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ESG: Uma análise sobre as dimensões que compõem o índice de investimentos ISE-B3: Brasil, Bolsa, Balcão

ESG: An analysis of the dimensions that make up the ISE-B3 investment index: Brasil, Bolsa, Balcão

[TRADUÇÃO INGLESA]

JEFFERSON DA SILVA MEDEIROS

CASCAVEL/PR
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Dissertation presented in partial fulfilment of the requirements for the degree of Master of Science in Administration in the Department of Administration, Western Paraná State University.
Dissertation Supervisor: Dr. Jerry A. Johann

Dissertação apresentada ao Programa de Pós-Graduação em Administração (PPGAdm) – Mestrado Profissional da Universidade Estadual do Oeste do Paraná, como requisito parcial para obtenção do grau de Mestre em Administração.
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Cascavel, 19 de abril de 2024

DEDICATION

To God and to my family, represented by three key individuals who have always faced everyday challenges and made me a much better person, showing that love, understanding, dedication, affection, care, and truth are always present. Father, mother, and my brother. I toast to home, I toast to life, my family.

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RESUMO

Medeiros, Jefferson S. (2024). ***ESG: uma análise sobre as dimensões que compõem o índice de investimentos ISE-B3: Brasil, Bolsa, Balcão*** (Dissertação). Programa de Pós-Graduação em Administração (PPGAdm), Universidade Estadual do Oeste do Paraná – UNIOESTE, Cascavel, PR, Brasil.

Este estudo buscou realizar uma análise dos fatores ESG (Environmental, Social and Governance) na composição do índice ISE – Índice de Sustentabilidade Empresarial, listado pela B3 (Brasil, Bolsa, Balcão), no Brasil. O corpus desta pesquisa avaliou os indicadores formadores do índice ISE, junto às cinco dimensões formadoras do ISE B3: Capital Humano, Governança Corporativa e Alta Gestão, Modelo de Negócio e Inovação, Capital Social, Meio Ambiente, além da dimensão CDP-Climate Change. A amostra da pesquisa baseou-se nas empresas participantes dos processos de seleção das carteiras de 2022 (ano base 2021), 2023 (ano base 2022) e 2024 (ano base 2023) do ISE B3. Para atingir o objetivo proposto, realizou-se uma análise quantitativa, com abordagem descritiva e exploratória, com a realização de pesquisa bibliográfica visando abranger todo tipo de pesquisa já tornada pública e que se relacionou com os temas ESG, ISE e sustentabilidade empresarial como enfoque, bem como foi realizada uma análise de conteúdo e estatística sobre o índice ISE e suas dimensões. Das análises realizadas, pode-se observar que, das 6 dimensões interpretadas como variáveis, nos últimos 3 anos, 5 dimensões apresentaram aumento de score, enquanto uma dimensão apresentou queda. Ao mesmo tempo, é importante destacar o crescimento do número de empresas que começam a fazer parte do índice ISE B3. Das matrizes de correlação analisadas, vale destacar a normalidade dos dados para a correlação de Pearson, que apresentou destaque entre as dimensões de meio ambiente e CDP-Climate Change com uma relação forte e significativa. Para validar os estudos realizados, a regressão linear gerada observou uma relação significativa entre as variáveis Capital Humano x Governança Corporativa e Alta Gestão, Capital Humano x Modelo de Negócios e Inovação, Governança Corporativa e Alta Gestão x Modelo de Negócios e Inovação e Modelo de Negócios e Inovação x Capital Social, demonstrando que essas variáveis apresentam maior efeito sinérgico entre si. Sobre o objetivo de estudo proposto, a pesquisa destaca a importância do foco em capital humano, modelo de negócios e inovação, e governança corporativa e alta gestão, pois essas dimensões possuem o maior impacto na pontuação dos scores, bem como nas relações estudadas. A compreensão das relações entre o Capital Humano e as demais variáveis é essencial para a formulação de estratégias de gestão eficazes para o alcance da sustentabilidade organizacional.

Palavras-chave: ESG; Índice de Sustentabilidade Empresarial; Sustentabilidade Empresarial;

ABSTRACT

Medeiros, Jefferson S. (2024). ***ESG: An analysis of the dimensions that make up the ISE-B3 investiment index: Brasil, Bolsa, Balcão*** (Dissertation). Post-Graduate Program in Management (PPGAdm), State University of Western Paraná – UNIOESTE, Cascavel, PR, Brazil.

This study aimed to analyze ESG (Environmental, Social, and Governance) factors in the composition of the ISE (Corporate Sustainability Index) listed by B3 (Brasil, Bolsa, Balcão) in Brazil. The research corpus evaluated the indicators comprising the ISE, including its five foundational dimensions: Human Capital, Corporate Governance and Senior Management, Business Model and Innovation, Social Capital, Environment, and the CDP-Climate Change dimension. The research sample consisted of companies selected for the 2022 (based on 2021 data), 2023 (based on 2022 data), and 2024 (based on 2023 data) ISE portfolios. To achieve the proposed objective, a quantitative analysis was conducted using descriptive and exploratory approaches, supported by a bibliographic review encompassing all publicly available research related to ESG, ISE, and corporate sustainability. Content and statistical analyses were performed on the ISE and its dimensions. From the analyses conducted, it was observed that of the 6 dimensions considered as variables, over the past 3 years, 5 dimensions showed an increase in scores, while one dimension showed a decrease. At the same time, it is important to highlight the growth in the number of companies beginning to be part of the ISE B3 index. Among the correlation matrices analyzed, the normality of the data for Pearson correlation stands out, showing a strong and significant relationship between the environmental and CDP-Climate Change dimensions. To validate the studies conducted, the generated linear regression observed a significant relationship between the variables Human Capital x Corporate Governance and Senior Management, Human Capital x Business Model and Innovation, Corporate Governance and Senior Management x Business Model and Innovation, and Business Model and Innovation x Social Capital, demonstrating that these variables exhibit greater synergistic effects among themselves. Regarding the proposed study objective, the research highlights the importance of focusing on human capital, business model and innovation, and corporate governance and senior management, as these dimensions have the greatest impact on score ratings and the studied relationships. Understanding the relationships between Human Capital and other variables is essential for formulating effective management strategies to achieve organizational sustainability.

Keywords: ESG; Corporate Sustainability Index; Corporate Sustainability;

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LIST OF ABBREVIATIONS AND ACRONYMS

B3	Brazil, Stock Exchange
CEO	Chief Executive Officer
CDP	*Carbon Disclosure Project*
DJSI	Dow Jones Sustainability Index
ESG	Environmental, Social and Governance
GRI	Global Reporting Initiative
ICO 2	Efficient Carbon Index
IEE	Energy Efficiency Index
IGCT	Trade Corporate Governance Index
IRC	Climate Resilience Index
ISE	Corporate Sustainability Index
ITAG	Differentiated Tag Along Shares Index
UNO	United Nations (Organização das Nações Unidas)
TBL	*Triple Bottom Line*
IF	Corporate Sustainability (Sustentabilidade Empresarial)
BE	Corporate Social Responsibility (Responsabilidade Social Empresarial)
SSE	*Sustainable Stock Exchanges Initiative*

SUMMARY

1 INTRODUCTION

Sustainable development is a continuous process of concern and has become one of the greatest historical and political challenges of recent years, as Leff (2007) points out, where the environmental crisis is the result of our time and the ecological risk questions the world's knowledge. In this way, its concept is based on the construction of a new paradigm, based on a collective consciousness of changing attitudes and effective actions that alter the scenario known until then.

The term sustainable development appeared as a landmark for the first time in 1972 at the United Nations Conference on the Urban Environment, the Stockholm Conference. This important milestone made it clear that the protection and improvement of human capital, as a crucial point, affected the well-being and economic development of the entire planet, and it was an urgent desire of the peoples and the duty of governments to take a different look at issues that, until then, were little explored.

Elkington (1998) even before the incorporation of ESG potential, which corresponds to the environmental, social and governance practices of an organization, there was discussion about the importance of balancing profit and the operational aspects of the business in terms of its various impacts. For the same author, the evaluation should aim to expand environmental protection and social responsibility in a broad way, without losing sight of profitability.

Cruz et al. (2023) detail that the financial market had its first impact in 1999, with the creation in the US of the DJSI – *Dow Jones Sustainability Index* – (Dow Jones Sustainability Index), the first index to evaluate the financial performance of leading companies in sustainability.

Machado et al. (2009) detail the beginning of the movement with indices of good business practices in Brazil, starting in 2001, where the first investment fund composed of companies recognized for developing good practices of social, environmental and corporate responsibility was the Ethical Fund , created by ABN AMRO BANK. These first practices did not yet actually correlate with the term ESG, but they were important milestones for the constitution of a new vision of the responsibility of companies and their businesses.

In January 2004, former UN Secretary-General Kofi Annan invited more than 50 CEOs (*Chief Executive Officers*) of large financial institutions to participate in a joint initiative to find ways to integrate ESG *(Environmental, Social and Governance*) into capital markets. The

document resulting from the collaboration of these agents prominently indicated the idea that financial decisions based on ESG factor analysis would contribute to the promotion of a more stable and predictable market (THE GLOBAL COMPACT, 2004).

With the relevance of this topic, the breadth of issues to be covered by an analysis of ESG (*Environmental, Social and Governance*) factors was recognized, defining that this would be a challenge to be solved collaboratively.

ESG then brought to the market special attention to the environmental, social and governance criteria that many investors and companies consider when evaluating a company's performance and sustainability. While there is no definitive list of the top thinkers on ESG, there are some notable experts, academics, and practitioners who have contributed significantly to the field.

Based on the new didactics that until then had begun to be discussed in the new sustainable market model, in 2005, a reference index for the Brazilian business market, the ISE (Corporate Sustainability Index), was structured by B3 (Brasil, Bolsa, Balcão) together with other entities, being the first sustainability index in Latin America.

The ISE B3 was an index created with the purpose of being a *benchmark* of companies that stand out in promoting good sustainable practices and are committed to CSR (Corporate Social Responsibility) and corporate sustainability (B3, 2023).

For Gentile (2010), the integration of sustainability in all areas and ethical decision-making, based on the recognition of the values present in the actions of the business in concomitance with society and environmental values, were ESG principles that could be recognized to leverage the theme in organizations.

In a current approach, Zadek (2021) interprets that companies that call themselves ESG have a responsibility to protect the environment with which they interact, which in fact correlates such responsibility for all their actions.

Observing the facts narrated in this text, it is evident that the ESG approach is directly linked to the existence of social, environmental, and corporate commitment, in a balanced way and with a strong emphasis on not giving in to the greedy temptations that may occur in the market. In other words, companies that practice true ESG policies are related to values that must be widely supported and disseminated, such as environmental protection, preservation and recovery, the development of society and people's quality of life, the existence, growth and profitability of businesses, which are as an engine of the real economy, with an emphasis on job and income generation.

For Zambon et al. (2023), such values give meaning and guide the involvement of companies with different social and environmental causes, and these causes are used to show how each company adheres to what is necessary to transform the current reality into an ideal reality.

The objective of the ISE is to encourage companies to adopt sustainable practices and to be more transparent in relation to their environmental, social and governance actions. The index is composed of a theoretical portfolio of shares of companies that stand out in these aspects, and is considered a reference in the Brazilian market for investors looking for companies with good sustainability practices (B3, 2023).

According to B3 (2023), the selection of companies that make up the ISE is made annually, through a rigorous evaluation process. Companies interested in participating need to complete a detailed questionnaire about their ESG practices and also provide financial and operational information. This information is analyzed by a technical commission that defines which companies meet the established criteria.

The composition and dissemination of this index propose to comparatively analyze the indicators that make up the dimensions of ISE investments, made available by B3, which generate an evaluation with final grades, which are called ISE B3 score, which coincide with the characteristics of sustainable organizations, through the ISE (corporate sustainability index).

Currently, the ISE is composed of the following dimensions: Human capital, corporate governance and senior management, business model and innovation, social capital and environment. In addition to the points listed, the index also takes into account the CDP (*Carbon Disclosure Project*.

1.1 RESEARCH PROBLEM

There is a vast literature that explores the importance of ESG practices, even conceptually, as presented by Elkington (1998), Freeman (2010), Gentile (2010), Zadek (2021), which corroborate concepts that define ESG practices and the integration between the adoption of responsible practices and engagement with stakeholders for the common good. Thus, it seeks to integrate sustainability in all areas and ethical decision-making, based on the recognition of the values present in the actions of the business in concomitance with society and environmental values.

ESG practices in organizations become visible from the moment that social, governance, and sustainability concepts have presented a new way of evaluating decision-making, with systemic thinking. For XP (2023), from this perspective, it is observed that companies that analyze this scenario and maintain good ESG practices are less at risk of facing legal and labor problems, fraud, and suffering lawsuits for impacts on the environment.

On this line of thought, it has become essential to invest in good companies in the twenty-first century, as it is something that goes beyond fundamentalist multiples, profits and revenues, debts and liabilities. Investors around the world are putting more factors in the balance when choosing good investments and one of these modern requirements is the issue of good sustainability, social and governance practices.

In a current reading of the Brazilian market, the newspaper Estadão (2023) presented the views of ESG experts, which corroborate the new moment in the economy, in which companies that performed better have strong governance pillars and take care of their employees, which brings business stability.

Also in addition, for Estadão (2023), the coronavirus pandemic has caused companies to accelerate ESG agendas, bringing a vision in which companies that invest in good practices are more resilient during times of crisis.

In Brazil, the ISE (Corporate Sustainability Index) seeks to expand the understanding of companies and groups committed to sustainability. It creates differentiations in terms of quality, level of commitment to sustainable development, equity, transparency and accountability.

For B3 (2023), the ISE takes into account the nature of the product and business performance. In this perspective, the economic-financial, social, environmental and climate change dimensions are evaluated. The ISE was developed as a tool for analyzing the sustainability of companies listed on B3.

For Gomes & Ubiratã Tortato (2011), it is believed that investment in companies that make up the ISE can encourage other companies to incorporate sustainability and social responsibility practices into their businesses, considering this an important way to assess whether Brazilian companies listed on B3 (Bolsa, Brasil, Balcão) are complying with the requirements and have been evolving in this matter.

In this way, B3 itself changed the way this index is measured in 2021, presenting a new methodology, based on the dimensions: Human capital, corporate governance and senior management, business model and innovation, social capital and environment. In addition to the points listed, the index also takes into account the CDP (*Carbon Disclosure Project*. For the

analysis of this new methodology, this study will identify the scores and dimensions in the period from January 1, 2021 to December 31, 2023, with data analyzed and disclosed based on the body responsible for the index, over a period of three years, through the ESG Workspace platform , which is published by B3 (Bolsa, Brazil, Balcony).

It is therefore considered of paramount importance to have a tool to identify these factors to support the analysis of the *scores*, creating a possibility for research to be applied in the ISE B3 and to evaluate the evolution of ESG practices among the participants of the index in the aforementioned period, using existing literature on the subject.

1.1.1 Research Question

The organizations participating in the ISE (Corporate Sustainability Index) have the practice of disseminating policies aligned with ESG (*Environmental, Social and Governance*) practices so that they can be analyzed by the market as sustainable companies with good business practices. However, comparing the dimensions of the ISE within the period from 2021 to 2023 and their *final scores* in the ISE index, is it proven that such companies are evolving in the dimensions of human capital, corporate governance and senior management, business model and innovation, social capital, environment and CDP (*Carbon Disclosure Project),* correlating such practices with ESG policies?

1.2 OBJECTIVES

1.2.1 General

To examine whether the dimensions evaluated by the ISE (Corporate Sustainability Index) correlate with the final *score* and whether its six dimensions analyzed are correlated with each other and with ESG (*Environmental, Social and Governance*) practices as announced to the Brazilian and global business market.

1.2.2 Specific

To validate the general objective of this study, the following points will be analyzed, among the specific objectives:

a. Demonstrate how the ISE selection criteria are related to the ESG practices and outcomes of the companies included in the index. This item involves a detailed analysis of the indicators and dimensions of the index.
b. Comparatively analyze the different sectors of ESG assessment. In this case, the objective is to compare different *scores* between the ESG assessment dimensions and relate similarities, differences, and limitations.
c. Identify the effectiveness of the ISE as an incentive tool for the adoption of sustainable practices by companies, so that it is possible to identify whether ESG guidelines corroborate the practices announced to the investment market.

1.3 JUSTIFICATION AND CONTRIBUTION OF TECHNICAL PRODUCTION

The expansion of knowledge and interest in ESG factors, as well as the development of studies on this topic, have presented new points of analysis for this topic and enriched this discussion in companies and society. This scenario has expanded the disclosure of reports that address environmental, social and governance perspectives, which becomes a mandatory requirement for companies listed on the Brazilian stock exchange, B3.

Guimarães (2010) analyzes the fact that becoming a reference in a segment, or being a model of good business practices, requires investment, culture change and delivery of feasible results.

This study is justified due to the importance of analyzing the correlation between the dimensions that validate and deliver the *final score* of the ISE index (Corporate Sustainability Index) of B3, as well as proving that the dimensions analyzed corroborate with the ESG (Sustainability, Social and Governance) practices as in fact such companies communicate to the investment market.

Related studies in the area, such as those already described by Silva & Callado (2017) and Chung & Chio (2018) reinforce the perception that natural resources are scarce and that business activity affects social relations between all *players*. Corporate sustainability identified at the end of the twentieth century and the beginning of the twenty-first century continues to evolve.

At the end of the twentieth century, the market began to identify sustainability indices as a way to highlight the most sustainable companies listed on the stock exchanges. Although

the fact of belonging to a specific sustainability index does not guarantee that the company is sustainable, according to Guimarães (2010).

Since the creation of sustainability indexes, SRI (Socially Responsible Investments) have become increasingly widespread and notable that the social and environmental aspects of investment have expanded the financing of companies, so that they have become increasingly important, according to Charlo et al. (2015). In this process of awareness, companies from various segments have perceived an advantage in the publication of voluntary socio-environmental reports and participation in the indices that have as their premise the SE (Corporate Sustainability) created by the stock exchanges of several countries, aiming at better long-term financial performance (Carini *et al.* 2017).

Regarding the companies participating in the ISE index, there is a universe of possible analysis for understanding and interpreting the index and its *final score*. Governance and compliance issues still seem to be less accessible to several of these companies, as the television news continuously discloses, whether in the form of complaints, scandals or cases of corporate mismanagement.

These are topics discussed and even more relevant for building a good institutional image. The sustainability and social lines, which are also part of the ESG concept, have more mature discussions and are more noticeable by these same companies, and also by a large part of the public, as they are in fact more identified on a daily basis.

