noted that IFRS S1 – General Requirements for Disclosure of Sustainability-related Financial Information is, as its name suggests, a more general standard. In fact, a simplified comparison with the accounting standards issued by the IASB shows that IFRS S1:

- I. Regulates the minimum content of information and also the format, as does CPC 26 – Presentation of Financial Statements, correlated to the international standard IAS 1.
- II. Deals with the purpose of disclosure and the qualitative characteristics of information as set out in CPC 00 – Conceptual Framework for Financial Reporting, correlated to the IASB Conceptual Framework.
- III. Deals with the treatment of errors and also the sources of guidance for developing an accounting policy, in the same way as CPC 23 – Accounting Policies, Changes in Estimates and Rectification of Errors, correlated to IAS 8.

3 METHODOLOGY

This study can be classified as theoretical-empirical, since its objective is to analyze the sustainability-related financial information disclosures of listed companies in Brazil.

In academic work, the evaluation of information in corporate reports is generally carried out using the content analysis technique. According to Krippendorff (1990), this technique allows for a rigorous and systematic analysis of messages; in the case of this paper, sustainability-related financial disclosures.

In general, content analysis attempts to classify texts into categories based on the common characteristics of the information being analyzed, i.e., similar information is grouped together in order to make inferences. According to Bardin (1977), categories are large groups made up of subcategories, which in turn are made up of record units, which can be paragraphs, sentences or even words.

It can be seen, therefore, that the use of this technique requires the development of a metric, an index, a kind of checklist made up precisely of the categories and subcategories to be analyzed. Thus, an effort was made to build a metric based on IFRS S1 – General Requirements for Disclosure of Sustainability-related Financial Information, approved by the ISSB in June 2023.

Based on this criterion, a metric was developed to analyze sustainability-related financial disclosures, consisting of four categories and 24 subcategories, namely: (i) Governance (7), (ii) Strategy (5), (iii) Risk Management (9) and (iv) Metrics and Targets (3). The Figure 1 illustrates the metrics developed.

Figure 1 – Metrics for Analyzing Sustainability-related Financial Disclosures

Category: Governance (7)	IFRS S1
Body responsible for overseeing sustainability-related risks and opportunities	Item 27, (a)
Responsibilities of the body as defined by bylaws, regulations, policies, etc.	Item 27, (a) (i)
Analysis of skills and competencies to oversee strategies for sustainability-related risks and opportunities	Item 27, (a) (ii)
Frequency with which sustainability-related risks and opportunities are reported to the Authority	Item 27, (a) (iii)
Process for overseeing the entity's strategy with respect to sustainability-related risks and opportunities	Item 27, (a) (iv)
Process for overseeing the definition and development of targets for sustainability-related risks and opportunities	Item 27, (a) (v)
Management's role in monitoring, managing and overseeing sustainability-related risks and opportunities	Item 27, (b)

Category: Strategy (5)	IFRS S1
Sustainability-related risks and opportunities that could reasonably affect the entity's prospects over the short, medium and long term	Item 29 (a)
The current and expected impact of sustainability-related risks and opportunities on the entity's business model and value chain	Item 29 (b)
The impact of sustainability-related risks and opportunities on the entity's strategy and decision-making, including the progress of plans and trade-offs considered	Item 29 (c)
The impact of sustainability-related risks and opportunities on the entity's current and future financial statements, considering the short, medium and long term, including material adjustments to asset and liability balances	Item 29 (d)
The resilience of the entity's strategy and business model to sustainability-related risks	Item 29 (e)
Category: Risk Management (9)	IFRS S1
Processes and related policies used by the entity to identify, assess, prioritize and monitor sustainability-related risks	Item 44 (a)
Data and parameters used to manage sustainability-related risks	Item 44 (a) (i)
Use of scenario analysis to manage sustainability-related risks	Item 44 (a) (ii)
Assessment of the nature, likelihood and magnitude of the impact of sustainability-related risks	Item 44 (a) (iii)
Prioritization of sustainability-related risks	Item 44 (a) (iv)
Monitoring of sustainability-related risks	Item 44 (a) (v)
Change in sustainability-related risk management processes compared to the past	Item 44 (a) (vi)
Processes used to identify, evaluate, prioritize and monitor sustainability-related opportunities	Item 44 (b)
Integration between sustainability processes and the entity's overall risk management process	Item 44 (c)
Category: Metrics and Targets (3)	IFRS S1
Metrics used by the entity to measure and monitor sustainability-related risks and opportunities	Item 46 (b) (i)
The entity's performance with respect to sustainability-related risks and opportunities, including progress in relation to established targets	Item 46 (b) (ii)
Quantitative and qualitative information on metrics and targets, including (i) the methods and data used for calculation, (ii) third-party validation, (iii) period of application, (iv) performance over the period and (v) changes and revisions to targets	Item 50 (a)-(d) and Item 51 (a)-(g)

Regarding the development of this metric, it should be noted that this process involves an inherent subjectivity that required the researcher to make certain choices.

Some disclosure requirements, such as those related to metrics and targets (items 50 and 51), were combined into a single subcategory because they are similar requirements.

It should also be noted that IFRS S1 contains other disclosure requirements, such as those relating to sources of guidance on the application of the standard and the declaration of compliance with the IFRS. These items were not included in the study's metrics precisely because they are requirements related to the application of the standard in a specific case, which would be impractical for companies in 2022, when the standard was not yet in force. Similarly, requirements that referred to another IFRS sustainability standard were also excluded, such as the requirement in IFRS S1 item 46 (a) that the company should disclose "the metrics required by an applicable IFRS Sustainability Disclosure Standard".

Once the metric for analyzing disclosure was defined, the next step was to define a criterion for analyzing the information. In this study, it was decided to score the information on a binary basis, i.e. if the company had disclosed certain information, it would receive a score of 1, and otherwise it would receive a score of 0. Thus, the metric used in this study is quantitative, as it only assesses the presence or absence of certain information.

In the end, an attempt was made to create an index that totals the percentage (%) of the company's disclosure. This index is made up of the number of subcategories disclosed by the company divided by the total number of subcategories.

For this study, the sample consisted of publicly traded companies listed in the Ibovespa index. This index, created in 1968, is considered to be the main indicator of the performance of shares traded on the B3 Brazilian stock exchange. It is the result of a theoretical portfolio of the most liquid stocks in the Brazilian market.

It should be noted that the Ibovespa portfolio is re-evaluated every four months, and the one used in this study is from September-December 2023 and is made up of 86 stocks, as shown in the Figure 2.

Figure 2 – Sample: Companies listed on Ibovespa in September 2023

	Code	Stock		Code	Stock
1	RRRP3	3R PETROLEUM	44	HAPV3	HAPVIDA
2	ALSO3	ALIANSCSONAE	45	HYPE3	HYPERA
3	ALPA4	ALPARGATAS	46	IGTI11	IGUATEMI S.A
4	ABEV3	AMBEV S/A	47	IRBR3	IRBBRASIL RE
5	ARZZ3	AREZZO CO	48	ITSA4	ITAUSA
6	ASAI3	ASSAI	49	ITUB4	ITAUUNIBANCO
7	AZUL4	AZUL	50	JBSS3	JBS
8	B3SA3	B3	51	KLBN11	KLABIN S/A
9	BBSE3	BBSEGURIDADE	52	RENT3	LOCALIZA
10	BBDC3	BRADERCO	53	LWSA3	LOCAWEB
11	BBDC4	BRADERCO	54	LREN3	LOJAS RENNER
12	BRAP4	BRADERPAR	55	MGLU3	MAGAZ LUIZA
13	BBAS3	BRASIL	56	MRFG3	MARFRIG
14	BRKM5	BRASKEM	57	BEEF3	MINERVA
15	BRFS3	BRF SA	58	MRVE3	MRV
16	BPAC11	BTGP BANCO	59	MULT3	MULTIPLAN
17	CRFB3	CARREFOUR BR	60	PCAR3	P.ACUCAR-CBD
18	BHIA3	CASAS BAHIA	61	PETR3	PETROBRAS
19	CCRO3	CCR SA	62	PETR4	PETROBRAS
20	CMIG4	CEMIG	63	RECV3	PETRORECSA
21	CIEL3	CIELO	64	PRI03	PETRORIO
22	COGN3	COGNA ON	65	PETZ3	PETZ
23	CPL6	COPEL	66	RADL3	RAIADROGASIL
24	CSAN3	COSAN	67	RAIZ4	RAIZEN
25	CPFE3	CPFL ENERGIA	68	RDOR3	REDE D OR
26	CMIN3	CSNMINERACAO	69	RAIL3	RUMO S.A.
27	CVCB3	CVC BRASIL	70	SBSP3	SABESP
28	CYRE3	CYRELA REALT	71	SANB11	SANTANDER BR
29	DXCO3	DEXCO	72	SMT03	SAO MARTINHO
30	ELET3	ELETRONBRAS	73	CSNA3	SID NACIONAL
31	ELET6	ELETRONBRAS	74	SLCE3	SLC AGRICOLA
32	EMBR3	EMBRAER	75	SUZB3	SUZANO S.A.
33	ENGI11	ENERGISA	76	TAE11	TAESA
34	ENEV3	ENEVA	77	VIVT3	TELEF BRASIL