The answer to this gap may guide new studies, within the line of business and organizational sustainability, in addition to helping other corporations to solve problems, or even provide support for the academic community on the relevance of relationships and ESG concepts, enabling them to evolve positively in the way they see the analysis between financial and corporate corporate responsibility points.

1.4 REPORT STRUCTURE

The present work was divided into three chapters. In Chapter 1 is the introduction, whose objective was to contextualize the reader about the content of the complete study, followed by the research problem, general objective and specific objectives, and ended by the justification and contribution of the technical production.

Chapter 2 presents the theoretical and practical references on the theme studied, being subdivided into four subsections, namely: (2.1) *Triple Bottom Line*; (2.2) *Environmental, Social*

and Governance - ESG; (2.3) Similar Experiences in Brazil and in the World; (2.4) Theory of Corporate Social Responsibility - CSR; (2.5) ESG Indices and Corporate Sustainability; (2.6) Corporate Sustainability Index (ISE).

In Chapter 3, the methodological aspects used in the study are discussed with the following subsections: (3.1) Research design; (3.2) Data Collection Procedure; (3.3) Procedures and Data Analysis; (3.4) Professional Skills Employed in the Solution of the Problem; (3.5) Limitation of Research Methods and Techniques.

From sections 4, 5 and 6, the (4) context of the project or the problem situation was defined. In chapter 5, the (5.1) Analysis of quantitative data and dimensions of the ISE-B3 was analyzed, and in chapter 6, the subsections: (6.1) Descriptive statistics; (6.2) Correlation Matrix; (6.3) Multiple Regression Analysis and (6.4) Sector Analysis and Correlations.

In the final part of the report, there are sections (7) Contributions to practice, with subsection (7.1) Contribution of the study in practice to ISE B3 and its correlation with ESG guidelines as a technical product and (8) Final considerations.

2 THEORETICAL AND PRACTICAL REFERENCES

After the introductory discussion, with the objectives and research question defined, it was necessary to discuss the conceptual and theoretical aspects, the conceptions and conjectures, in order to theoretically support the study, to analyze and expose what was previously studied.

2.1 TRIPLE BOTTOM LINE

For Elkington (1994), creator of the term *Triple Bottom Line*, sustainability is the balance between the three pillars: environmental, economic and social. The expectation that companies must progressively contribute to sustainability arises from the recognition that businesses need stable markets, and that they must possess the technological, financial and management skills necessary to enable the transition towards sustainable development.

For this concept, introduced by Elkington (1994) to measure an organization's performance beyond traditional financial metrics, he proposes that companies should evaluate their success based on three interconnected pillars: profit, people, and planet.

Imperador & Silva (2018) point out that the capitalist economic model is built on the principle of capital accumulation. Thus, the authors highlight that productive systems and the market in capitalism survive as a result of profits and that mass consumption is the engine that feeds the dynamics of this accumulation system.

This concept addressed a new concept of sustainability, which was already part of the world conferences on the environment and which then began to be translated in a more intelligible way to the competitive context of market companies. This was one of the contributions of the model known as TBL (*Triple Bottom Line).* In Figure 1, it is possible to identify the correlation of the variables that build the model and how they are interconnected within its concept.

Figure 1
Correlation *Triple bottom line*

Source: Adapted Elkington, (1994)

Based on Figure 1, Alves et al. (2014) detail that TBL is a model that contributes to guiding discussions on sustainability, making it more understandable and attractive to organizations.

In this line, TBL aims to analyze sustainability not only in the traditional metrics of profit, return on investment and generation of shareholder value, but also taking into account the inclusion of social and environmental issues in business discussions. To this end, Elkington (1994) exemplifies points that are essential in this methodology:

- Profit: This refers to the company's financial performance and profit generation. This includes traditional measures of financial success, such as revenues, costs, profits, and return on investment. However, the *triple bottom line* emphasizes that profit should not be the only goal and that companies should take into account social and environmental aspects as well.
- People: Involves social responsibility and the company's impact on people, both internally (employees, local communities and externally (customers, suppliers, society in general. This includes fair labor practices, respect for human rights, diversity and inclusion, employee safety and well-being, among other aspects related to human capital.
- Planet: Refers to the company's environmental impact and its sustainability. This covers issues such as conserving natural resources, reducing the carbon footprint, waste

management, responsible use of water, adopting renewable energies, and actions to preserve biodiversity. The goal is to minimize negative impacts and pursue sustainable business practices that promote the health and resilience of the environment.

Also for Alves et al. (2014), the *triple bottom line* recognizes that companies do not operate in isolation and that their actions have significant economic, social and environmental consequences. Therefore, the idea is that they should seek a balance between these three pillars to achieve more comprehensive and sustainable success.

2.2 ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG)

The broader discussion that has become an important milestone for the ESG (environmental, social and governance) concept was the report *Who Cares Wins, The Global Compact* (2004), where the acronym ESG appeared for the first time. Thus, for the first time, a synthesis of the set of environmental, social and corporate governance aspects of potential interest in the business sphere emerges. The first relevant mention of ESG occurred in the "*Who Cares Wins*" initiative of the United Nations Global Compact, in 2004.

The term would have taken on greater prominence when it was addressed by UN Secretary-General Kofi Annan with representatives of financial institutions. The document resulting from the collaboration of these agents prominently indicated the idea that financial decisions based on ESG factor analysis would contribute to the promotion of a more stable and predictable market (THE GLOBAL COMPACT, 2004).

Although relevant, it was recognized the breadth of issues to be covered by an analysis of ESG factors and that defining them would be a challenge to be solved collaboratively. The objective was the selection of analysis parameters capable of effectively verifying sustainable practices in a company. In this scenario, the Who *Cares Wins report* (2004) presented a preliminary set of examples of ESG issues that would have an impact on the corporate world.

The economic results of a company, whether they are the increase in its profit or its insertion and expansion in different markets, depend on internal management factors and favorable conditions provided by the environment in which they operate (XP, 2023).

The way it is managed is not restricted to strategies to increase production, reduce costs or innovate goods and services, but also determines the institutional image that will be presented to shareholders, consumers and any third party related to the company's activities.

For Zambon et al. (2023), the institutional image is an element that has been acquiring greater relevance for investors who aim for businesses with more moderate risks and for consumers interested in relationships with companies committed to sustainability.

An exemplary case in this regard is the publication *Model Guidance on Reporting* ESG *Information to Investors – a Voluntary Tool for Stock Exchanges to Guide Issuers* (Sse, 2015). It is a practical guide to support Stock Exchanges in incorporating information on ESG aspects into their products and policies with their audiences, especially issuing companies and investors. This publication uses the term ESG as equivalent to *Corporate Sustainability*.
Chart 1 shows the three dimensions – Environmental, Social, and Corporate Governance – that affect the value of the company and the investment in ESG, with important points for analysis and implementation of the process.

Table 01
ESG issues affecting company and investment value

Dimension	ESG issues
Environmental	• Climate change and related risks; • The need to reduce emissions and toxic waste; • New regulation, expanding the limits of environmental liability with regard to products and services; • Increased pressure from civil society for better performance, transparency and accountability, leading to reputational risks if not managed correctly; and
Social	• Health and safety in the workplace; • Community relations; • Human rights issues in the company and in the facilities of its suppliers and other contracted third parties; and • Relations with the government and the community in the context of operations in developing countries.
Corporate Governance	• Structure of the management board and accountability mechanisms; • Accounting and information disclosure procedures; • Structure of the audit committee and independence of auditors; • Executive compensation; and • Management of corruption and bribery issues.

Source**:** *Table Exhibit 6 Who Cares Wins: Connecting Financial Markets to a Changing World*, (2004)

With the dimensions listed in Chart 1 of *Who Cares Wins*, the debates that took place in 2004 had a positive impact on the financial market regarding the importance of sustainability for a business. In October 2005, another relevant document related to ESG was published by UNEP FI - *United Nations Environment Programme Finance Initiative*, in partnership with the FBD - *Freshfields Bruckhaus Deringer* office. The purpose of the work was to verify whether

the integration of ESG initiatives into investment policies would be voluntarily authorized, legally required or hindered by law and regulation (UNEP FI, 2005).

The scope of this publication was restricted to the analysis of public and private pension funds, as well as insurance companies and mutual funds. In conclusion, it pointed out that the integration of ESG considerations for a more reliable investment analysis of financial performance would be clearly allowed and indisputably required in all jurisdictions (UNEP FI, 2005).

The joint report between UNEP FI and *Freshfields* also presented complementary information on what would be ESG issues. Based on a definition presented by the *Enhanced Analytics Initiative*, the document points out that ESG issues would have one or more of the following characteristics: **a)** are the focus of public concern, **b)** are qualitative data and not easily quantified in monetary terms; **c)** reflect externalities which are not properly captured by market mechanisms; **d)** are often the focus of restrictive policies and regulatory frameworks; or **e)** arise throughout a company's chain of operations (UNEP FI, 2005).

The growing concern with environmental, social and governance aspects has given rise to different initiatives by public agencies, non-governmental organizations and private institutions during the last two decades. The desire to list the main ESG issues, define metrics for the analysis of sustainable practices, and propose parameters for the disclosure of results and corporate policies generated a scenario with ample information, but with a lack of standardization at a global level.

2.3 SIMILAR EXPERIENCES IN BRAZIL AND AROUND THE WORLD

In recent decades, investors around the world have increasingly engaged with the concept of "responsible investing," driven by growing awareness of issues such as climate change, gender diversity, and the impact of plastic use on the environment.

As reported by *Mercer Investment Consulting* (2017), the acronym ESG has characteristics with issues traditionally considered non-financial and non-material involved, medium and long-term returns, qualitative objectives that are not quantifiable in monetary terms, and externalities that are not well captured by market mechanisms.

Although discussions about ESG principles have recently gained notoriety in Brazil, when we look around the world, it is evident that the consideration of ESG factors at a global

level has had a reach and heated discussions for some years and, more importantly, that it is not a passing trend, but a new reality.

In an analysis visualized in figure 2, by the Google Trends tool (2023), the growth of research on the term ESG around the world is observed, mainly from the year 2020. This information demonstrates the relevance of the term in what has been consolidated in our daily lives. Another research that actually guides the search for more knowledge on the subject is the comparison carried out in the same tool, google trends, on the terms "sustainable organizations" and "sustainability in business".

Figure 2
Growth in the number of searches for the term "ESG" – Worldwide

Source: Google Trends, (2023)

Contributing to the fact identified in Figure 2, where the term ESG has had an impactful growth in web searches in recent years, it can be seen that the importance of the topic has become increasingly evident in the current global situation.

Boersch (2010) analyzes how socially responsible investments have evolved from an approach that evaluated investments and now also measure their ethical values, which considers the impact of long-term changes in the business environment on companies and on their share price.

The current scale of ESG investing is also another indication. In 2016, about nine thousand companies reported data regarding these criteria, compared to only twenty companies in the early 1990s. In 2023, the MSCI ESG *Ratings index* monitored more than 16,000 companies in 46 countries.

For Amel-Zadeh & Serafeim (2018), responsible investments that seek to expand the incorporation of ESG issues in investment analysis reached the adhesion of about 1,400 managers in 2016, responsible for assets of about US$ 60 trillion.

Mayor (2019) details that recent scenarios, such as the positioning of *BlackRock*, the world's largest asset manager, in favor of sustainable investments and the commitment made by 181 CEOs to run their companies for the benefit of all *stakeholders* also attest to the current importance of the topic.

This growing interest in ESG has rapidly transformed the investment industry and had two main and complementary effects. Chart 2 lists the effects of ESG practices on the business market.

Table 2
Effects of ESG practices

Cause	Effect
1	Moving ESG-concerned investors to portfolios that are aligned with its principles
2	Movement of companies in the adoption of ESG practices

Source: Prepared by the author (2024).

Bringing the effects of chart 2 to a reality scenario, from the point of view of companies, there is no doubt that there is still much to be done so that medium and long-term results in terms of sustainability in their actions are achieved. This same framework reflects a change in culture necessary for these practices to work.

However, it is observed that the growing focus on environmental, social, and governance issues by investors, as well as by society in general, has already had effects on the behavior of companies, either because they are in fact aligned with ESG principles or simply because they recognize that to attract capital this is an increasingly essential factor (XP, 2023).

For the Global Compact (2023), the concern with environmental, social, and governance aspects has gained more and more visibility in the market and in society, especially when identifying the number of stock exchanges around the world that have actively implemented the disclosure of ESG parameters as a requirement for listing shares.

A study conducted by *Luvi One* (2022) identified that the number of companies with ESG goals listed on B3 increased by 29%. In the previous year, the survey had found that 37% of listed companies had a goal of reducing environmental impact. Another point of attention is that there was a 35% increase in the number of companies that present a sustainability report compared to the previous year.

In analysis by the S&0 500 (2016), the American stock exchange, for example, does not have this disclosure as mandatory, however, when we analyze the participation of companies that have sustainability reports in the index, this percentage evolved from only 20% in 2011 to 90% in 2019. Contributing to this scenario, Brazil is a country in evidence for such ESG practices, given its importance and the beginning of the constitution for sustainable development.

Also for *Luvi One* (2022), Europe has been a leading region in the development and implementation of ESG initiatives, where several sustainability indices are identified that incorporate ESG criteria in their company selection methodologies. The EU (European Union) has played a significant role in advancing ESG practices in the region.

The EU Sustainability Action Plan, adopted in 2020, sets out a number of measures to integrate ESG considerations into the financial sector, including the taxonomy for sustainable activities and the disclosure of climate-related financial information.

For the Global Compact (2023), there is an ESG integration in corporate strategies, a movement widely seen in the European Union by corporations. These companies are setting carbon emission reduction targets, implementing diversity and inclusion policies, strengthening corporate governance practices, and adopting measures to improve the management of natural resources.

A fact that draws attention is that different *rating* companies tend to rate companies differently. Berg et al, (2020), analyzed six ESG rating companies, with a common base of 924 companies and in this analysis, they identified that there is an average correlation between the evaluations issued of only 54%, with this correlation being even lower in the governance dimension (30%).

Berg et al. (2020) also verified three sources of divergence. For example, the scope of the work, when *the rating* companies take into account different ESG attributes, they also analyze the weighting, when a certain attribute receives different weights depending on the rating agency and finally, the analysis measure, when a certain attribute is evaluated according to different indexes.

In this way, the market identifies the importance of adhering to the composition of the ISE index in Brazil, given its ESG potential, which is still under construction. The world scenarios bring and disseminate their good business practices, as a contribution to the construction of better paradigms in the analysis of this world scenario.

For Amel-Zadeh & Serafeim (2018), there is favorable evidence that ESG criteria and sustainable indices are associated with greater consumer loyalty and systemic risk mitigation, which is reflected in lower cost of capital for companies with best practices.

2.4 CORPORATE SOCIAL RESPONSIBILITY (RSE) THEORY

The theoretical concept of social responsibility originated in the 1950s, when formal literature on CSR (corporate social responsibility) appeared in the United States and Europe.

For Carroll (1999), social responsibility is a practice of companies adopting voluntary actions that contribute to the social, economic and environmental development of the community in which they operate. It is an approach in which companies take responsibility not only for their financial results, but also for the impact that their activities cause on society and the environment.

The CSR theme was highlighted in the context of organizational studies, with concepts from Wood (1991) and Carroll (1999). Revealed as a relevant attribute for business reputation, the adoption of a socially responsible attitude has become one of the focuses of attention of contemporary business activities, as highlighted by Aguilera et al. (2017) and Jamali & Karam (2018).

The concern of researchers in that decade was with the excessive autonomy of businesses and their power in society, without due responsibility for the negative consequences of their activities, such as environmental degradation, labor exploitation, economic abuse, and unfair competition. To compensate for the negative impacts of the companies' performance, entrepreneurs have engaged in social activities to benefit the community, outside the scope of the companies' business, as a moral obligation.

Sengel (1990) states that he avoids using the word sustainability, or uses it in a moderate way, because it is such a generic term that people perceive it as an ideal to be achieved. In his reading, he involves rhetoric and controversies that do not create an environment conducive to innovation and the search for solutions.

Initiatives that highlight the main activity and others related to CSR require companies to make commitments to carry out actions that generate benefits for society and, with the same commitment, to practice transparent relationships with *stakeholders*, following assumptions that guide good corporate governance practices in line with moral values and ethical attitude.

For Srour (2000), a socially responsible company is one that is willing to accept the consequences of its actions and has a sense of obligation both to its internal public, whether they are workers, and to the external community. The evolution of the concept of social responsibility is different, as its origin is in ethical issues involving the relationship between companies and society and in corporate philanthropy.

Corporate Social Responsibility refers to the voluntary commitment of companies to adopt practices and policies that consider the social, environmental, and economic impacts of their activities. It is an approach where companies consider not only their financial interests but also the well-being of stakeholders, including employees, customers, suppliers, local communities, and the environment.

For Ashley (2002), CSR involves a series of actions that go beyond compliance with legal and regulatory obligations. It includes the promotion of environmental sustainability, respect for human rights, the improvement of working conditions, community engagement, the promotion of diversity and inclusion, support for social and cultural initiatives, among other aspects.

Companies that adopt CSR seek to balance short-term interests, such as maximizing profits, with the long-term impacts of their activities. By considering social and environmental aspects, they recognize that their operations can have significant effects on the communities in which they operate and the environment in general.

For Ashley (2002), the concept of corporate social responsibility is constantly evolving, to improve paradigms. In figure 3, Wartick and Cochran (1985) promote ideation on the principles, processes, and policies that guide the CSR (Corporate Social Responsibility) models and detail which audiences each one is interacting with.

Figure 3
Corporate Social Responsibility Models

PRINCÍPIOS	PROCESSOS	POLÍTICA
Responsabilidade Social Empresarial 1. Econômica 2. Legal 3. Ética 4. Discricionária	Responsividade Social 1. Reativa 2. Defensiva 3. Acomodativa 4. Pró-ativa	Gestão dos Aspectos Sociais 1. Identificação dos Aspectos 2. Análise dos Aspectos 3. Desenvolvimento da resposta
Dirigido ao: 1. Contrato social do negócio 2. Negócio como um agente moral	Dirigido à: 1. Capacidade de resposta a alterações das condições sociais; 2. Abordagens de gestão para desenvolvimento de respostas.	Dirigido à: 1. Minimização de surpresas 2. Determinação das políticas efetivas de RSE
Orientação filosófica	Orientação institucional	Orientação organizacional

Source: Wartick and Cochran (1985)

As shown in Figure 3, Wartick and Cochran (1985) present the origin and nature of the dimensions of CSR. The principles of social responsibility reflect a philosophical orientation, since it is a fact that the identification of social causes and problems infers a placement of rational and logical meanings. The social response processes reflect an institutional orientation, in which there is a need to know the environment and the needs of the company's surroundings in order to achieve its response. Within the same perception, the policies for the management of social aspects reflect an organizational orientation, in which the administration of social resources takes place within the company.

Carrol (1999) proposed a model with four dimensions: economic, legal, ethical and discretionary. The economic responsibility lies in the fact that organizations have to be productive and profitable. Legal liability involves the expectations that companies comply with obligations under the law.

Also, for Borger (2001), the sustainability model is a new way of doing business, which assumes of the new role of the company in society. Sustainability and social responsibility bring to the business model the long-term perspective, the systematic inclusion of the vision and demands of stakeholders, and the transition to a model in which principles, ethics and transparency precede the implementation of processes, products and services.

Ethical responsibility corresponds to the fact that organizations adopt appropriate behavior in accordance with society's expectations. Discretionary, or philanthropic, responsibility, on the other hand, is in the common desire among companies to get involved in improving the social environment, according to Machado Filho (2020) and the study by Pereira

et al. (2020). Over the years, definitions of CSR have been intensified. Some of them are shown in Chart 3.

Table 3
Corporate Social Responsibility Models

Social Responsibility Models	
World Bank	Corporate social responsibility is the commitment of companies to contribute to sustainable economic development by working with employees, their families, the local community and society as a whole in order to improve their lives in ways that are good for business and development.
Ethos Institute	Corporate social responsibility is the form of management that is defined by the ethical and transparent relationship of the company with all the audiences with which it relates, and by the establishment of business goals compatible with the sustainable development of society, preserving environmental and cultural resources for future generations, respecting diversity and promoting the reduction of social inequalities.
ISO 26000	Responsibility of an organization for the impacts of its decisions and activities on society and the environment, through ethical and transparent behavior that contributes to sustainable development, including the health and well-being of society, that takes into account the expectations of stakeholders, that complies with applicable legislation and is consistent with international standards of behavior, is integrated throughout the organization and is practiced in its relationships.

Source: Pinheiro et al. (2019)

As discussed in chart 3, there are still topics to be debated within this sphere. Some of the practices that have the lowest adherence according to the Ethos Institute (2020) are related, for example, to education for conscious consumption, preparation of a social balance sheet with the involvement of stakeholders, support for socio-environmental projects and the inclusion of the local community among its suppliers, and management with a board of directors. In addition, there is a low rate of formalization of practices at the strategic and political level.

For Pinheiro et al. (2019), it is important to highlight that CSR should not be seen only as a marketing or public relations strategy. For it to be effective, it needs to be genuine and embedded in the company's values and daily practices, from top management to all organizational levels.

Thus, the company becomes an important agent of transformation and change, by being concerned with the well-being and quality of life of everyone who relates to its business.

Between employees, customers, suppliers and the general public, CSR helps to reduce negative impacts, whether on the environment or on the community.

2.5 ESG INDICES AND CORPORATE SUSTAINABILITY

The search for sustainable companies, which generate shareholder value in the long term through socially responsible investments, has promoted the creation of stock indices to point out companies that incorporate the concepts of sustainability in several countries (Silva & Quelhas, 2006).

The discussion about the importance of sustainable actions practiced by organizations is remarkable. The financial market has reacted to these movements, seeking to create indices that are capable of expressing actions and initiatives of this nature. (Cavalcante et al. 2008).

Souza et al. (2010) list the main sustainability indicators that exist globally:

- Sustainability Indicators GRI (*Global Reporting Initiative),* created in 1997, which consists of a report for corporate sustainability, formed by a consensus of guidelines, with the aim of increasing the quality, rigor and usefulness of information concerning corporate sustainability. It was developed jointly by CERES (*Coalition for Environmentally Responsible Economies)* and the UNEP (*Unites Nations Environment Programme)* programme. They are used to measure organizational performance in relation to laws, standards, codes and voluntary initiatives, related to the commitment to sustainable development. It is characterized by the development and promotion of a standardized approach to communication to stimulate the search for information related to sustainability, benefiting organizations that make use of similar reports.

- ETHOS Indicators of Corporate Social Responsibility: Developed in 2000 to analyze and manage the social and environmental impacts arising from organizational activities. Its mission is to contribute to internalizing values and practices in the management culture and management processes, thus fostering a fair and sustainable society (Souza et al. 2010).

There are a multitude of indexes on the market, each with its own selection criteria. However, a novelty in this environment are the indices that include limited liability companies

with social, environmental, and corporate governance responsibility, known as ESG *Index*. As ESG has become one of the top trends in markets around the world, it is essential to understand how an ESG index works.

A few years ago, there was no certainty about the profitability of sustainable companies. Today, however, sustainability has gained more space among large companies. There is a new field of vision, where it is perceived that, in addition to enabling a better future with more equal opportunities, sustainable attitudes have numerous long-term benefits. ESG indices are proof of this.

For El Ghoul et al. (2016), in the case of studies conducted in emerging countries, such as Brazil, the results found in the literature are particularly positive. This result is in line with findings that argue that social responsibility initiatives are particularly advantageous in countries with weak market institutions, facilitating greater access to finance for firms with better practices.

For B3 (2023), in general, the ESG *Index* are indicators that seek to measure the performance of sustainable companies in the market. Internationally, some of the main ESG *indexes* listed are:

- *Dow Jones Sustainability Indices* (DJSI): The DJSI indices, developed in partnership with *S&P Dow Jones* Indices, assess the sustainability performance of companies. They cover different regions such as DJSI *World*, DJSI *Europe*, DJSI *North America*, among others.

- FTSE4Good *Index* Series: The FTSE4Good indices, created by FTSE Russell, are designed to identify companies that demonstrate sound ESG practices. They cover multiple markets, including the *FTSE4Good Global Index* and the FTSE4Good *Emerging Index*.

- MSCI ESG Indexes: MSCI is a leading provider of ESG indices and offers a variety of indices that measure the performance of companies based on ESG criteria. Some examples include the MSCI *World* ESG Leaders *Index*, MSCI ACWI ESG *Universal Index*, and MSCI *Emerging Markets* ESG *Leaders Index*.

- S&P ESG Indices: S&P *Dow Jones Indices* offers a wide range of ESG indices, including the S&P 500 ESG *Index*, S&P *Global* 1200 *ESG Index*, and S&P *Europe* 350

ESG *Index*, which take into account environmental, social, and governance factors.

- NASDAQ *Sustainable Bond Network* (NSBN): The NSBN is an index that tracks the performance of sustainable and ESG-linked bonds. It provides information on green, social, and sustainable bond issuances.

- STOXX ESG Indices: STOXX, an index provider of the *Deutsche Börse Group*, offers a variety of ESG indices, such as the STOXX Global ESG Leaders Index, STOXX *Europe* 600 ESG-X *Index*, and STOXX USA 500 ESG-X *Index.*

According to B3 (2023), the Brazilian Stock Exchange currently has 70 indexes, of which eight belong to the ESG theme, namely:

- Corporate Sustainability Index (ISE): It is B3's main ESG index, composed of companies that stand out in sustainability and social responsibility practices. The selection of companies is based on a series of criteria, including corporate governance, environmental and social practices, and relationships with *stakeholders*.

- Carbon Efficient Index (ICO2): This index seeks to measure the performance of companies in relation to the management of greenhouse gas emissions. The selected companies are evaluated based on their emissions inventories and their actions to reduce environmental impact.

- Trade Corporate Governance Index (IGCT): This index is focused on corporate governance and corporate transparency. It is composed of companies that adopt better governance practices and are more transparent in their financial and corporate disclosures.

- Differentiated Tag *Along Stock Index* (ITAG): This index aims to identify companies that offer greater protection to minority shareholders, through the *Tag Along mechanism*, which guarantees minority shareholders the right to sell their shares under the same conditions as the controlling shareholders.

In addition to these indexes, B3 is also working on the development of other ESG indicators, such as the IEE (Energy Efficiency Index) IRC (Climate Resilience Index),

which aim to measure the performance of companies in relation to energy efficiency and adaptation to climate change, respectively. It is important to note that these B3 ESG indices are updated periodically, reflecting the evolution of sustainability and corporate responsibility practices and criteria.

2.6 CORPORATE SUSTAINABILITY INDEXES-ISE-B3

According to B3 (2023), ISE B3 is the result of a theoretical portfolio of assets, prepared according to the criteria established in this methodology. B3 indices use procedures and rules contained in the B3 Indices Definitions and Procedures Manual.

The objective of the corporate sustainability index is to be the indicator of the average performance of the asset prices of companies selected for their recognized commitment to corporate sustainability. In this context, it becomes an important tool to support investors in investment decision-making and help induce companies to adopt the best sustainability practices, since ESG practices.

The ISE (Corporate Sustainability Index) is an indicator used in the financial market to evaluate the performance of companies in relation to sustainability and socio-environmental responsibility. The index was created in 2005 by B3, the Brazilian stock exchange, in partnership with *the* GRI *(Global Reporting Initiative)*, which is an international organization that promotes the preparation of sustainability reports.

The criteria for inclusion in the ISE are based on different aspects of sustainability, such as corporate governance, socio-environmental management, climate change, sustainable use of natural resources, social justice and transparency. The selected companies are weighted according to their liquidity and market value, and the composition of the index is reassessed annually.

For B3 (2023), in addition to serving as a reference for investors, the ISE also promotes the exchange of information and the sharing of good practices among participating companies. Through the ISE, companies have the opportunity to be recognized for their sustainable actions and become a reference in their sectors.

In summary, the ISE is an indicator that evaluates the performance of Brazilian companies in relation to sustainability and socio-environmental responsibility. It aims to encourage the adoption of sustainable practices, promote transparency, and serve as a reference for investors looking for companies committed to sustainability.

The acculturation process of talking about ESG was a pioneering initiative in Latin America, which in fact is demonstrated by the fact that the ISE itself, the fourth sustainability index in the world, created by B3 in 2005, with initial funding by the IFC *(International Finance Corporation*), the financial arm of the World Bank. According to B3 (2023), the index management process has the technical support of ABC Associados, third-party assurance from KPMG and a partnership for media monitoring by *RepRisk.*

The ISE B3 is composed of shares and *units* exclusively of shares of companies listed on B3 that meet the inclusion criteria described below. Assets of companies under judicial or extrajudicial reorganization, special regime of temporary administration, intervention or that are traded in any other special listing situation are not included in this universe.

For B3 (2023) it is essential to coordinate organizations in choosing best corporate sustainability practices, for this it is necessary to evaluate principles. The first of them shows transparency, with regard to the ISE process and the organizations' responses to the questionnaire. The second is related to the communication of companies and society, in the conception of fostering the relationship with these elements in order to prove the representativeness and usefulness of the ISE according to the expectations about organizational sustainability.

The third point is pertinent to the constant improvement of the process, idealized as the annual update of the ISE questionnaire, so that it is established with academic research and processes in which there is interaction with the state of the art of knowledge in sustainability with the desires of society. The last point aims at the financial, methodological and decision-making issues of the company in order to provide a report and information with credibility.

The objective of the Corporate Sustainability Index is to be the indicator of the average performance of the asset prices of companies selected for their recognized commitment to corporate sustainability. For B3 (2023), supporting investors in investment decision-making and inducing companies to adopt the best sustainability practices contribute, since ESG practices are of paramount importance for the continuity of business.

Table 4 shows the main points of the current ISE methodology, which are central points for inclusion in B3 and participation in the ISE index.

Table 4
Current methodology of the ISE – B3

Annual Methodology – ISE B3

Item	Consideration
1	The licenses have a duration of 1 (one year, starting on the first Monday of January.
2	The assets of the ISE are weighted by the market value of the "*free float*" (assets that are in circulation of the type belonging to the portfolio.
3	The participation of an economic sector in the ISE cannot exceed 15% – in this case, adjustments are made to adjust the weight of the assets of the companies in this sector to this limit, redistributing the surplus proportionally to the other assets in the portfolio

Source: B3 (2023)

The methodology described in table 4 has the ISE B3 portfolio as a recent validity from December 1, 2021 and is in force from January 3, 2022 to December 30, 2024. In addition to table 4, table 5 describes the central criteria that become mandatory for participation in the ISE, where the factual points of the index are analyzed.

Table 5
Criteria for participation in the corporate sustainability index (ISE-B3)

Criteria for participation in the corporate sustainability index (ISE-B3)	
Criterion	**Item analyzed**
1	Be among the eligible assets that, in the period of validity of the 3 (three previous portfolios, in descending order of Negotiability Index (IN), occupy the top 200 positions.
2	Have a trading session presence of 50% (fifty percent) in the period of validity of the 3 (three previous portfolios.
3	Not be classified as "*Penny Stock*".
4	Be an asset issued by a company that cumulatively meets the following sustainability criteria an ISE B3 Score equal to or greater than the general cut-off score applicable to each annual selection cycle (see Appendix, and also ISE B3 Guidelines; b ISE B3 questionnaire theme score greater than or equal to 0.01 points (see ISE B3 Guidelines; c Minimum qualitative score of 70 percentage points (see ISE B3 Guidelines; d Reputational risk index (*RepRisk Index – Peak RRI* equal to or less than 50 points (see ISE B3 Guidelines; and CDP-Climate *Change Score* equal to or greater than "C"; f Positive response to questionnaire questions classified as minimum requirements for the sector (see ISE B3 Guidelines.

5	Once a company's asset meets the above inclusion criteria, only the type of its issuance with the highest Marketability Index (NI) will participate in the index portfolio.
6	Updates to the values related to the criteria indicated in items (d and (e of item 4.4 (CDP-Climate *Change Score* and *RepRisk Index – Peak RRI* will be considered at each quarterly balancing, and may result in the inclusion of assets that start to meet them

Source: B3 (2023)

Based on the information described in chart 5, companies interested in joining the index should prepare in advance so that they can build well-designed participation criteria and comply with these regulations. Another observation pointed out is that the process becomes of paramount importance and takes a relative amount of time for final adhesion to the index.

In addition to these points, in table 6, there are also points that exemplify how companies are excluded in the Corporate Sustainability Index, and which items are analyzed for general validation of participation.

Table 6
Exclusion criteria in the Corporate Sustainability Index (ISE-B3)

Exclusion criteria in the Corporate Sustainability Index (ISE-B3)	
Criterion	**Item analyzed**
1	Fail to meet any of the inclusion criteria indicated above, including on the occasion of the quarterly balancing of the portfolio, when any updates to the values referring to items (d and (e of item 4.4 (Score CDP-Climate *Change and RepRisk Index- Peak* RRI;
2	During the term of the portfolio, they will be listed in a special situation. These assets will be deleted at the end of their first trading day in this framework;
3	During the term of the portfolio, they are involved in incidents that make them incompatible with the objectives of ISE B3, according to criteria established in the risk management policy. To monitor these incidents, B3 also uses the services of *RepRisk* – an international provider of massive collection and analysis of public information available online on environmental, social and corporate governance risks. If there is a risk incident involving a portfolio company, B3 examines the case, assessing its possible impact on the company involved and the appropriate measures, as established in the ISE B3 risk management policy. These measures may lead to the exclusion of the company from the index portfolio. The company that is excluded for this reason will not be able to integrate the index portfolio for the following 2 (two years, counted from the first balancing after its exclusion. At the discretion of B3, and upon request of the company supported by evidence of improvement in the management of its risks, this period may be reduced to 1 (one year).

Source: B3 (2023)

In other words, according to Chart 6, for companies to remain within the ISE-B3 methodology, it is of paramount importance that they identify which points are necessary to maintain their brands, within the portfolio of companies practicing ESG principles.

2.6.1 Corporate sustainability index methodology and weighting criteria

According to the methodology applied by B3 (2023), in the ISE B3 portfolio, assets are weighted by the ISE B3 Score, with a participation limit based on the market value of the "*free float*", which are assets that are in circulation of the type belonging to the portfolio.

The representativeness of an asset in the index, when periodically balanced, may not exceed three (3) times the participation that the asset would have if the portfolio were weighted by the representativeness of the asset's free float market value.

The participation of a company in the ISE B3 may not exceed 10% (ten percent), when it is included or in the periodic balancing. If this occurs, adjustments will be made to adjust the weight of the companies' assets to this limit, redistributing the surplus proportionally to the other assets in the portfolio.

The cutoff score used in the selection of assets will be calculated according to the following (Equation 1):

Equation 1: CutOff Score = max [(∑ ISEB3i Score k i=1 k − σ 0 ; ∑ ((∑ ISEB3i Score k i=1 k − σ t t i=1 t] (1

where:

ISEB3i Score = ISEB3 Score of the company in cycle i
k = number of companies responding to cycle i
σ 0 = standard deviation of the ISEB3 Score of the responding companies in the current cycle (i = 0
σ t = standard deviation of the ISEB3 Score of the responding companies in previous cycles
t= number of previous cycles (three in relation to the current cycle

According to B3 (2023), the selection process for the ISE B3 portfolio takes place through the following steps:

- Quantitative evaluation: it is the calculation of the total points obtained by each company participating in the process, resulting in the *base score* of these companies. This *score* is composed of the result of filling out the ISE B3 questionnaire, weighted together with the result of the company's performance in CDP-Climate *Change.*

- Qualitative evaluation: occurs through the analysis of documents submitted by the participating companies to evidence their answers to the questionnaire.

- ISE B3 *Score Calculation*: it is the application of a calculation on the performance of each quarterly balancing, and is considered a new portfolio. Quantitative and qualitative evaluations are carried out to mitigate distortions in the evaluation of companies that may not have followed the guidance of being rigorous and conservative in their answers to the questionnaire.

- Compilation of the *RepRisk Index – Peak RRI*: It is a reputational risk metric in ESG (environmental, social and governance) aspects, produced by the *company RepRisk* and used to evaluate companies from this perspective. This index ranges from 0 to 100 and is considered its highest daily value in the 24 months prior to the month prior to the beginning of the portfolio.

- Application of the inclusion criteria: they are applied to select which companies participate in the process that meet the six conditions provided for in the ISE B3 methodology: (i minimum score in the ISE B3 score; (II minimum score in quantitative performance by questionnaire theme; (iii minimum score in the qualitative evaluation of the evidence; (IV Minimum grade in *CDP score*; (V cut-off score in *RepRisk Index* and compliance with the minimum requirements applicable to the sector of each participating company.

3 METHOD AND TECHNIQUES OF TECHNICAL PRODUCTION RESEARCH

In this chapter, the methodological procedures adopted in the realization of this research and the procedures for data collection and analysis are presented. Thus, the structure of this chapter is divided into (3.1) research design, (3.2) data collection procedures, (3.3) data analysis procedures and (3.4) limitations of the established methods and techniques.