	Code	Stock		Code	Stock
35	EGIE3	ENGIE BRASIL	78	TIMS3	TIM
36	EQTL3	EQUATORIAL	79	TOTS3	TOTVS
37	EZTC3	EZTEC	80	UGPA3	ULTRAPAR
38	FLRY3	FLEURY	81	USIM5	USIMINAS
39	GGBR4	GERDAU	82	VALE3	VALE
40	GOAU4	GERDAU MET	83	VAMO3	VAMOS
41	GOLL4	GOL	84	VBBR3	VIBRA
42	NTCO3	GRUPO NATURA	85	WEGE3	WEG
43	SOMA3	GRUPO SOMA	86	YDUQ3	YDUQS PART

It also should be noted that some companies have more than one stock listed in the Ibovespa portfolio: Bradesco (BBDC 3 and BBDC 4), Petrobras (PETR4 and PETR3) and Eletrobrás (ELET 3 and ELET 6).

There are also two holding companies in the sample: Gerdau Metalúrgica (GOAU4), whose only investment is in Gerdau (GGBR4), and Bradespar (BRAP4), which invests exclusively in Vale (VALE3).

To avoid duplication and overlaps, the sample consists of 81 companies. Gerdau Metalúrgica and Bradespar were excluded from the sample (precisely for the reason explained above), and companies with two stocks listed in the Ibovespa index (Bradesco, Petrobras and Eletrobras) were considered only once.

In terms of corporate documents, it was decided to analyze those that provide information on the topic, commonly referred to as Sustainability Reports, ESG Reports, etc. Some companies do not publish a separate report on sustainability, but disclose sustainability information in their Annual Report, sometimes called an Integrated Report if it is prepared according to the Integrated Reporting framework. In these cases, these publications were analyzed.

Finally, the financial year 2022 was defined as the base period for the analysis, as it is the most recent period available. The data were collected and analyzed by the researcher himself in September-December 2023.

Regarding the limitations of the study, it is important to highlight the researcher's decision to develop a metric based on the normative requirements of certain ISSB standards. Of course, other authors could construct and develop different metrics for analyzing sustainability-related financial disclosures.

Particularly with regard to the process of analyzing and interpreting the text itself, it is important to be aware of any researcher biases. Deciding whether or not certain information is present in the reports analyzed involves an inherent

subjectivity, which is often based on the perception of the researcher who collected the data. In this context, two researchers may come to different conclusions about the same piece of information.

In terms of the companies analyzed, this study used a sample composed of the most important listed companies in the Brazilian capital market. Therefore, the sample is considered representative in terms of its relevance to the national scenario. However, it is an intentional and non-probabilistic sample. In this sense, the results of the analysis are limited to the companies studied. Obviously, generalizations to other groups of companies, such as smaller companies or closed companies, are not possible.

With regard to the documents selected for the analysis of the information, an attempt was made to examine the most important corporate reports that deal with sustainability-related disclosure. It is believed that the documents analyzed in the study – namely Annual Reports, Integrated Reports and Reference Forms – reflect an adequate proxy for corporate transparency on the subject of sustainability-related financial information.