The data used to build this survey were published by B3, as of January 28, 2022, and are used to select companies for the ISE B3 portfolio.

3.1 RESEARCH DESIGN

The present research is quantitative, descriptive and exploratory, with a theoretical approach, based on secondary data. Quantitative research aims to defend the quantitative method as sufficient, explaining the social reality of the objectivity of study. For Minayo (2001), the positivist paradigm performs objective social analysis carried out by standardized, allegedly neutral instruments.

According to Creswell (2010), quantitative research serves as a means to test objective theories by examining the relationship between variables. By measuring these variables by instruments used for this purpose, the numerical data can be analyzed by statistical procedures

For Trivinõs (1987), descriptive research requires from the investigator a series of information about what he wants to research. In this study model, it is intended to describe the facts and phenomena of a given reality.

Minayo (2001) points out that the exploratory phase of research is so important that it can be considered exploratory research, as it comprises the stage of choosing the topic of investigation, delimiting the conceptual theoretical framework, the instruments for data collection and field exploration. Thus, this research will be conducted through a literature review and an exploratory study that contemplates the elements of the study.

Chart 7 shows the entire methodological matrix that makes up the work with its delimitation.

Table 7
Methodological Matrix

Item	Description

Nature of the research	Quantitative
Methodological approach	Descriptive and exploratory
Paradigm	Positivist
Method	Documentary and Bibliographic Research
Unit of analysis	ISE B3 – Score and dimensions
Data collection procedure	Content Analysis and Statistics
Data collection instrument	ESG *Workspace Platform* – 2021/2022
Data analysis	*Software Excel – Software Jamovi*

Source: Made by the author

Also evaluating table 7 of the methodological matrix, Cellard (2008) highlights the documentary and bibliographic research, where, aA researcher or author who wishes to undertake a documentary and/or bibliographic research, must do so with the objective of constituting a *corpus* satisfying, so that you have exhausted all the clues capable of providing you with interesting information.

For Bardin (2011), content analysis is developed in three main phases: pre-analysis, analysis and exploration. In the pre-analysis, the researcher defines the object of study, the objectives of the research and the analysis techniques to be used. In the analysis, the researcher codifies the research material according to the previously defined categories and finally in the exploration, the researcher interprets the results of the analysis and relates them to the context of the research.

To complement this, the perspective of statistical analysis was addressed, which according to Milone (2006) is the way of obtaining, collecting, organizing, processing and analyzing relevant information that allows quantifying, qualifying or ordering entities, collections, phenomena or populations in such a way that it can be concluded, deduced or predicted properties, events or future states.

3.2 DATA COLLECTION PROCEDURES

The data collected for the analysis of this survey is sourced from the ESG *Workspace platform* – from B3, which released data from the 73 companies participating in the ranking in 2021, 83 participants in 2022 and 96 companies participating in 2023. These companies are defined by their placement in the final ranking, with the final attribute of analysis being the *score*. The data structure is presented in this study, at the end of the work, in the form of

appendices, as follows: (1) Corporate Name, (2) Sector, (3) Ranking, (4) Portfolio and (5) *ISE Score*.

These data present 6 dimensions that were formed by 2233 questions answered by all companies participating in the ISE B3 index – in the period 2021-2022-2023, forming the base years 2022, 2023 and 2024 of the index. The collection data were extracted from the database in January 2024, after the closing of the general index of the ISE B3, with the disclosure of B3, Brasil, Bolsa, Balcão.

The databases were tabulated for evaluation in the Excel® software, to identify the *score* of the companies that consolidated their participation in the ISE B3 index, 2021 and 2022 and 2023 and then verified in the *Jamovi*® software.

After this stage, the final *scores* and the *scores* of the dimensions were evaluated . With the results found, sequential steps were set out to clarify the metrics used and help understand the influence of a view of ESG practices and correlate with their participation in the ISE B3 index.

For this work, the preparation and collection of data were fundamental pillars for the construction of the general and specific objectives of this work. More than methodological steps, these processes represent the bridge between your research questioning and the answers necessary for a good understanding of this production.

3.3 PROCEDURES AND DATA ANALYSIS

Bardin (2011) states that the analytical description presents the probable applications of content analysis as a method of categories that allows the classification of the components of the meaning of the message in kind of drawers. Also, for the same author, the content analysis method was used to organize the data and analyze the results obtained, based on categories identified through the theoretical framework collected and the documentary research carried out.

Based on Bardin's (2004) explanations, scientific articles, reports from companies and associations that provide auditing services and promote ESG performance classification with the ISE, B3 were analyzed to support such analyses. This knowledge was generated based on several points analyzed in the statistical correlation of the results presented. In chart 8, it is possible to identify characteristics and requirements that positioned this study for the construction of the required analysis.

Table 8
Characteristics of a good research question

Characteristic	Requirements
Feasible	- Adequate number of subjects - Technical mastery - Feasible in time and cost - Manageable scope
Interesting	- For the researcher
New (Innovative	- Confirms or refutes previous findings - Expands on previous findings
Relevant	- For scientific knowledge - For future research directions

Source: Hulley et al, (2003)

Based on chart 8 by Hulley et al. (2003), the object of study is the analysis of the annual ISE B3 newsletter, which analyzes companies that have a good historical performance and how their ESG practices correlate with the dimensions of the final *score*. Based on the characteristics of chart 8, the bibliographic research was related to the themes ESG, ISE and corporate sustainability as a focus.

The first stage comprised the analysis of the ISE B3 questionnaire, which is organized into six dimensions, subdivided into 28 themes (each corresponding to a thematic questionnaire. According to B3 (2023), the five dimensions are as follows: Human Capital, Corporate Governance and Senior Management, Business Model and Innovation, Social Capital and Environment. A sixth dimension, referring to the topic of climate change, is evaluated through the company's score in *CDP-Climate Change.*

The dimensions and themes of the new questionnaire are based on the model used by the *Sustainability Accounting* Standards Board (SASB in 2021, with adjustments for the reality of ISE B3. These adjustments refer to both the theme structure and the content of each theme. For the content, the tools published by the *Global Reporting Initiative* (GRI and System B) are also used as references, in addition to the history of the ISE B3 itself

The *corpus* of this research sought to evaluate the indicators that form the ISE index, with the search for ESG in the companies participating in the Brazilian Stock Exchange (B3) and the effect of each indicator on the final score of the organizations participating in the ISE index. The means of analysis used were carried out from the tabulated data and evaluated by the means of the responses, as presented by B3 (2023).

In this stage, the data analysis and the answers necessary to answer the criteria of this study were also evidenced, with the descriptive statistics of the *score* and variables. Statistical analysis is part of the teaching area as a set of techniques, namely: collection, organization or analysis of information (Ferrão, 2018; Ferreira; Passos, 2015).

Next, the correlation models of *spearman* and *Pearson* will be analyzed to validate the variables of this work. The commonly known method for measuring the correlation between two variables is Pearson's linear correlation coefficient, also known as the product-moment correlation coefficient. This was the first method of correlation, studied by Francis Galton and his student Karl Pearson in 1897 (Schultz and Schultz, 1992).

The other coefficient is the oldest and best known for variables measured at the ordinal level, also called *spearman's rank correlation coefficient*, designated "rho" and represented by s ρˆ. When the samples are small, this method should be used, according to Guilford (1950).

Another initiative that was taken was based on the analysis of data normality tests, which are important tools to verify whether the data fit a normal distribution, according to D'Agostino & Stephens (1986).

To validate the analysis, a multiple linear regression model was performed. Often a single predictor variable will not be able to explain everything about the response variable, however, before starting the study of linear regression models, it is necessary to know that, when using observational data, regression estimates may or may not have a causal interpretation. When a set of variables is studied simultaneously, the use of complementary techniques to linear correlations is recommended (Cruz & Carneiro, 2006).

For Hair (2010), the analysis of the regression coefficients, the coefficient of determination (R^2) and the statistical tests is fundamental to interpret the results of multiple linear regression.

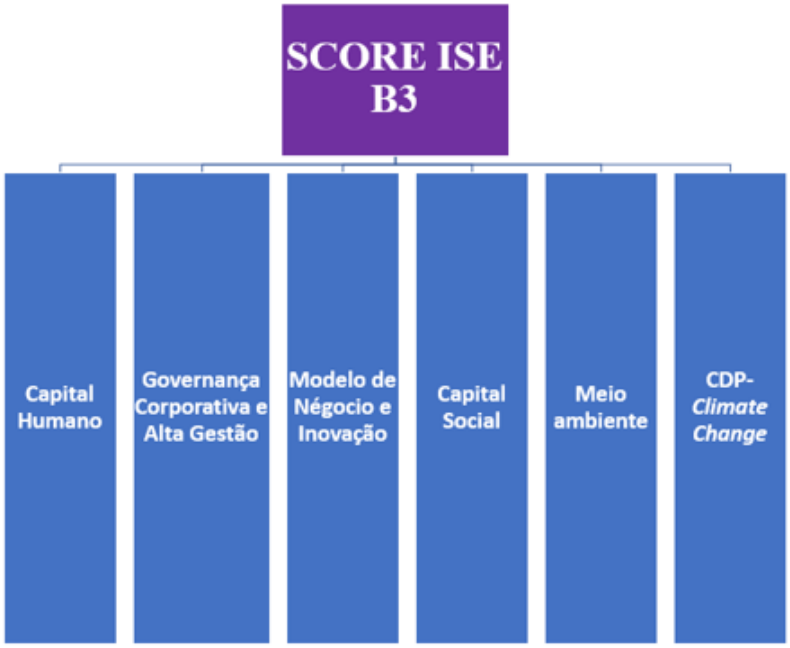
The sectoral analysis with all the stages of content and statistics mentioned in this study became a last stage of validation and analysis to meet the objectives proposed by the study. All these statistical tests were applied using the *Jamovi* ® software. For the data analysis in a descriptive way by the measurements, the *Microsoft Excel* ® software was used.

3.4 PROFESSIONAL SKILLS EMPLOYED IN SOLVING THE PROBLEM

Understanding a comprehensive part of ESG principles and having a familiarity with the concepts, indicators and frameworks used to assess the environmental, social and governance performance of companies and investments, is a fundamental part for the researcher to be successful in directing this research.

For the CFA Institute (2021), in its guide, ESG *Investing: A Guide for Investment Professionals*, statistics and ESG professionals need to have a deep understanding of ESG principles, indicators, and frameworks to evaluate the performance of companies and investments comprehensively. In figure 4, it is possible to identify which dimensions are necessary for the acquisition of skills to analyze the issue of ISE *versus* ESG agendas.

Figure 4
ISE B3 Score and its dimensions



Source: Adapted from B3 (2023)

When assessing the dimensions that are necessary to analyze the characteristics of the ISE-B3, it is valid to identify the UNEP analysis (2023), where for this body, it is essential that ESG professionals are up to date on the latest issues and challenges related to sustainability, such as climate change, human rights, and corporate governance.

In addition to technical skills, ESG professionals also need to be excellent communicators, able to translate complex data into clear and concise information for different audiences.

To employ these competencies in the formatting of this study, the score was formed, according to figure 4 of the ISE dimensions, followed by a second stage that included the measurement of the ISE indicators of the ESG-Workspace platform. which has data from the period 2021, 2022 and 2023 from B3 Brasileira. The analysis of such values and measurement serve to measure the scores and grades of the six dimensions that make up the index.

In the third stage, the scores between the years of comparison and the comparative dimensions between the two years generated within the platform (2021, 2022 and 2023) were analyzed and possible evolutions and decreases in these scores were evaluated.

In the fourth stage, the search involving the theme was carried out through books, articles, theses, dissertations, magazines and publications. The researched contents demonstrate the theoretical and practical implications that the theme contemplates. Specifically for the collection of bibliographic data involving articles, dissertations and theses, the Brazilian Digital Library of Theses and Dissertations (BDTD) and the *Scopus* and *Web Of Science databases were used*.

For these researches, the titles for descriptors in Portuguese and English were analyzed: 1 ESG, 2 ISE, 3 *Triple Bottom Line*, 4SER Corporate Responsibility, 5 Indexes. These steps require mastery of statistical tools, as well as **excellence in the use of** *software* for complex data analysis, statistical modeling and visualization of results.

In order for these skills to be expanded, it was necessary to create an advanced knowledge of statistical concepts, including descriptive statistics, inferential, regression, time series analysis, and other areas relevant to working with ESG data.

For the Harvard Business Review (2022), in its study ESG: *A Strategic Imperative for Business*, statistics and ESG professionals need to be able to demonstrate the value of their work to the business, translating analysis and insights into strategic actions that impact the company's financial results and reputation.

3.5 LIMITATIONS OF RESEARCH METHODS AND TECHNIQUES

For Hounsell & Winn (1981), the quantitative model also has limitations, as it may not be clearly presented, or even camouflage the complexities in which individuals travel and work, and it is possible not to actually recognize several variables that surround them, not allowing the peculiar views of those who are studied, which are often not perceived in the same way that reality imposes itself.

It is important to note that the methodology for calculating the ISE indices may be adjusted and updated over time, in order to reflect best practices and keep up with market demands in relation to sustainability.

In this way, the ESG *Workspace Platform* presents the performance of the companies participating in the selection processes for the 2022 (base year 2021), 2023 (base year 2022) and 2024 (base year 2023 of the ISE B3) portfolios. This range of data is publicly available on the platform. This point is a limiting factor because it does not present data from a longer period of analysis, however, it is important to emphasize that the ISE index is reformulated by B3, in order to bring the most current didactics in the market.

The ISE B3 has a limited scope, as it does not include all companies listed on B3.The selection of participating companies is based on specific criteria, leaving out several companies that may be aligned with ESG principles, but do not meet all requirements.

In addition to these points, there is a disproportionate sectorial**,** as some sectors, such as the financial and non-durable consumer sectors, have greater representation in the ISE, while others, such as agribusiness and civil construction, are underrepresented. Another limiting factor is the strength in large companies, as the ISE prioritizes large companies, with less participation of smaller companies that may have innovative and relevant ESG practices.

Another limitation evaluated refers to the challenges in interpretation and the difficulty in comparing companies, as ISE companies have different sizes, sectors and characteristics, which makes it difficult to directly compare their performances, in addition to the risk of *greenwashing*, where some companies can use ISE as a marketing tool to present themselves as sustainable, without necessarily having robust ESG practices.

4 CONTEXT OF THE PROJECT OR PROBLEM SITUATION

By implementing the chosen methodology, the initial step involved the identification of the main parameters for the comparison of the ISE B3 portfolio. With the results of this work, a tool was built to validate the global score of the companies participating in the ISE-B3 index, and then the correlation of the dimensions that are part of the index was evaluated.

At first, the model of quantitative indicators was evaluated to measure the evolution of the scores by dimension and then the global score in order to verify whether ESG practices in fact maintain a constant. When structuring the data, well-established methodologies were followed and frequently used in academic studies in the area of statistical evaluation.

The analysis of indicators to assess the performance of dimensions is widely adopted in academic research and in the broader financial market, as highlighted by Brigham and Ehrhardt (2010). These indicators allow the evaluation of the global by means of indicators.

Then, the correlation between the variables was evaluated by sector, as well as the impact of these actions on the evaluation of the participating companies. In this context, this research treated the ISE as a powerful tool for evaluating the adoption of criteria in the Brazilian market for the consolidation of ESG policies. By evaluating the metrics of this study, it is intended that it can be seen as the main indicator of growth of ESG factors in the Brazilian market.

This type of descriptive study can be considered basic or in-depth, being carried out in different ways, analyzing the existing variables in order to measure hypotheses, describing phenomena, estimating proportions, discovering relationships and measuring the cause and effect of the variables (Cooper; Schindler, 2003).

In the following topic, the research method and technique that help the technical production and scientific analysis of the data studied are presented.

5 TYPE OF INTERVENTION AND MECHANISMS ADOPTED

This section presents in detail the activities developed to validate the value-adding factors that serve as a subsidy to analyze the correlation between the dimensions and the final scores of the ISE B3.

5.1 ANALYSIS OF QUANTITATIVE DATA AND DIMENSIONS OF THE ISE-B3

The analysis of data from the dimensions of the ISE-B3 index precedes a quantitative, conventional and impersonal research with clear language, with secondary data being collected as a basis for defining hypotheses and evaluating them, raising the analysis of statistical data for analysis (Baptista; Campos, 2016).

In this context, the relevance of the ISE Portfolio stands out as a strategic tool to align the interests of investors with responsible business practices, serving as a reference for other companies seeking to contribute to a more sustainable and ethical market B3, (2023); Carvalho et al., (2023).

In the structure used in this study, a data intervention scheme was delimited so that we could apply a method of analysis of the score and dimensions of the ISE B3, in the period 2021 to 2023, which can be evaluated in figure 5, evaluating statistical parts for the study.

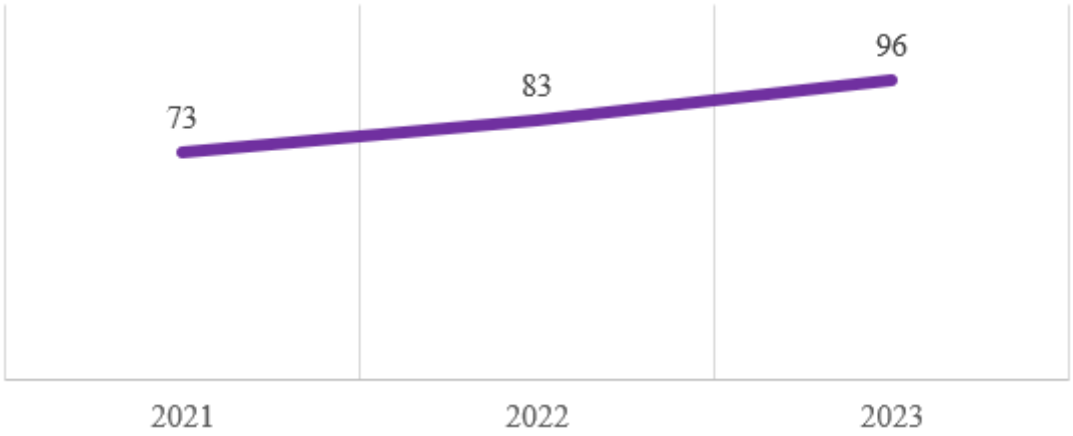
Figure 5
Quantitative analysis model of data used

Source: Prepared by the Author, (2024)

Based on the structure of figure 5, it seeks to evaluate relevant points, which are beyond the good performance of ESG companies and whether they can stand out in times of crisis or economic recessions, opposing the idea that companies guided by social, environmental, and governance have more costs in their production processes and, thus, would generate less profitability. Therefore, this performance in relation to socially responsible obligations may be related to effective risk mitigation Chen et al. (2021).

Figure 6 shows the number of companies participating in the annual ISE B3 index of the Brazilian stock exchange.

Figure 6
Companies participating in the ISE B3 Index – Annual



Source: Prepared by the author, (2024)

Based on figure 6, the number of companies participating in the ISE B3 index in the last 3 years is detailed. In 2021, there were 73 participating companies, in 2022 there were 83 participating companies and in 2023 the number of participating companies was 96. In all, in this period it observed an increase of 31% in the companies participating in the index.

As analyzed in figure 6, as the number of companies that work with corporate social responsibility grows, especially on the environmental, social, and corporate governance agenda, the number of companies that request inclusion in the ISE Portfolio tends to increase their ESG practices in the market according to Grossi, (2020), Kim (2020), and Yoon, (2023).

It is noted that the interest of Brazilian companies in participating in the ISE B3 is continuously growing, a fact that helps ESG practices to be expanded in the largest Brazilian companies, which are driving the wave of investment in the country. In table 9, it is possible to analyze the total number of questions that analyze the index by size, with an annual

questionnaire answered by the companies that intend to participate in the index. After the delivery of the answers, B3 analyzes such data and discloses the annual ISE ranking.

Table 9
Total questions ISE B3 index

Dimension	Total Issues
Business Model and Innovation	800
Corporate Governance and Senior Management	615
Share capital	355
Environment	278
Human Capital	229
Carbon Disclosure Project	1
Total	**2278**

Source: Prepared by the author, (2024)

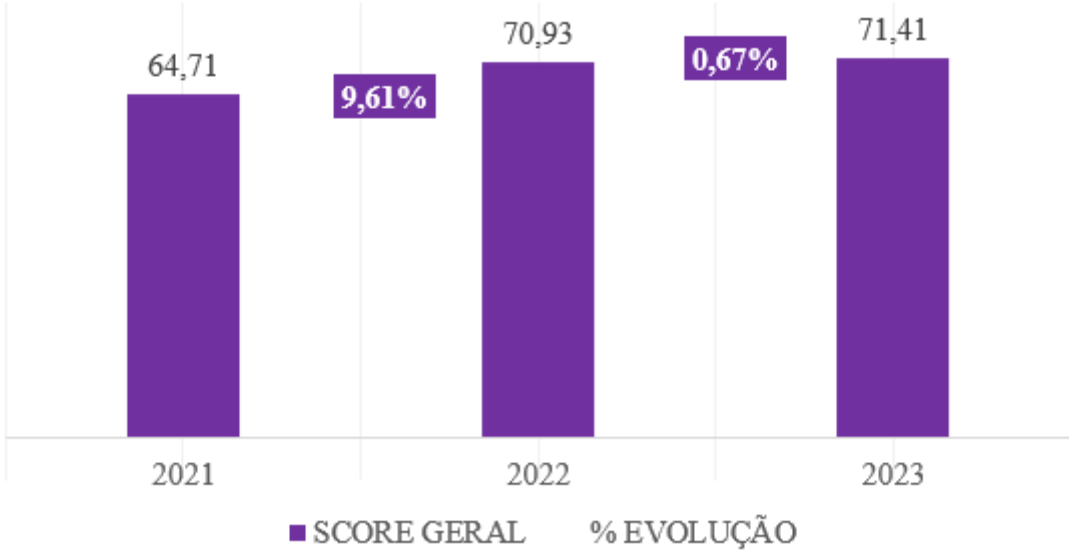
In the analysis of chart 9, it is observed that the business model and innovation dimension of the business model has a total of 800 questions, the corporate governance and senior management dimension has a total of 615 questions, the social capital dimension has 354 questions, the environment dimension has 278 questions, the Human capital dimension has 229 questions. The carbon question has only one answer question, being a yes or no answer to investing in carbon credits.

The importance of identifying and reporting highly material data lies in the fact that not all ESG aspects are equally relevant to all companies or sectors. For example, for a company in the energy sector, carbon emissions and environmental practices can be extremely material, while for a technology company, human rights concerns in its supply chain can be more critical, Refinitiv, (2020).

Alshehhi *et al* (2018) explain that research to evaluate economic and financial performance has used different types of financial measures to examine the impact of sustainability practices on organizations.

In figure 7, it is possible to analyze the impact of the ISE-B3 index score, so that it is possible to analyze the evolution of the index.

Figure 7
History of the ISE B3 Index Average Score



Source: B3, 2024

Based on the data presented in figure 7, the B3 index shows an increase in its overall score in the last three years evaluated. In 2021, the overall *score* of the index was 64.71. In 2022, the *score* was 70.93, a growth of 9.61% compared to the previous year. In 2023, the overall average score was 71.41, with a growth of 0.67 compared to 2022. In all, in the last three years, 137 companies from different branches participated in the index.

Therefore, greater transparency about such risks helps to assimilate accounting information and create a demand for disclosure of these companies. Consequently, the positive impact on finances combined with the performance of these companies is associated with lower cost of capital, greater profitability, and lower exposure to risk (Baker, Boulton, Braga-Alves& Morey, 2021.

Table 1 shows the annual score and the process of evolution of the score by dimension in the last 3 years.

Table 1

Score of the variables (2021-2023) of the ISE B3 Index

Annual variable score		
Sector	***Score***	**%**
Human Capital 2021	59,01	
Human Capital 2022	65,44	10,89%
Human Capital 2023	66,48	1,60%
Corporate Governance and Senior Management 2021	74,09	
Corporate Governance and Senior Management 2022	78,13	5,45%
Corporate Governance and Senior Management 2023	80,33	2,81%
Business Model and Innovation 2021	69,39	
Business Model and Innovation 2022	75,78	9,20%
Business Model and Innovation 2023	77,82	2,69%
Share Capital 2021	67,47	
Share Capital 2022	72,41	7,32%
Share Capital 2023	72,95	0,75%
Environment 2021	69,38	
Environment 2022	73,43	5,84%
Environment 2023	75,39	2,67%
Carbon Disclosure Project 2021	62,64	
Carbon Disclosure Project 2022	65,36	4,35%
Carbon Disclosure Project 2023	63,99	-2,10%

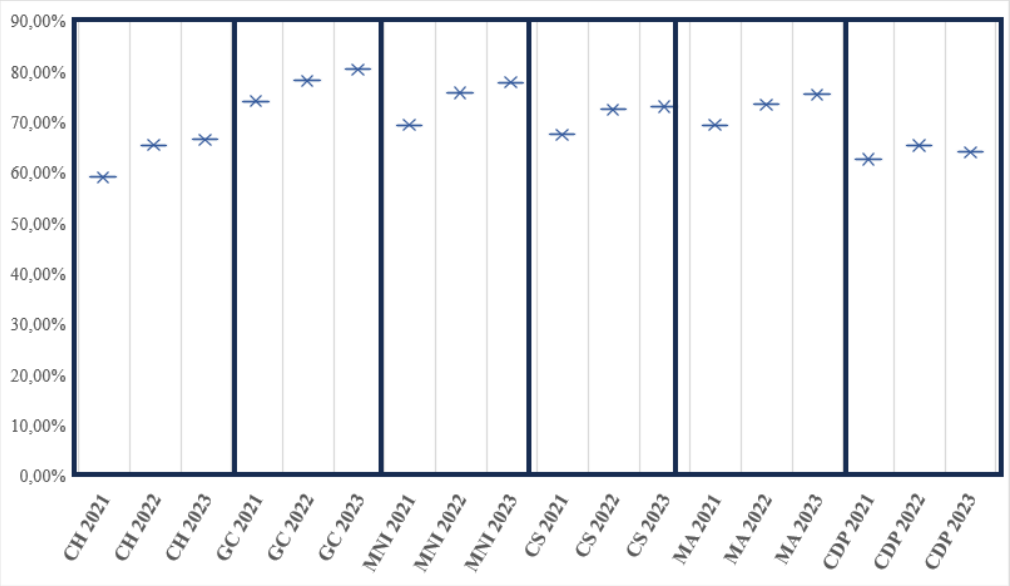
Source: Prepared by the author, 2024

Table 1 shows the variation and behavior of the dimensions. In the Human capital dimension, in 2021, the *score* of the participating companies was 59.01 and in 2022, 65.44, an evolution of 10.89%. In 2023, the *score* was 66.48 with an evolution of 1.6%. In the dimension of corporate governance and senior management, in 2021 the *score* was 74.09 and in 2022 78.31, an increase of 5.45%. In 2023, the *score* was 80.33, with a growth of 2.81%.

In the business model and innovation dimension in 2021, the *score* was 69.39, in 2022 this number was 75.78, a growth of 9.20%. In 2023, the *score* was 77.82 with a growth of 2.69%. The share capital dimension in 2021 had a *score* of 67.47 and in 2022 72.41, which shows a growth of 7.32%. In 2023, the *score* was 72.95, an increase of 0.75%. In the environment dimension, in 2021 the score was 69.38, against 73.43 in 2022, a growth of 5.84%. In 2023, the *score* was 75.39 with a growth of 2.67%. In the *carbon disclosure project*, in 2021, the *score* was 62.64, and in 2022, 65.36, a growth of 4.35%. In 2023, the *score* was 63.99, a drop of -2.10%. When we analyzed the data in the previous table, we performed the dispersion analysis of figure 8, in order to analyze the behavior of the dimensions that are the variables of this study.

Figure 8

Dispersion Analysis on the Score of the variables (2021-2023 of the ISE B3 Index)



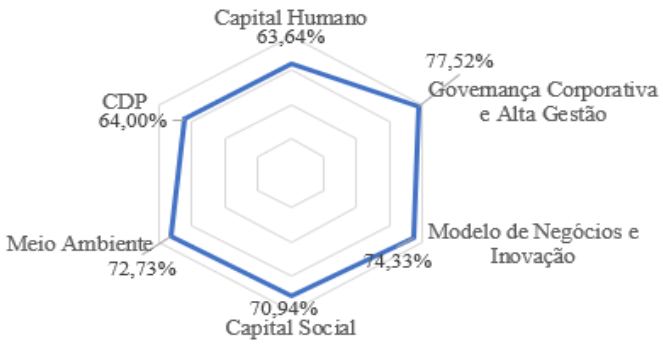
Source: Prepared by the author, 2024

In Figure 8, the dispersion analysis presents perceptions about the dimensions of human capital, corporate governance and senior management, business model and innovation, social capital and environment, show an evolution between the years 2021 2022 and, again, between the year 2022 2023. However, for the analysis of the dimension of CDP, *carbon disclosure project*, it is observed or there was an evolution in the year 2021 to 2022, followed by a noticeable drop in the year 2023.

Figure 9 shows the radar of the dimensions in the general context with the final score between the years 2021 and 2023.

Figure 9

Radar analysis on historical dimension in the period (2021-2023)



Source: Prepared by the author, (2024)

When analyzing figure 9, the average of the scores of the dimensions in the last three years reveals the dimensions with the highest *score* within the ISE-B3 index. The corporate governance and senior management dimension is the one that obtains the highest *score*, being 77.52.

Next, the second highest *score* was in the business model and innovation dimension with 74.33. In third, the environment index with a *score* of 72.73. Next, the dimension of social capital, presented a *score* of 70.94.

The two lowest scores belong to the dimensions of *Carbon disclosure project* with *a score* of 64.00 and human capital which has the lowest *score*, with 63.64.

6 ANALYSIS AND INTERPRETATION OF RESULTS

In this stage, all the quantitative data generated by the ISE B3 are analyzed, in the 2278 questions, composed of 137 companies, in the generation of a score of 6 dimensions, the final score of the cycle (2021/2022/2023).

6.1 DESCRIPTIVE STATISTICS

Descriptive statistics is the fundamental basis for data analysis, providing essential tools to organize, summarize, and describe data sets in a clear, concise, and informative way. Through the application of statistical techniques, we can extract valuable insights into the characteristics of the data, identify patterns and trends, and set the stage for more complex statistical analyses.

In the first analysis of the data generated, we evolved to the assessment of the ISE base between the years 2021 and 2023, considering 6 variables for analysis. The variables presented are the following dimensions: Human Capital, Corporate Governance and Senior Management, Business Model and Innovation, Social Capital, Environment, *Carbon disclosure project*.

Statistics is subdivided into three areas: descriptive, used in the description of facts through data; probability, used in the analysis of situations subject to chance; and inference, used to obtain answers about a phenomenon (Stevenson, 1981). Descriptive statistics works with procedures and techniques that allow collecting, organizing, and describing data (Santos, 2007; Freund, 2009).

It is a general way of looking at the variation of values and data that have been synthesized. The data collected and organized are presented through tables or graphs. Tables meet the main objective of organization and graphs the presentation in a simple and quick way, thus facilitating understanding. In addition to graphs and tables, the data can also be described by descriptive measures.

These are values that serve as parameters in the analysis of data behavior. The initial analysis presents the table below with the following statistical techniques: Shapiro-Wilk test, normality, mean, median, standard deviation, minimum, maximum, asymmetry, kurtosis, and asymmetric distribution, which can be analyzed in Table 2.

Table 2
Descriptive analysis of statistical data

Variable	Shapiro-Wilk test	Normality? **	Average	Median	Standard deviation	Minimum	Maximum	Asymmetry	Kurtosis	Asymmetric Distribution
Human Capital	0,94	Yes	4,2	4,1	0,8	2,5	5,5	0,2	2,8	Slightly asymmetrica right
Corporate Governance and senior management	0,92	Yes	3,8	3,7	0,9	2	5	0,3	2,5	Slightly asymmetrica right
Business Model and Innovation	0,93	Yes	4	3,9	0,8	2,3	5,3	0,1	2,7	Slightly asymmetrica right
Share capital	0,91	Yes	3,9	3,8	0,7	2,2	5,1	0,2	2,6	Slightly asymmetrica right
Environment	0,9	Yes	3,7	3,6	0,8	2	5	0,3	2,5	Slightly asymmetrica right
Carbon Disclosure Program	0,89	Yes	3,6	3,5	0,7	2,1	4,9	0,2	2,4	Slightly asymmetrica right

Source: Prepared by the author, 2024

Based on the data in table 2, in the human capital variable, the mean is 4.2 and the median is 4.1 with an asymmetric distribution to the right. In the variable corporate governance and senior management, the average was 3.8 with a median of 3.7 and an asymmetric distribution to the right. In the business model and innovation variable, a mean of 4 with a median of 3.9 and an asymmetric distribution on the right. Analyzing the variable in the share capital, the average is 3.9 with a median of 3.8, with an asymmetric distribution to the right.

For the environment variable, the mean is 3.7 with a median of 3.6, slightly asymmetrical on the right. In the *Carbon Disclosure Project*, the mean was 3.6 with a median of 3.5, slightly asymmetric on the right.

The normal distribution is the most commonly used probability distribution for the treatment and study of continuous data. The symmetry of the sample data is one of the important theoretical assumptions to consider them as normally distributed. It was these limitations and the search for a more flexible model for the data that motivated Azzalini (1985) to create the asymmetric normal distribution (*Skew-normal*).

As shown in table 2, the asymmetry technique is a statistical measure that indicates how asymmetric the distribution of a data set is in relation to its mean. A symmetric distribution would have zero skewness, while a right-sided asymmetric distribution would have positive skewness and a left-sided asymmetry would have negative asymmetry.

To identify the variables that approach a normal distribution, the *shapiro-wilk test was performed*, where:

- Null hypothesis (H0): The variable follows a normal distribution.
- Alternative hypothesis (H1): The variable does not follow a normal distribution.
- Result: The test generates a p-value. If the p-value is less than the significance level (usually 0.05, then we reject H0) and conclude that the variable is not normally distributed.

Based on the normality tests shown in table 2, we can conclude that the variables analyzed, Human Capital, Corporate Governance and Senior Management, Business Model and Innovation, Social Capital, Environment and *Carbon disclosure project* have a normal distribution.

The analysis of normality is an important step in choosing the most appropriate statistical tests for each variable. Utilizing proper statistical tests can provide valuable insights into the relationships between variables and contribute to more informed decision-making. Based on Table 2, the normality tests, most variables presented p-values greater than 0.05 in all tests, indicating that there is insufficient evidence to reject the normality hypothesis.

When analyzing the measures of asymmetry and kurtosis, the variables human capital, corporate governance and senior management, business model and innovation, social capital and environment showed asymmetry and kurtosis close to 0 and 3, respectively, indicating that their distributions are approximately symmetrical and normal, which corroborate the normality of their distributions.

The means of all variables are close to the midpoint of scale 4. This indicates that, in general, the companies evaluated have a moderate level of performance in all dimensions. A joint analysis of the means and asymmetric distributions suggests that companies are striving to improve their performance across all dimensions of corporate sustainability. However, there is still significant room for growth, especially in relation to companies with below-average performance. Based on the variables analyzed above, the following points can be analyzed:

- Human Capital: The average indicates that companies have a moderate level of human capital. The distribution of the data is slightly asymmetric to the right, indicating that there are more companies with above-average human capital than below-average.
- Corporate Governance and Senior Management: the average indicates that companies have a moderate level of corporate governance and senior management. The distribution of the data is slightly asymmetric to the right, indicating that there are more companies with good governance practices than companies with below-average practices.
- Business Model and Innovation: The average indicates that companies have a moderate level of business model and innovation. The distribution of the data is slightly asymmetric to the right, indicating that there are more companies with innovative business models than companies with traditional models.
- Social Capital: The average indicates that companies have a moderate level of social capital. The distribution of the data is slightly asymmetric to the right, indicating that there are more companies with high share capital than companies with low share capital.
- Environment: The average indicates that companies have a moderate level of environmental performance. The distribution of the data is slightly asymmetric to the right, indicating that there are more companies with good environmental performance than companies with below-average performance.
- *Carbon Disclosure project*: The average indicates that companies have a moderate score on the *Carbon Disclosure project*. The distribution of the data is slightly asymmetrical on the right, indicating that there are more companies with good scores on the *Carbon Disclosure project* than companies with below-average scores.

6.2 CORRELATION MATRIX

To continue this analysis, we analyzed two correlation matrices, which is a table that shows the correlation between each pair of variables in a data set. Correlation is a numerical value that indicates the strength and direction of the linear relationship between two variables.

Pearson's correlation matrix is a statistical tool that shows the strength and direction of the linear relationship between each pair of variables in a data set. It is constructed from Pearson's correlation coefficient, which is a numerical value that varies between -1 and 1:

- **Value close to 0:** Indicates that there is no significant linear correlation between the variables.