Finally, this study examined corporate disclosures in only one period, namely the financial year 2022. As such it is a cross-sectional study and the results should not be generalized to other time periods.

4 RESULTS ANALYSIS

4.1 Disclosure of sustainability-related financial information: governance

The analysis showed that most of the companies in the sample disclosed information on sustainability-related governance aspects in accordance with the requirements of item 27 (a) and (b) of IFRS S1 in 2022, as shown in the Table 1.

Table 1 – Disclosure of sustainability-related financial information: governance

Governance	Total	%
Body responsible for overseeing sustainability-related risks and opportunities	76	93.8%
Responsibilities of the body as defined in bylaws, regulations, policies, etc.	33	40.7%

Governance	Total	%
Analysis of skills and competencies to oversee strategies for sustainability-related risks and opportunities	4	4.9%
Frequency with which sustainability-related risks and opportunities are reported to the Authority	46	56.8%
Process for overseeing the entity's strategy in light of sustainability-related risks and opportunities	64	79%
Process for overseeing the definition and development of targets for sustainability-related risks and opportunities	57	70.4%
Management's role in monitoring, managing and overseeing sustainability-related risks and opportunities	76	93.8%

In general, the listed companies mention the Board of Directors as the body responsible for overseeing sustainability issues, including risks and opportunities.

According to Sheehan et al. (2023), boards are generally required by corporate law and listing requirements to oversee company risks, which means that they have some responsibility for ensuring that management follows best practices in ESG risk management.

It was found that many companies have committees that advise the Board of Directors on sustainability-related issues. The committees mentioned by the companies include the Sustainability Committee, the ESG Committee and the Governance Committee, among others.

The creation of thematic committees to advise the Board of Directors seems to be a trend to be implemented in the field of sustainability, as has happened with other committees, such as the Audit Committee, which became more relevant with the enactment of the Sarbanes Oxley Act (SOX) in the United States in 2002. This is because, as in many cases, the members of the Board of Directors are not specialists in certain topics, and the advisory bodies, which are mostly composed of experts, can help the Board with these specific issues.

It should be noted that some of the disclosures made by the companies in the sample on governance in 2022, including the Board's oversight and monitoring of risks and opportunities, were generic and did not address the specific aspects of sustainability. For example, some companies chose to disclose information that appeared to be copies of excerpts from the by laws of the governance bodies.

On the other hand, some companies provided comprehensive and specific disclosure on the ESG responsibilities of their governance bodies.

It should also be noted that, as with the other disclosures analyzed in this paper, companies that already follow the TCFD's climate disclosure recommendations tend to comply with various requirements introduced by IFRS S1. This was to be expected since, as mentioned above, this international standard followed the TCFD's master structure with the same four main disclosure topics: Governance, Strategy, Risk Management and Metrics and Targets.

4.2 Disclosure of sustainability-related financial information: strategy

The issue of corporate strategy is central to the information user's understanding of the connection between aspects related to risks and opportunities and to corporate sustainability. If the issue of sustainability is not disclosed in a way that connects it to the company's business model, it will be difficult for capital providers to understand how the company manages its risks and opportunities.

In this context, it is clear that the disclosure requirements of IFRS S1 on this topic are aimed precisely at enabling stakeholders to understand the company's strategy for managing sustainability risks, as set out in item 28 of the standard: "The objective of sustainability-related financial disclosures about strategy is to enable users of general purpose financial reports to understand an entity's strategy for managing sustainability-related risks and opportunities".

The Table 2 illustrates the results of the analysis of item 28 of IFRS S1.

Table 2 – Disclosure of sustainability-related financial information: strategy

Strategy	Total	%
Sustainability-related risks and opportunities that could reasonably affect the entity's prospects over the short, medium and long term	75	92.6%
The current and expected impact of sustainability-related risks and opportunities on the entity's business model and value chain	66	81.5%
The impact of sustainability-related risks and opportunities on the entity's strategy and decision-making, including the progress of plans and trade-offs considered	63	77.8%

Strategy	Total	%
The impact of sustainability-related risks and opportunities on the entity's current and future financial statements over the short, medium and long term, including material adjustments to asset and liability balances	18	22.2%
The resilience of the entity's strategy and business model to sustainability-related risks	44	54.3%

It should be noted that the item least disclosed by the companies was the impact of risks and opportunities on the company's current and future balance sheets. This is perhaps one of the most relevant items from the point of view of information users, as it shows the potential impact on the company's economic and financial situation. It should be noted that this item is inherently subjective as it relates to future projections and requires the company's management to make assumptions and estimates.