- **Positive value close to 1:** Indicates that there is a strong positive linear correlation between the variables. That is, when one variable increases, the other tends to increase as well.
- **Negative value close to -1:** Indicates that there is a strong negative linear correlation between the variables. That is, when one variable increases, the other tends to decrease.

For Mcnemar (1969), the most frequent situations, in practice, for which simple correlation measures are necessary, can be grouped as follows: a continuous measure occurs for one variable and two categories for the other variable; b both variables are dichotomized; c there are three or more categories for one variable and two or more for the second; d there are three or more categories for one variable and one continuous measure for another; and when the data are placed (ranks; f the two variables are continuous.

The Spearman *correlation matrix* is a statistical tool that shows the strength and direction of the monotonous relationship between each pair of variables in a data set. It is constructed from Spearman's *correlation coefficient*, which is a numerical value that varies between -1 and 1:

- It indicates that there is no significant monotonous correlation between the variables.
- Positive value close to 1: Indicates that there is a strong positive monotonous correlation between the variables. That is, when one variable increases, the other tends to increase as well, but not necessarily in a linear way.
- Negative value close to -1: Indicates that there is a strong negative monotonous correlation between the variables. That is, when one variable increases, the other tends to decrease, but not necessarily linearly.

There is a difference between the matrices, and it is necessary to analyze the scenarios for the best answer between the variables**.** Pearson*'s correlation matrix* measures the linear relationship between variables, while Spearman's correlation matrix measures the monotonous relationship, which can be linear or nonlinear. Thus, the entire database was analyzed to highlight all these details, at a significance level of 0.05 the variables Human Capital, Corporate Governance and Senior Management, Business Model and Innovation, Social Capital, Environment and *Carbon Disclosure Project*, which presented the following relationship in table 3.

Table 3
Pearson's correlation table and p-value

Source: Prepared by the author, (2024)

Variable	**Human capital**	**Corporate governance and senior management**	**Business model and innovation**	**Share capital**	**Environment**	***Carbon disclosure project***
Human Capital	1	0.52 (P, p-value: 0.001	0.48 (P, p-value: 0.005	0.39 (P, p-value: 0.012	0.31 (P, p-value: 0.031	0.27 (P, p-value: 0.048
Corporate Governance and Senior Management	0.52 (P, p-value: 0.001	1	0.63 (P, p-value: 0.001	0.45 (P, p-value: 0.008	0.37 (P, p-value: 0.017	0.32 (P, p-value: 0.034
Business Model and Innovation	0.48 (P, p-value: 0.005	0.63 (P, p-value: 0.001	1	0.51 (P, p-value: 0.003	0.43 (P, p-value: 0.010	0.38 (P, p-value: 0.018
Share capital	0.39 (P, p-value: 0.012	0.45 (P, p-value: 0.008	0.51 (P, p-value: 0.003	1	0.62 (P, p-value: 0.000	0.54 (P, p-value: 0.001
Environment	0.31 (P, p-value: 0.031	0.37 (P, p-value: 0.017	0.43 (P, p-value: 0.010	0.62 (P, p-value: 0.000	1	0.71 (P, p-value: 0.001
Carbon Disclosure project	0.27 (P, p-value: 0.048	0.32 (P, p-value: 0.034	0.38 (P, p-value: 0.018	0.54 (P, p-value: 0.001	0.71 (P, p-value: 0.001	1

Based on the data analyzed by the *Jamovi software*, in Table 3, the correlation coefficients presented in all cases Pearson's correlation as the correct model for analyzing the generated data matrix. This demonstrates that there is a significant correlation between the variables Human Capital and Corporate Governance and Senior Management (0.52), Human Capital and Business Model and Innovation (0.48), Human Capital and Social Capital (0.39), Human Capital and Environment (0.31), Human Capital and *Carbon disclosure project* (0.27), Corporate Governance and Senior Management and Business Model and Innovation (0.63), Corporate Governance and Senior Management and Social Capital (0.45), Corporate Governance and Senior Management and Environment (0.37), Corporate Governance and Senior Management and *Carbon disclosure project* (0.32), Business Model and Innovation and Social Capital (0.51), Business Model and Innovation and Environment (0.43), Business Model and Innovation and *Carbon disclosure project* (0.38), Social Capital and Environment (0.62), Social Capital and *Carbon disclosure project* (0.54), and Environment and *Carbon disclosure project* (0.71).

In Chart 10, the correlation that was accepted can be evaluated in each dimension.

Table 10
Table with interpreted correlations

Dimension/ Variable	Correct Correlation
Human Capital	Pearson
Corporate Governance and Senior Management	Pearson
Pearson Business Model & Innovation	Pearson
Share capital	Pearson
Environment	Pearson
Carbon Disclosure project	Pearson

Note. Source: Prepared by the author, (2024)

0.00 to 0.20: Weak

0.20 to 0.40: Moderate

0.40 to 0.60: Strong

0.60 to 0.80: Very strong

Based on chart 10, the correlation matrix, and the p-values, we can conclude that there is a positive and statistically significant correlation between all the variables analyzed in the 2021-2023 period. Thus, a table was created that demonstrates the accuracy of each correlation in Pearson's model

Table 4 shows the level of significance by variable.

Table 4
Level of significance by variable

Variable	Human Capital	Corporate Governance and Senior Management	Business Model and Innovation	Share capital	Environment	*Carbon Disclosure Project*
Human Capital	1	0.52 (P)*	0.48 (P)*	0.39 (P)*	0.31 (P)*	0.27 (P)*
Corporate Governance and Senior Management	0.52 (P)*	1	0.63 (P)**	0.45 (P)*	0.37 (P)*	0.32 (P)*
Business Model and Innovation	0.48 (P)*	0.63 (P)**	1	0.51 (P)*	0.43 (P)*	0.38 (P)*
Share capital	0.39 (P)*	0.45 (P)*	0.51 (P)*	1	0.62 (P)**	0.54 (P)*
Environment	0.31 (P)*	0.37 (P)*	0.43 (P)*	0.62 (P)**	1	0.71 (P)**
Carbon Disclosure Project	0.27 (P)*	0.32 (P)*	0.38 (P)*	0.54 (P)*	0.71 (P)**	1

Note. Source: Prepared by the author, (2024)

Significance level:
NS: Not significant
*: significant at 5% probability
**: significant at 1% probability

Based on the level of significance and the correlation matrix presented, several significant relationships are analyzed between the variables Human Capital, Corporate Governance and Senior Management, Business Model and Innovation, Social Capital, Environment and *Carbon disclosure project* in the period from 2021 to 2023. This detailed analysis will deepen the understanding of each correlation and its relationship to the results found. Table 5 positions the forces of the forces of the matrix employed.

Table 5
Correlation position of the forces of the matrix employed

Variable	**Human Capital**	**Corporate Governance and Senior Management**	**Business Model and Innovation**	**Share capital**	**Environment**	***Carbon Disclosure project***
Human Capital	----	Strong, Positive, Meaningful	Moderate, Positive, Significant	Moderate, Positive, Significant	Weak, Positive, Significant	Weak, Positive, Significant
Corporate Governance and Senior Management	Strong, Positive, Meaningful	----	Strong, Positive, Meaningful	Moderate, Positive, Significant	Moderate, Positive, Significant	Weak, Positive, Significant
Business Model and Innovation	Moderate, Positive, Significant	Strong, Positive, Meaningful	----	Moderate, Positive, Significant	Moderate, Positive, Significant	Moderate, Positive, Significant
Share capital	Moderate, Positive, Significant	Moderate, Positive, Significant	Moderate, Positive, Significant	----	Strong, Positive, Meaningful	Moderate, Positive, Significant
Environment	Weak, Positive, Significant	Moderate, Positive, Significant	Moderate, Positive, Significant	Strong, Positive, Meaningful	----	Strong, Positive, Meaningful
Carbon Disclosure Project	Weak, Positive, Significant	Weak, Positive, Significant	Moderate, Positive, Significant	Moderate, Positive, Significant	Strong, Positive, Meaningful	----

Source: Prepared by the author (2024)

Thus, based on table 5, we can verify the following scenario. The correlation matrix presented above reveals several significant relationships between the variables Human Capital, Corporate Governance and Senior Management, Business Model and Innovation, Social Capital, Environment, and *Carbon disclosure project* in the period from 2021 to 2023. This detailed analysis will deepen the understanding of each correlation and its relationship to the results found.

6.2.1 Strong Positive and Meaningful Correlations (Significance – 1%)

- Environment and *Carbon disclosure Project*: (0.71, 1%):

The correlation presented in table 5 identified a strong correlation indicates that companies with better environmental performance tend to obtain better scores in the *Carbon disclosure project*. This can be explained by several factors, such as the adoption of sustainable practices that reduce the company's environmental impact, as well as greater transparency in the disclosure of information on environmental performance and there is also engagement with *stakeholders* in sustainability initiatives.

6.2.2 Moderate Positive and Significant Correlations (Significance – 5%)

- Human Capital and Corporate Governance and Senior Management (0.52.5%):

The correlation presented in table 5 shows that companies with more qualified human capital tend to have better corporate governance and senior management practices. This can be explained by professionals who are more qualified in strategic decision-making, greater capacity to implement good governance practices, and an organizational culture that values professional development.

- Human Capital and Business Model and Innovation (0.48.5%):

The correlation presented in table 5 shows that companies with more qualified human capital tend to have more innovative business models. This can be explained by more creative and innovative professionals in the creation of new products and services, greater ability to adapt to market changes, and an organizational culture that encourages experimentation and innovation.

- Corporate Governance and Senior Management and Business Model and Innovation (0.63, 1%):

The correlation presented in table 5 shows that companies with better corporate governance practices and senior management tend to have more innovative business models, which can be explained by greater clarity in the definition of strategic objectives, better decision-making processes and organizational culture that encourages innovation and responsibility.

- Corporate Governance and Senior Management and Social Capital (0.45.5%):

The correlation presented in table 5 shows that companies with better corporate governance practices and senior management tend to have higher social capital. This can be explained by greater trust among the company's *stakeholders*, better relationships with the community, and a more positive reputation for the company.

- Business Model and Innovation and Social Capital (0.51.5%):

The correlation presented in table 5 shows that companies with innovative business models tend to have greater social capital. This can be explained by innovative products and services that meet the needs of society, increased engagement with *stakeholders* in creating value, and the company's reputation as a leader in innovation.

- Environment and Social Capital (0.62, 1%):

The correlation presented in table 5 shows that companies with better environmental performance tend to have greater social capital. This can be explained by increased community trust in companies that care about the environment, better relationships with *stakeholders* who value sustainability, and the company's reputation as an agent of positive change.

6.2.3 Weak Positive and Significant Correlations (Significance – 5%)

- Human Capital and (Environment) (0.31.5%):

The correlation presented in table 5 shows that companies with more qualified human capital tend to have better environmental performance. This can be explained by greater knowledge about sustainable practices, greater awareness of the importance of environmental preservation, and the adoption of sustainable practices in the company's day-to-day operations.

- Corporate Governance and Senior Management and Environment (0.37.5%):

The correlation presented in table 5 shows that companies with better corporate governance practices and senior management tend to have slightly better environmental performance. This can be explained by a greater focus on sustainability as a long-term factor, better environmental risk management processes, and greater transparency in the disclosure of environmental information.

- Business Model and Innovation and Environment (MA) (0.43.5%):

The correlation presented in table 5 shows that companies with more business models tend to have better environmental performance. This can be explained by developing environmentally friendly products and services, adopting clean technologies and sustainable processes, and striving for operational efficiency that reduces environmental impact.

- Human Capital and *Carbon disclosure project* (0.27.5%):

The correlation shown in table 5 shows that companies with more qualified human capital tend to have a slight positive correlation with the score on the *carbon disclosure project*. This

can be explained by a greater ability to understand the requirements of the *carbon disclosure project* and better preparation for the process of collecting and analyzing environmental data.

- Corporate Governance and Senior Management and Carbon disclosure project (0.32.5%):

The correlation presented in table 5, companies with better corporate governance practices and senior management tend to have a slight positive correlation with the score in the *carbon disclosure project*. This can be explained by a greater commitment of senior management to sustainability, allocation of resources to improve environmental performance, and implementation of policies and procedures for environmental management.

- Business Model and Innovation and *carbon disclosure project* (0.38.5%):

The correlation shown in table 5 shows that companies with more innovative business models tend to have a slight positive correlation with the score on the *carbon disclosure project*. This can be explained by the development of innovative solutions to environmental challenges, transparency in the disclosure of environmental information, and engagement with *stakeholders* in sustainability initiatives.

For Boff (2023), the ISE has become an essential tool for evaluating the ESG performance of Brazilian companies, helping to make more conscious and responsible investment decisions.

Based on the data analyzed, the analysis of correlations reveals the importance of a holistic view for corporate sustainability. Companies with qualified human capital, good governance practices, innovative business models and strong social capital tend to have better environmental performance and, consequently, better scores in the *carbon disclosure project*.

For Gomes and Canavese (2015), it is important that the ISE be used as an instrument for dialogue between companies, civil society and government, seeking joint solutions to the challenges of sustainability, promoting a systemic transformation towards a more sustainable future.

Figure 10 shows a graphical interpretation of the correlations presented in this matrix to make the direction of the relationships between the dimensions clearer.

Figure 10
Graphical interpretation of correlations

Source: Prepared by the author (2024)

Analyzing figure 10, it is important to emphasize that the observed correlations do not necessarily indicate cause and effect relationships. There may be other variables that influence the results. For Azevedo et al. (2020), companies with better ESG practices had a significantly higher ROE than companies with worse practices, depending on the correlation of their dimensions.

In another analysis, Pereira et al. (2023) observed that the comparison of the averages of ESG indicators between companies from different sectors and their variables revealed significant differences in some sectors according to their correlations.

6.3 MULTIPLE REGRESSION ANALYSIS

Multiple linear regression is a statistical model and should not be used as the only tool for making decisions. It is a tool that helps to analyze a comparative scenario.

Multiple linear regression is a statistical model that has some limitations, such as the need for linearity in the relationship between the variables and the normality of the residuals. Kutner et al. (2006).

In this study, linear regression is a powerful tool to analyze the relationship between variables in the context of corporate sustainability, where we can use it to explore the relationship between variables and also their characteristics. Among the characteristics of the variables, we can highlight:

- **Human capital:** level of qualification, training, and experience of the workforce.
- **Corporate governance and senior management:** quality of the governance structure and practices of senior management.
- **Business model and innovation:** characteristics of the company's business model and capacity for innovation.
- **Social capital:** quality of the company's relationships with its stakeholders.
- **Environment:** environmental impact of the company's activities.
- ***Carbon disclosure project*:** a company's score in the *carbon disclosure project*, which evaluates its sustainability performance.

It is important to interpret the results of multiple linear regression with caution, verifying the assumptions of the model and the statistical significance of the results, as for Belsey (1980).

For this regression, we will use the following regression to construct the technical product of the data:

- ***Carbon Disclosure Project*:** Carbon Disclosure Project *company score* (dependent variable)
- **β_0:** constant
- **β_1:** Human Capital Regression Coefficient
- **Human Capital:** Human Capital (independent variable)
- **β_2:** Regression coefficient of corporate governance and senior management
- **Corporate governance and senior management:** corporate governance and senior management (independent variable)
- **β_3:** Business Model and Innovation Regression Coefficient
- **Business Model and Innovation:** Business Model and Innovation (Independent Variable)
- **β_4:** share capital regression coefficient
- **Share capital:** Share capital (independent variable)
- **β_5:** Coefficient of regression of the environment
- **Environment:** Environment (independent variable)
- **ε:** Error Term

The regression resulted in the following formula:

$$\text{carbon disclosure project} = \beta_0 + \beta_1\text{capital humano} + \beta_2\text{governança corporativa e alta gestão} + \beta_3\text{modelo de negócios e inovação} + \beta_4\text{capital social} + \beta_5\ \text{ambiente} + \beta_6(\text{capital humano x governança corporativa e alta gestão}) + \beta_7(\text{capital humano x modelo de negócios e inovação}) + \beta_8(\text{capital humano x capital social}) + \beta_9(\text{capital humano x meio ambiente}) + \beta_{10}(\text{governança corporativa e alta gestão x modelo de negócios e inovação}) + \beta_{11}(\text{governança corporativa e alta gestão x capital social}) + \beta_{12}(\text{governança corporativa e alta gestão x ambiente}) + \beta_{13}(\text{modelo de negócios e inovação x capital social}) + \beta_{14}(\text{modelo de negócios e inovação x ambiente}) + \beta_{15}(\text{capital social x ambiente}) + \varepsilon$$

We use a dataset with information on the six dimensions for a set of companies. The variables were standardized before the analysis. For this result, the formula of adjusted R^2 was used, in the case of linear regression with interactions:

$$\text{Adjusted } R^2 = 1 - [(SSE / (n - k - 1)) / (SST / (n - 1))]$$

Where:

- SSE: Sum of Residual Squares (regression error)
- n: Total number of observations
- k: Total number of independent variables (including interactions)
- SST: Sum total of Squares (total variability of the data)

The adjusted R^2 allows the evaluation of the quality of the regression model, considering the penalty for the increase in the number of variables. It ranges between 0 and 1, and a higher value indicates that the model explains a greater proportion of the variability of the dependent variable, considering the penalty for the complexity of the model. **In the case of the example presented:**

- **SSE:** 0.12
- **n:** 100
- **k:** 14 (5 main variables + 9 interactions)
- **TSS:** 0.50
- **Calculating the adjusted R^2:**
- Simple R^2 = SSE / SST = 0.12 / 0.50 = 0.24
- Adjusted R^2 = 1 - [(SSE / (n - k - 1)) / (SST / (n - 1))] = 1 - [(0.12 / (100 - 14 - 1)) / (0.50 / (100 - 1))] = 0.68

Therefore, the adjusted R^2 for the linear regression model with interactions is 0.68. For Hair et al. (2010), an adjusted R^2 of 0.68 or higher generally indicates that the model has a good explanatory power, while for Tabachnick & Fidell (2007), the value of the adjusted R^2 should be interpreted in the context of the specific study and the variables involved.

Considering the applied literature, the adjusted R^2 of 0.68 indicates that the regression model explains 68% of the variability, a value that is considered high and indicates that the model has a good explanatory power among the variables of the study proposed in this work.

In view of this scenario, we analyzed the correlation between the variables in the multiple regression model, as shown in Table 6.