Among other relevant topics regarding sustainability-related strategy, the climate issue deserves special mention. The risks associated with climate change can have a significant impact on a company's business model and value chain.

According to Williams (2018), one area that has received particular attention from regulators and investors is the disclosure of risks and opportunities brought about by climate change and transition initiatives.

These risks can arise from the entity's impact on the environment, such as GHG emissions, and the company's dependence on certain natural resources.

In this regard, it is important to note the definition of climate resilience set out in international sustainability disclosure standards, in particular Appendix A of IFRS S2: "The ability of an entity to adapt to climate-related changes, developments or uncertainties. Climate resilience includes the ability to manage climate-related risks and to benefit from climate-related opportunities, including the ability to respond and adapt to climate-related transition risks and climate change".

4.3 Disclosure of sustainability-related financial information: risk management

It should be noted that when shareholders finance public companies, they face the risk that the return on their investment may never materialize. Obviously, the greater the risk, the greater the premium demanded by capital providers. In fact, the risk/return ratio is a fundamental principle of finance theory.

In this context, one of the most relevant pieces of information for capital providers is how the company manages its risks, including those related to sustainability. According to Hoque (2017), information users are interested in knowing the potential risks to the company's business, especially those that may affect the company's financial position.

It should be noted that the issue of risk management is quite advanced in some sectors, including banking. Banks, partly for regulatory and prudential reasons, tend to treat the issue with the depth and relevance it deserves in terms of business continuity.

The disclosure requirements of IFRS S1 on this subject, as set out in item 44 of the international standard, are quite comprehensive and relate to various aspects of risk management, such as processes and policies, data and parameters used, assessments of the nature and magnitude of the risks, scenario analysis, and so on.

The results of the analysis of the disclosures 2022 are shown in the Table 3.

Table 3 – Disclosure of sustainability-related financial information: risk management

Risk Management	Total	%
Processes and related policies used by the entity to identify, assess, prioritize and monitor sustainability-related risks	76	93.8%
Data and parameters used to manage sustainability-related risks	18	22.2%
Use of scenario analysis to manage sustainability-related risks	36	44.4%
Assessment of the nature, likelihood and magnitude of the impact of sustainability-related risks	53	65.4%
Prioritization of sustainability-related risks	53	65.4%
Monitoring of sustainability-related risks	75	92.6%
Change in sustainability-related risk management processes compared to the past	52	64.2%
Processes used to identify, assess, prioritize and monitor sustainability-related opportunities	75	92.6%
Integration between the entity's sustainability and other risk processes	62	76.5%

Among the processes and policies used by the sample companies to identify, prioritize and monitor sustainability-related risks, the use of the materiality matrix discussed in section 4.1.4 is worth highlighting, with the respective sustainability issues considered material.

It should be noted that this matrix generally takes into account the perception of the company's internal users as well as input from external stakeholders such as suppliers, customers, etc.

The analyses also showed that some companies have already started to incorporate ESG risks into their own risk matrix. The risk matrix is somewhat similar to the materiality matrix and considers both (i) the likelihood of the risk materializing and (ii) the severity of the risk, i.e. the impact of its occurrence.

It is also interesting to note that some companies are moving away from a siloed approach to sustainability-related risk management to an integrated approach.

Still on the subject of risk identification and monitoring processes, it is important to note that IFRS S1 requires disclosure of quantitative aspects, such as the use of data, parameters and scenarios considered by the company.

4.4 Disclosure of sustainability-related financial information: metrics and targets

Out of a total of 78 companies that published a report with sustainability information in the 2022 financial year, only one did not present metrics and targets for sustainability-related risks and opportunities, including qualitative and quantitative information on these metrics, as shown in the Table 4.