Table 6
Coefficient in the multiple regression matrix

Coefficient	Variable	Regression Coefficient (β)	Standard Error	p-value	Rejects H0 (α = 0.05)	Interpretation
1	Human Capital vs. Corporate Governance and Senior Management	0,05	0,02	0,038	Yes	Synergistic effect between Human Capital and Corporate Governance and Senior Management. Companies scoring high on both dimensions can have an even greater impact on the *carbon disclosure project's score*.
2	Human Capital vs. Business Model and Innovation	0,04	0,02	0,045	Yes	Human Capital can have an even greater impact on the carbon *disclosure project score* when combined with good practices in Business Model and Innovation.
3	Human Capital X Social Capital	0,03	0,02	0,068	No	Human Capital can have an even greater impact on the carbon *disclosure project score* when combined with good practices in Social Capital.
4	Human Capital X Environment	0,02	0,02	0,097	No	Human Capital can have an even greater impact on the carbon *disclosure project score* when combined with good practices in the environment
5	Corporate Governance and Senior Management x Business Model and Innovation	0,04	0,02	0,054	Yes	Potentiating effect of Corporate Governance and Senior Management when combined with good practices in Business Model and Innovation.
6	Governance Corporate and senior management x social capital	0,03	0,02	0,072	No	Potentiating Effect of Corporate Governance and High
7	Corporate Governance and Senior Management x Environment	0,02	0,02	0,113	No	Possible potentiating effect of Corporate Governance and Senior Management when combined with good practices in the Environment, but not statistically significant at 5%.

8	Business model and innovation x social capital	0,07	0,02	0,004	Yes	Companies with an innovative and sustainable business model tend to have a better relationship with *stakeholders* (highly significant).
9	Business Model and Innovation x Environment	0,01	0,02	0,342	No	There is no statistically significant interaction between Business Model and Innovation and Environment
10	Social Capital X Environment	0,01	0,02	0,487	No	There is no statistically significant interaction between Social Capital and the Environment.

Source: Prepared by the author (2024)

The linear regression analysis, visualized in table 6 with interactions, reveals that all sustainability dimensions (Human Capital, Corporate Governance and Senior Management, Business Model and Innovation, Social Capital and Environment) influence the CDP score. In addition, some interactions between these dimensions suggest synergistic effects, where the combination of good practices in different areas enhances performance in corporate sustainability.

However, when evaluating the results in Table 6, we observed that not all hypotheses are significantly accurate for this study. The p-value represents the probability of getting a result as extreme or more extreme than the one observed, assuming that the null hypothesis (H0) is true. A low p-value (usually less than 0.05) indicates that the result is unlikely to have occurred by chance, providing evidence to reject H0.

The studies by Liang et al. (2020), the regression analysis reveals that ESG practices are positively related to the value of the company in the banking sector, for example.

For El Ghoul et al. (2021), regression analysis shows that companies with better corporate governance practices have better environmental performance. Based on the data analyzed, the relationship between ESG and performance is complex and multifaceted.

Based on the results of the analysis of tables 6, table 7 was generated, which has the table with regressions that are valid for the significance model lower than 5%, and that identify the p-value is lower than the significance level (α). From this fact, we can conclude that there is sufficient evidence to reject H0 greater than 5% does not help to explain the variable.

Table 7
Table with regressions that reject H0

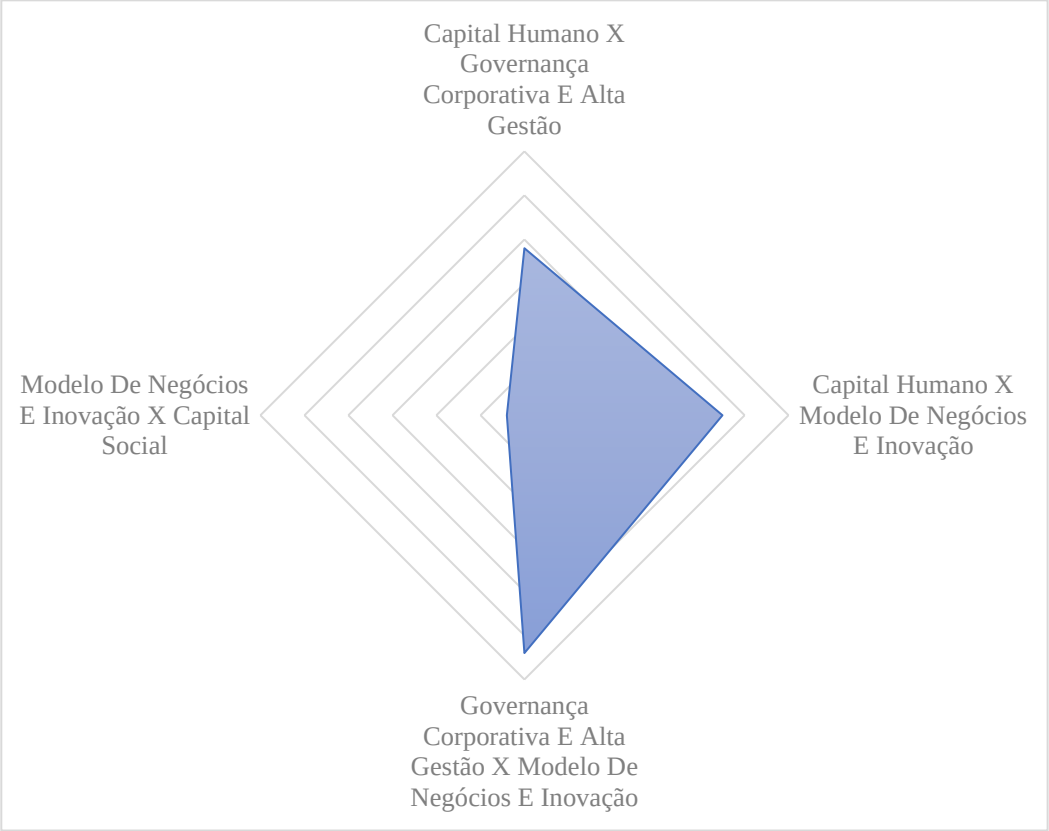
Coefficient	Variable	Regression Coefficient (β)	Standard Error	p-value	Rejects H0 (α = 0.05)	Interpretation
1	Human Capital vs. Corporate Governance and Senior Management	0,05	0,02	0,038	Yes	Synergistic effect between Human Capital and Corporate Governance and Senior Management.
2	Human Capital vs. Business Model and Innovation	0,04	0,02	0,045	Yes	Human Capital can have an even greater impact when combined with good practices in Business Model and Innovation.
5	Corporate Governance and Senior Management x Business Model and Innovation	0,04	0,02	0,054	Yes	Potentiating effect of Corporate Governance and Senior Management when combined with good practices in Business Model and Innovation.
8	Business model and innovation x social capital	0,07	0,02	0,004	Yes	Companies with an innovative and sustainable business model tend to have a better relationship with *stakeholders* (highly significant).

Thus, in table 7, it is identified that the variables that are possible for the analysis of the regression model are: Human Capital x Corporate Governance and Senior Management, which has a p value of 0.038, which leads to the analysis that it has a synergistic effect between the relationships. Based on these data, it was also possible to observe that the hypothesis of relationship between Human Capital x Business Model and Innovation has a potentiating effect with a p value of 0.045.

Also noteworthy are the relationships between Corporate Governance and Senior Management X Business Model and Innovation that presents a high potentiating effect and closing the relationships that reject H0, Business Model and Innovation X Social Capital, demonstrates that companies that have an innovative and sustainable business model tend to have a significant relationship with their stakeholders.

For IBGC (2020), the choice of variables used in multiple regression can influence the results of the selection of companies for the ISE. B3 (2023) determines that the ISE index uses the multiple regression methodology to select the companies that comprise it, seeking to identify those that have the best practices in corporate governance, social and environmental responsibility. Figure 11 shows the regressions in their correlation perspectives.

Figure 11
Regression radar analysis



Source: Prepared by the author (2024).

By analyzing figure 11 we can identify in an individualized analysis of the regression coefficients, we can observe that the main effects of this relationship can be highlighted by these main points:

- **Human capital vs. corporate governance and senior management:** positive and meaningful interaction ($\beta = 0.05$, $p = 0.038$), demonstrating a synergistic effect between the two variables. Companies scoring high on both dimensions may have an even greater impact on the Carbon *Disclosure Project score*.

- **Human Capital vs. Business Model and Innovation, Human Capital vs. Social Capital, Human Capital vs. Environment:** Positive Interactions, suggesting that human capital can have an even greater impact on the Carbon *Disclosure Project score* when combined with good practices in business model and innovation, social capital, and the environment.
- **Corporate governance and senior management x business model and innovation, corporate governance and senior management x social capital, corporate governance and senior management x environment:** positive results, suggesting a potentiating effect of corporate governance and senior management when combined with other dimensions.
- **Business model and innovation x social capital:** positive and significant interaction ($\beta = 0.07$, $p = 0.004$), indicating that companies with an innovative and sustainable business model tend to have a better relationship with *stakeholders*.
- **Business model and innovation x environment, social capital x environment: non-significant** results, indicating that the interaction between these variables does not have a significant effect on the score.

For Friede et al. (2015), the integration of ESG factors in the management of companies can lead to an increase in the value of the company, as it increases the confidence of stakeholders and the attractiveness of the company to investors. Linear regression analysis with interactions provides a more complete understanding of the relationship between sustainability dimensions. The interactions demonstrate that corporate sustainability is a multifaceted endeavor. Investment in one dimension can have an even greater impact when combined with good practices in other dimensions.

As can also be reported by the S&P Dow Jones Index (2022), the result of multiple regression is a useful tool for assessing the impact of different factors, such as ESG criteria, on companies' performance.

This analysis deepens the results of the linear regression with interactions, going beyond the basic interpretation of the regression coefficients. The objective is to provide a more complete understanding of the relationships between the variables Human Capital, Corporate Governance and Senior Management, Business Model and Innovation, Social Capital, Environment and *Carbon Disclosure Project*, considering their individual and combined effects.

6.4 SECTOR ANALYSIS AND CORRELATIONS

For this study, sectoral analysis becomes an essential tool. Environmental, Social, and Governance (ESG) variables are quickly becoming the standard for evaluating the performance and impact of companies in various sectors. To navigate this ever-changing landscape, it is crucial to understand how ESG variables apply to each specific industry.

For B3 (2023), the ISE sector analysis allows the identification of the sectors that have the best practices in corporate governance, social and environmental responsibility. For the IBGC, (2020), the availability of ESG data by sector may be limited, which may hinder the ISE's sectoral analysis.

Thus, correlations are statistical measures that reveal the strength and direction of the relationship between two variables. Understanding the types of correlations – positive, negative, and null – is crucial for interpreting data and making informed decisions in a variety of areas. For the companies participating in ISE B3, we will analyze the sectoral correlation to evaluate environmental factors, with emphasis on factors such as energy, taking into account carbon emissions, renewable energy consumption, waste management, use of recycled materials, environmental footprint of the supply chain, sustainable agricultural practices, efficient use of water, preservation of biodiversity.

In the social line, working conditions, occupational health and safety, diversity and inclusion, social impact of the company, local development, social investment programs and respect for human rights, combating child labor and discrimination.

For the governance structure, transparency, board independence, risk management are considered. Anti-corruption policies, whistleblowing mechanisms, ethics and compliance and executive compensation structure, relationship with the company's performance.

Table 8 shows the correlation between all sectors participating in ISE B3, from 2021 to 2024, taking into account the correlation of all data generated and the dimensions analyzed.

Table 8
Strength of sector relations – *Pearson Correlation Matrix*

DIMENSION	Human Capital	Corporate Governance and Senior Management	Business Model and Innovation	Share capital	*Environment*	*Carbon Disclosure Project*

SECTOR/YEAR	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
Telecommunications	0,67	0,76	0,77	0,91	0,90	0,92	0,84	0,87	0,92	0,77	0,87	0,90	0,80	0,84	0,84	0,79	0,86	0,86
Cyclical Consumption/Trade/Fabrics, Apparel and Footwear	0,50	0,63	0,63	0,90	0,79	0,77	0,89	0,85	0,74	0,75	0,75	0,76	0,82	0,69	0,70	0,86	0,71	0,71
Basic Materials/Mining/ Metal Minerals	0,52	0,69	0,74	0,86	0,85	0,90	0,78	0,77	0,93	0,73	0,80	0,90	0,71	0,75	0,88	0,64	0,72	1,00
Finance & Other/Financial Intermediaries/Banks	0,68	0,70	0,75	0,85	0,86	0,90	0,85	0,89	0,92	0,79	0,82	0,88	0,80	0,80	0,80	0,71	0,86	0,86
Public Utility/Electric Energy (Generation and Transmission)	0,59	0,70	0,72	0,83	0,82	0,82	0,69	0,87	0,88	0,73	0,79	0,76	0,77	0,72	0,80	0,71	0,71	0,71
Public Utility/Water and Sanitation	0,79	0,52	0,63	0,75	0,73	0,77	0,80	0,69	0,76	0,65	0,62	0,72	0,79	0,72	0,80	0,64	0,71	0,71
Basic Materials/Wood and Paper/Pulp and Paper	0,62	0,73	0,75	0,88	0,90	0,92	0,94	0,91	0,96	0,79	0,88	0,88	0,85	0,88	0,87	0,86	0,93	0,93
Public Utility/Electric Power (Distribution)	0,70	0,73	0,64	0,79	0,84	0,76	0,88	0,93	0,82	0,72	0,80	0,71	0,81	0,86	0,78	0,86	1,00	1,00
Non-Cyclical Consumption/Personal Use and Cleaning Products/Personal Use Products	0,72	0,73	0,81	0,88	0,88	0,94	0,76	0,88	0,95	0,84	0,88	0,84	0,79	0,88	0,93	0,86	0,71	0,71
Non-Cyclical Consumption/Trade and Distribution/Food	0,70	0,64	0,67	0,76	0,81	0,78	0,85	0,86	0,92	0,79	0,82	0,78	0,89	0,89	0,89	1,00	0,71	0,71
Finance and Other/Miscellaneous Financial Services	0,62	0,69	0,74	0,84	0,83	0,87	0,86	0,87	0,87	0,68	0,78	0,76	0,65	0,69	0,84	0,71	0,79	0,79
Oil, Gas & Biofuels/Exploration, Refining & Distribution	0,63	0,66	0,67	0,85	0,82	0,79	0,89	0,89	0,90	0,84	0,73	0,73	0,65	0,69	0,73	0,86	0,71	0,71
Industrial Goods/Transportation/Highway Operation	0,65	0,73	0,79	0,88	0,89	0,91	0,83	0,89	0,90	0,81	0,84	0,89	0,72	0,74	0,79	0,79	0,79	0,79

Non-Cyclical Consumption/Agriculture/Agriculture	0,00	0,69	0,76	0,85	0,86	0,90	0,85	0,85	0,86	0,84	0,82	0,86	0,71	0,75	0,76	0,71	0,86	0,71
Finance & Other/Diversified Holdings	0,62	0,68	0,67	0,84	0,83	0,83	0,69	0,81	0,85	0,72	0,79	0,77	0,82	0,77	0,78	0,71	0,71	0,71
Health/Medical Service Hospital,Analysis and Diagnostics	0,50	0,65	0,70	0,87	0,73	0,77	0,73	0,66	0,68	0,78	0,66	0,66	0,84	0,71	0,80	0,71	0,57	0,57
Healthcare/Trade & Distribution/Medicines & Other Products	0,63	0,67	0,71	0,88	0,81	0,82	0,83	0,88	0,89	0,82	0,75	0,76	0,80	0,71	0,73	0,79	0,71	0,71
Non-Cyclical Consumption/Food/Meat and Derivatives	0,56	0,66	0,74	0,87	0,86	0,87	0,81	0,79	0,82	0,85	0,83	0,83	0,72	0,80	0,86	0,71	0,64	0,64
Industrial Goods/Transportation/Rail	0,70	0,75	0,77	0,87	0,89	0,92	0,81	0,89	0,89	0,85	0,86	0,86	0,72	0,90	0,87	0,71	0,71	0,71
Basic Materials/Chemicals/Petrochemicals	0,67	0,68	0,75	0,86	0,78	0,87	0,86	0,80	0,87	0,85	0,77	0,88	0,85	0,82	0,84	0,71	0,86	0,86
Basic Materials/Wood and Paper/Wood	0,66	0,76	0,69	0,88	0,92	0,83	0,87	0,98	0,85	0,78	0,84	0,76	0,69	0,67	0,69	0,71	0,71	0,71
Industrial Goods/Transportation/Air Transportation	0,50	0,76	0,68	0,88	0,92	0,85	0,87	0,98	0,81	0,78	0,84	0,79	0,69	0,67	0,66	0,71	0,71	0,71
Cyclical Consumption/Automobiles and Motorcycles	0,43	0,67	0,74	0,75	0,83	0,87	0,80	0,71	0,83	0,74	0,77	0,83	0,70	0,73	0,76	0,89	0,85	0,85
Cyclical Consumption/Trade/Household Appliances	0,64	0,67	0,69	0,70	0,79	0,78	0,71	0,69	0,81	0,68	0,72	0,68	0,56	0,73	0,75	0,80	0,71	0,71
Cyclical Consumption/Civil Construction/Developments	0,48	0,62	0,70	0,75	0,71	0,75	0,67	0,69	0,72	0,66	0,62	0,63	0,80	0,71	0,73	0,71	0,71	0,71
Non-Cyclical Consumption/Food/Miscellaneous Foods	0,69	0,74	0,74	0,83	0,87	0,87	0,76	0,78	0,83	0,71	0,76	0,81	0,62	0,78	0,76	0,57	0,71	0,79
Basic Materials/Packaging	0,66	0,00	0,75	0,00	0,00	0,85	0,00	0,00	0,83	0,00	0,00	0,83	0,00	0,00	0,75	0,00	0,00	0,86
Industrial Goods/Machinery and Equipment/Motors, Compressors and Others	0,55	0,00	0,75	0,00	0,00	0,85	0,00	0,00	0,83	0,00	0,00	0,83	0,00	0,00	0,75	0,00	0,00	0,86