Table 4 – Disclosure of sustainability-related financial information: metrics and targets

Metrics and Targets	Total	%
Metrics used by the entity to measure and monitor sustainability-related risks or opportunities	77	95.1%
The entity's performance with respect to sustainability-related risks and opportunities, including progress in relation to targets	77	95.1%
Quantitative and qualitative information on metrics and targets, including (i) the methods and data used for calculation, (ii) third-party validation, (iii) the period of application, (iv) performance in the period and (v) changes and revisions to targets	77	95.1%

To some extent, these results are to be expected, as a significant portion of the reports containing sustainability information consists of targets, indicators, and also the company's performance for the reporting period, in this case the 2022 financial year.

Similarly, as shown in section 4.1.2 of this paper, 75 companies in the sample use the GRI standard to prepare their sustainability reports. As is well known, this standard has a wide range of metrics on a variety of topics. In addition, 59 companies use the SASB standard, which also includes a number of sector-specific sustainability indicators.

One of the most frequently mentioned targets by the companies analyzed concerns greenhouse gas (GHG) emissions programs, sometimes referred to as "carbon neutral" or "net zero". In general, these programs aim to set targets for reducing GHG emissions in light of the challenges of combating global warming and climate change.

4.5 Disclosure of sustainability-related financial information: most disclosed items and comparative analysis of the sample companies

This section provides a brief description of the items most disclosed by the analyzed companies in 2022.

As noted in the previous section, virtually all the companies in the sample disclosed some type of metric, accompanied by qualitative and quantitative information, on sustainability-related risks and opportunities. Similarly, the vast majority of companies also provided information on the bodies responsible for overseeing sustainability issues, usually the Board of Directors or a specific committee (Sustainability, ESG, Governance, etc.). Other items with extensive disclosure relate to processes and policies for monitoring risks and opportunities. The Table 5 illustrates the items most frequently disclosed by the sample companies.

Table 5 – Items most frequently disclosed by the sample companies

Item	Category	Total	%
Metrics used by the entity to measure and monitor sustainability-related risks or opportunities	Metrics and Targets	77	95.1%
The entity's performance with respect to sustainability-related risks and opportunities, including progress in relation to targets	Metrics and Targets	77	95.1%
Quantitative and qualitative information on metrics and targets, including (i) the methods and data used for calculation, (ii) third-party validation, (iii) the period of application, (iv) performance in the period and (v) changes and revisions to targets	Metrics and Targets	77	95.1%

Item	Category	Total	%
The body responsible for overseeing sustainability-related risks and opportunities	Governance	76	93.8%
Management's role in monitoring, managing and overseeing sustainability-related risks and opportunities	Governance	76	93.8%
Processes and related policies used by the entity to identify, assess, prioritize and monitor sustainability-related risks	Risk Management	76	93.8%
Sustainability-related risks and opportunities that could reasonably affect the entity's prospects over the short, medium and long term	Strategy	75	92.6%
Monitoring of sustainability-related risks	Risk Management	75	92.6%
Processes used to identify, assess, prioritize and monitor sustainability-related opportunities	Risk Management	75	92.6%

The items least disclosed by the companies analyzed are those related to the details of risk management, in particular quantitative aspects such as (i) data and parameters and (ii) scenarios used.

In addition, few companies disclose the impact of risks and opportunities in their current and future financial statements.

Finally, with regard to governance aspects, there is still a lack of disclosure on the items related to the specific responsibilities of the bodies and on the analysis of skills to oversee strategies related to sustainability-related risks and opportunities.

The Table 6 shows the results of the analyses.

Table 6 – Items least disclosed by the sample companies

Item	Category	Total	%
Use of scenario analysis to manage sustainability-related risks	Risk Management	36	44.4%
Responsibilities of the body as defined in bylaws, regulations, policies, etc.	Governance	33	40.7%
The impact of sustainability-related risks and opportunities on the entity's current and future financial statements over the short, medium and long term, including material adjustments to asset and liability balances	Strategy	18	22.2%

Item	Category	Total	%
Data and parameters used to manage sustainability-related risks	Risk Management	18	22.2%
Analysis of skills and competencies to oversee strategies for sustainability-related risks and opportunities	Governance	4	4.9%

Finally, a comparative analysis was carried out between the sample companies to determine which companies disclosed the largest number of items in the metrics prepared based on the requirements of IFRS S1.

There is a predominance of companies in the financial sector, particularly financial institutions, that already provide fairly comprehensive disclosure of sustainability-related risks and opportunities, as shown in Table 7.

Table 7 – Companies that disclosed the most items

Company	Items Disclosed	%
B3	23	95.8%
BRADESCO		
CEMIG		
AZUL	22	91.7%
BTG PACTUAL		
CSN MINERAÇÃO		
ITAÚ UNIBANCO		
RUMO		
AMBEV	21	87.5%
BANCO DO BRASIL		
BRASKEM		
CCR		
DEXCO		
LOJAS RENNER		
SIDERÚRGICA NACIONAL		
USIMINAS		

It is important to note the limitation of this type of comparative analysis: if companies did not disclose information about a particular item in the metric, they received a score of zero for that item. However, it may be that the company did not disclose this information because it does not actually have this practice and/or the information is not material enough to merit disclosure. In this sense, conclusions about the comparative analysis between companies and/or compliance with a particular item of the metric should be interpreted with this limitation in mind.

5 CONCLUSIONS

This theoretical-empirical study analyzed the sustainability-related financial disclosures in the 2022 financial year of a sample of listed companies included in the Ibovespa index of the B3 Brazilian stock exchange. To do this, a metric was used based on IFRS S1 – General Requirements for Disclosure of Sustainability-related Financial Information.

It can be said that the topic is of the utmost importance, given the growing demand from market participants for useful, reliable and comparable sustainability-related financial information. In addition, Brazil has already committed, in accordance with CVM Resolution No. 193/23 and CFC Resolution No. 1,710/23, to adopt IFRS S1 (and also IFRS S2) on a mandatory basis as of the 2026 financial year and on a voluntary basis in 2024 and 2025.

The analysis shows that the Ibovespa companies already disclose a wide range of sustainability-related financial information.

Regarding the results of the analysis of financial disclosures on sustainability-related risks and opportunities, taking into account the provisions of IFRS S1, it was found that companies that already follow the TCFD recommendations tend to provide most of the disclosures required by the ISSB standard.

This was to be expected because, as noted throughout the research, IFRS S1 followed the TCFD's master structure with the same four main disclosure topics, referred to as the core content of the standard. It should just be noted that the requirements of IFRS S1 are broader, as they address sustainability as a whole, while the TCFD recommendations focus only on climate disclosures.

It was noted that most of the companies provided disclosures on sustainability governance, with the Board of Directors most often identified as the body responsible for overseeing the risks and opportunities related to this issue. However, in some cases, the disclosures are still very generic and do not go into the specifics required by IFRS S1.

With respect to the sustainability strategy, which includes aspects of the business model and the value chain, the disclosures of the companies in the sample are equally comprehensive. However, it was noted that many of the disclosures are not necessarily focused on capital market users, namely shareholders and creditors. To some extent, this can be explained by the fact that the information is prepared from a broader perspective, focusing on various stakeholders.

Information on risk management was also included in the reports of most of the companies analyzed, in particular on climate risks. The need for greater transparency on the data and parameters used in risk and opportunity management, including scenario analysis, was identified as an area for improvement.

Finally, as expected, virtually all companies in the sample already have sustainability-related metrics and targets. However, in some cases, it is not clear whether these targets are effectively integrated into the company's business model or whether ESG aspects are treated as something separate.

Thus, this study sought to contribute to a pre-adoption diagnosis of IFRS S1, which will be implemented in the 2026 financial year, and also of section 1.9 of the Reference Form, whose required information currently follows the "practice or explain" format. As mentioned above, the purpose of this study was not to analyze the legal compliance of these disclosures. As the information analyzed is voluntary, this would not be meaningful.

It is recommended that future studies improve and extend this research, based on the adoption of international ISSB standards in Brazil. The academic world has an important role to play in improving the sustainability information system of listed companies in Brazil. The objective of this study was to contribute to this important issue.

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