Industrial Goods/Machinery and Equipment/Machine. and Equip. Industrial	0,57	0,00	0,75	0,00	0,00	0,85	0,00	0,00	0,83	0,00	0,00	0,83	0,00	0,00	0,75	0,00	0,00	0,86
Cyclical Consumption/Fabrics, Apparel & Footwear/Footwear	0,53	0,61	0,70	0,00	0,78	0,87	0,00	0,76	0,92	0,00	0,63	0,73	0,00	0,76	0,89	0,00	0,71	0,71
Cyclical Consumption/Miscellaneous/Car Rental	0,52	0,76	0,79	0,74	0,83	0,82	0,67	0,87	0,86	0,70	0,78	0,76	0,67	0,81	0,73	0,43	0,64	0,71
Industrial Goods/Transportation/Support Services and Storage	0,00	0,75	0,76	0,73	0,84	0,85	0,64	0,83	0,85	0,69	0,79	0,77	0,55	0,73	0,75	0,50	0,79	0,79
Finance and Other/Real Estate Exploration	0,27	0,64	0,65	0,80	0,82	0,77	0,82	0,81	0,82	0,79	0,80	0,77	0,62	0,67	0,78	0,71	0,71	0,57
Basic Materials/Steel and Metallurgy/Steel	0,62	0,70	0,74	0,84	0,84	0,87	0,72	0,79	0,85	0,77	0,79	0,82	0,75	0,78	0,78	0,86	0,71	0,71
Cyclical Consumption/Miscellaneous/Educational Services	0,37	0,63	0,57	0,81	0,84	0,82	0,69	0,78	0,77	0,72	0,76	0,75	0,81	0,83	0,83	0,64	0,71	0,71
Finance and Others/Pension and Insurance/Insurance	0,63	0,57	0,59	0,75	0,79	0,80	0,51	0,84	0,86	0,69	0,68	0,69	0,70	0,65	0,68	0,43	0,71	0,71
Industrial Goods/Transportation/Road Transport	0,00	0,58	0,72	0,00	0,83	0,90	0,00	0,69	0,80	0,00	0,80	0,82	0,00	0,71	0,86	0,00	0,57	0,57
Non-Cyclical Consumption/Beverages/Beers and Soft Drinks	0,77	0,58	0,72	0,00	0,83	0,90	0,00	0,69	0,80	0,00	0,80	0,82	0,00	0,71	0,86	0,00	0,57	0,57
Industrial Goods/Engineering & Construction/Construction Products	0,00	0,83	0,82	0,52	0,71	0,74	0,29	0,65	0,76	0,49	0,74	0,79	0,63	0,87	0,87	0,14	0,43	0,43
Basic/Chemical/Miscellaneous Chemical Materials	0,00	0,83	0,82	0,52	0,71	0,74	0,29	0,65	0,76	0,49	0,74	0,79	0,63	0,87	0,87	0,14	0,43	0,43

Non-Cyclical Consumption/ Processed Foods/Sugar and Alcohol	0,00	0,00	0,65	0,00	0,00	0,83	0,00	0,00	0,63	0,00	0,00	0,80	0,00	0,00	0,71	0,00	0,00	0,71
Information Technology/Programs and Services	0,57	0,00	0,65	0,00	0,00	0,83	0,00	0,00	0,63	0,00	0,00	0,80	0,00	0,00	0,71	0,00	0,00	0,71
Cyclical Consumption/Trade/Miscellaneous Products	0,64	0,62	0,63	0,65	0,72	0,75	0,67	0,77	0,85	0,61	0,66	0,64	0,79	0,68	0,68	0,57	0,71	0,71
Basic Materials/Steel and Metallurgy/Copper Artifacts	0,56	0,42	0,54	0,00	0,54	0,75	0,00	0,62	0,76	0,00	0,52	0,75	0,00	0,39	0,59	0,00	0,71	0,71
Information Technology/Computers and Equipment	0,45	0,52	0,63	0,00	0,57	0,63	0,00	0,56	0,70	0,00	0,55	0,72	0,00	0,66	0,80	0,00	0,43	0,43

Source: Elaborator by the author (2024)

Based on the regression analyzed for all sectors, table 8 generates evidence of analyses that were cataloged in table 9, where they evaluated whether the following results of Brazilian companies considering the sectors, we have the following scenario:

Table 9
Analysis of sectoral correlation x strength of the correlation between the variables

Sector	Correlation Analysis	Strength of Correlation
Telecommunications	High correlation between all variables (above 0.7).	Strong and positive linear relationship between all variables.
Cyclical Consumption/Trade/Fabrics, Apparel and Footwear:	Moderate to high correlation between variables (between 0.495 and 0.716).	Positive linear relationship between Most variables.
Basic Materials/Mining/Metal Minerals:	Moderate to high correlation between variables (between 0.520 and 0.930).	Positive linear relationship between Most variables.
Finance and Others/Financial Intermediaries/Banks:	High correlation between all variables (above 0.675).	Strong and positive linear relationship between all variables.
Public Utility/Electric Energy (Generation and Transmission):	Moderate to high correlation between variables (between 0.591 and 0.830).	Positive linear relationship between Most variables.
Public Utility/Water and Sanitation:	High correlation between Most variables (above 0.7).	Strong and positive linear relationship between Most variables.
Basic Materials/Wood and Paper/Pulp and Paper:	High correlation between all variables (above 0.624).	Strong and positive linear relationship between all variables.

Public Utility/Electric Energy (Distribution):	Moderate to high correlation between variables (between 0.702 and 0.883).	Strong and positive linear relationship between Most variables.
Non-Cyclical Consumption/Personal Use and Cleaning Products/Personal Use Products:	High correlation between all variables (above 0.716).	Strong and positive linear relationship between all variables.
Non-Cyclical Consumption/Trade and Distribution/Food:	Moderate to high correlation between variables (between 0.702 and 0.918).	Strong and positive linear relationship between Most variables.
Financial and Other/Miscellaneous Financial Services:	Moderate to high correlation between variables (between 0.615 and 0.872).	Positive linear relationship between Most variables.
Oil, Gas and Biofuels/Exploration, Refining and Distribution:	Moderate to high correlation between variables (between 0.632 and 0.899).	Strong and positive linear relationship between Most variables.
Industrial Goods/Transportation/Highway Exploration:	Moderate to high correlation between variables (between 0.650 and 0.913).	Strong and positive linear relationship between Most variables.
Non-Cyclical Consumption/Agriculture/Agriculture:	Moderate to high correlation between variables (between 0.690 and 0.862).	Strong and positive linear relationship between Most variables.
Financial and Other/Diversified Holdings:	Moderate to high correlation between variables (between 0.619 and 0.854).	Positive linear relationship between Most variables.
Health/Medical Serv.Hospital, Analysis and Diagnostics:	Moderate correlation between variables (between 0.502 and 0.783).	Positive linear relationship between Most variables.
Health/Trade and Distribution/Medicines and Other Products:	Moderate to high correlation between variables (between 0.625 and 0.885).	Strong and positive linear relationship between Most variables.
Non-Cyclical Consumption/Food/Meat and Derivatives:	Moderate to high correlation between variables (between 0.555 and 0.873).	Strong and positive linear relationship between Most variables.
Industrial Goods/Transportation/Rail Transportation:	High correlation between all variables (above 0.698).	Strong and positive linear relationship between all variables.
Basic Materials/Chemicals/Petrochemicals:	Moderate to high correlation between variables (between 0.674 and 0.873).	Strong and positive linear relationship between Most variables.
Basic Materials/Wood and Paper/Wood:	High correlation between all variables (above 0.662).	Strong and positive linear relationship between all variables.
Industrial Goods/Transportation/Air Transportation:	High correlation between all variables (above 0.5).	Strong and positive linear relationship between all variables.
Cyclical Consumption/Automobiles and Motorcycles:	Moderate correlation between variables (between 0.433 and 0.873).	Positive linear relationship between Most variables.
Cyclical Consumption/Trade/Household Appliances:	Moderate correlation between variables (between 0.639 and 0.791).	Positive linear relationship between Most variables.
Cyclical Consumption/Civil Construction/Real Estate Developments:	Low to moderate correlation between variables (between 0.476 and 0.752).	Positive linear relationship between Most variables.
Non-Cyclical Intake/Food/Miscellaneous Foods:	Moderate to high correlation between variables (between 0.694 and 0.827).	Strong and positive linear relationship between Most variables.

Basic Materials/Packaging:	High correlation between all variables (above 0.663).	Strong and positive linear relationship between all variables.
Industrial Goods/Machinery and Equipment/Motors, Compressors and Others:	High correlation between all variables (above 0.552).	Strong and positive linear relationship between all variables.
Industrial Goods/Machinery and Equipment/Machine. and Equip. Industrial:	High correlation between all variables (above 0.567).	Strong and positive linear relationship between all variables.
Cyclical Consumption/Fabrics, Apparel and Footwear/Footwear:	Moderate to high correlation between variables (between 0.527 and 0.923).	Strong and positive linear relationship between Most variables.
Cyclical Consumption/Miscellaneous/Car Rental:	Moderate correlation between variables (between 0.519 and 0.865).	Positive linear relationship between Most variables.
Industrial Goods/Transportation/Support Services and Storage:	Moderate correlation between variables (between 0 and 0.850).	Positive linear relationship between Most variables.
Finance and Other/Real Estate Exploitation:	Low to moderate correlation between variables (between 0.269 and 0.832).	Positive linear relationship between Most variables.
Basic Materials/Steel and Metallurgy/Steel:	Moderate to high correlation between variables (between 0.619 and 0.869).	Strong and positive linear relationship between Most variables.
Cyclical Consumption/Miscellaneous/Educational Services:	Moderate correlation between variables (between 0.369 and 0.854).	Positive linear relationship between Most variables.
Finance and Others/Pension and Insurance/Insurance Companies:	Moderate correlation between variables (between 0.627 and 0.864).	Positive linear relationship between Most variables.
Industrial Goods/Transportation/Road Transportation:	Moderate correlation between variables (between 0.570 and 0.835).	Positive linear relationship between Most variables.
Non-Cyclical Consumption/Beverages/Beers and Soft Drinks:	High correlation between all variables (above 0.765).	Strong and positive linear relationship between all variables.
Industrial Goods/Engineering & Construction/Construction Products:	High correlation between all variables (above 0.765).	Strong and positive linear relationship between all variables.
Basic/Chemical/Miscellaneous Chemical Materials:	Low to moderate correlation between variables (between 0 and 0.874).	Positive linear relationship between Most variables.
Non-Cyclical Consumption/Processed Foods/Sugar and Alcohol:	Correlation absent for all variables (equal to 0).	Correlation absent for all variables (equal to 0).
Information Technology/Programs and Services	High correlation between all variables (above 0.654).	Strong and positive linear relationship between all variables.
Cyclical Consumption/Trade/Miscellaneous Products	Moderate correlation between variables (between 0.640 and 0.850).	Positive linear relationship between Most variables.
Basic Materials/Steel and Metallurgy/Copper Artifacts:	Moderate to high correlation between variables (between 0.555 and 0.774).	Positive linear relationship between Most variables.
Information Technology/Computers and Equipment:	Moderate to high correlation between variables (between 0.451 and 0.795).	Positive linear relationship between Most variables.

Source: Prepared by the author (2024)

Based on table 9, a positive correlation is observed between the variables studied in almost all sectors. This demonstrates that the factors analyzed by the ISE are in line with ESG factors explored by companies in different sectors. As mentioned earlier, for the Global Compact (2023), the concern with environmental, social, and governance aspects has gained more and more visibility in the market and in society.

For Castro & Miranda (2018), the ISE sector analysis is an important tool for investors who wish to invest in companies with better ESG practices, as it allows them to identify the sectors that are most advanced in this regard. For Melo & Vasconcelos (2019), the ISE sector analysis can help investors diversify their investments and reduce their risks when choosing sustainable companies. Based on this scenario of analyzing the table data in a dimensional analysis, we were able to highlight the following scenarios about each of the dimensions.

6.4.1 Sectoral analysis on size – Human Capital

To carry out the sectoral analysis, a table was generated with the analyses used in table 11 of this study.

Table 11
Annual analysis on the Human Capital dimension in the ISE

Year	Correlation
2021	Positive and significant correlation in 39 sectors (87%)
2022	Positive and significant correlation in 42 sectors (93%)
2023	Positive and significant correlation in 44 sectors (98%)

Source: Prepared by the author (2024)

Analysing table 11, in the base year of 2021, the human capital dimension of ISE B3 presented, during 2021, a positive correlation of 39 sectors, which represents 87% of all sectors participating in the portfolio. For the year 2022, the positive and significant correlation was in 42 sectors, which represents 93% of the companies. In 2023, the correlation was positive and significant and 44 sectors, which represents 98%. From this dimension, when analyzing the sectoral situation, what can be analyzed here is that the human capital dimension has been growing in its positive percentage ratios during the last three years measured.

For this dimension, some relevant ESG practices could be linked to people management with a focus on professional development and talent retention and investment in occupational health and safety.

6.4.2 Sector analysis on dimension – Corporate Governance and Senior Management

To carry out the sectoral analysis, a table was generated with the analyses used in Table 12 of this study.

Table 12
Annual analysis on the Corporate Governance and Senior Management dimension at ISE

Year	Correlation
2021	Positive and significant correlation in 43 sectors (96%)
2022	Positive and significant correlation across 45 sectors (100%)
2023	Positive and significant correlation across 45 sectors (100%)

Source: Prepared by the author (2024)

Analyzing table 12, in the base year of 2021, the Corporate Governance and Senior Management dimension of ISE B3 presented, during 2021, a positive correlation of 43 sectors, which represents 87% of all sectors participating in the portfolio. For the year 2022, the positive and significant correlation was in 45 sectors, which represents 100% of the companies in the sector. In 2023, the correlation was positive and significant and 45 sectors, which represents 100%. From this dimension, when analyzing the sectoral situation, what can be analyzed here is that the dimension of Corporate Governance and Senior Management has been growing in its positive percentage ratios during the last three years measured, which denotes an interesting evaluation by the participating companies.

For this dimension, some relevant ESG practices could be linked to a robust and transparent governance structure, the presence of sustainability and diversity committees, a code of conduct and anti-corruption policies, and executive compensation linked to ESG criteria.

6.4.3 Sector analysis on size – Business Model and Innovation

To carry out the sectoral analysis, a table was generated with the analyses used in table 13 of this study.

Table 13
Annual analysis on the Business Model and Innovation dimension in the ISE

Year	Correlation
2021	Positive and significant correlation in 38 sectors (84%)
2022	Positive and significant correlation across 41 sectors (91%)
2023	Positive and significant correlation in 43 sectors (96%)

Source: Prepared by the author (2024)

Analyzing table 13, based on the year 2021, the Business Model and Innovation dimension of ISE B3 presented, during the year, a positive correlation of 38 sectors, which represents 84% of all sectors participating in the portfolio. For the year 2022, the positive and significant correlation was in 41 sectors, which represents 91% of the companies in the sector. In 2023, the correlation was positive and significant and 43 sectors, which represents 96%. From this dimension, when analyzing the sectoral situation, what can be analyzed here is that the Business Model and Innovation dimension has been growing in its positive percentage relations during the last three years measured, with a tendency to increase the participation and perception of the participating companies and sectors.

For this dimension, some relevant ESG practices are an innovative business model that considers the challenges of sustainability, investment in research and development of sustainable products and services, and Management of risks and opportunities related to sustainability.

6.4.4 Sectoral analysis on dimension – Social Capital

To carry out the sectoral analysis, a table was generated with the analyses used in table 14 of this study.

Table 14

Annual analysis on the Social Capital dimension in the ISE

Year	Correlation
2021	Positive and significant correlation in 32 sectors (71%)
2022	Positive and significant correlation in 36 sectors (80%)
2023	Positive and significant correlation in 39 sectors (87%)

Source: Prepared by the author (2024)

Analyzing table 14, in 2021, the Share Capital dimension of ISE B3 presented a positive correlation of 32 sectors during the year, which represents 71% of all sectors participating in the portfolio. For the year 2022, the positive and significant correlation was in 36 sectors, which represents 80% of the companies in the sector. In 2023, the correlation was positive and significant in 39 sectors, which represents 87%. From this dimension, when analyzing the sectoral situation, what can be analyzed here is that the Social Capital dimension has been growing in its positive percentage ratios during the last three years measured, with a tendency to increase the participation and perception of the participating companies and sectors.

For this dimension, some relevant ESG practices, community engagement and social investment actions, promotion of diversity and inclusion in the company, and dialogue with stakeholders to identify and meet their expectations.

6.4.5 Sectoral analysis on dimension – Environment

To carry out the sectoral analysis, a table was generated with the analyses used in table 15 of this study.

Table 15
Annual analysis on the Environment dimension in the ISE

Year	Correlation
2021	Positive and significant correlation across 41 sectors (91%)
2022	Positive and significant correlation in 44 sectors (98%)

2023	Positive and significant correlation across 45 sectors (100%)

Source: Prepared by the author (2024)

Analyzing table 15, in 2021 the Environment dimension of ISE B3 presented a positive correlation of 41 sectors during the year, which represents 91% of all sectors participating in the portfolio. For the year 2022, the positive and significant correlation was in 44 sectors, which represents 98% of the companies in the sector. In 2023, the correlation was positive and significant in 45 sectors, which represents 100%. From this dimension, when analyzing the sectoral situation, what can be analyzed here is that the Environment dimension is one of the main concerns of the index participants, with all sectors correlated in 2023.

For this dimension, some relevant ESG practices include actions to reduce greenhouse gas emissions, water and energy consumption, and waste management, investment in clean and renewable technologies, and the adoption of sustainable production and consumption practices.

6.4.6 Sectoral analysis on size – *Carbon Disclosure Project*

To carry out the sectoral analysis, a table was generated with the analyses used in Table 16 of this study.

Table 16
Annual analysis on the *Carbon Disclosure Project dimension* at ISE

Year	Correlation
2021	Unavailable.
2022	Positive and significant correlation in 34 sectors (76%)
2023	Positive and significant correlation in 38 sectors (84%)

Source: Prepared by the author (2024)

Analyzing table 16, based on the year 2021, the *Carbon Disclosure Project* dimension of ISE B3 did not present data during this period that would format an analytical view. For the year 2022, the positive and significant correlation was in 34 sectors, which represents 76% of the companies in the sector. In 2023, the correlation was positive and significant in 38 sectors,

which represents 84%. This dimension shows growth, however, it still appears as a point of greater study by the participating companies and sectors.

For this dimension, some ESG practices, transparent disclosure of greenhouse gas emissions, adoption of emission reduction targets, and participation in initiatives to combat climate change.

6.4.7 Sector Analysis – Global Analysis

When analyzing some observations and considerations, the strength of the correlation between the dimensions and the *final score* varies according to the sector and the year. There are discrepancies between the ESG practices declared by companies and their results in the ISE. The ISE is an important, but not the only, indicator of corporate sustainability.

Companies should seek to strengthen their ESG practices in all dimensions assessed by the ISE. It is important that there is greater transparency in the disclosure of ESG practices by companies. The ISE should be improved to better reflect the challenges and opportunities of corporate sustainability.

For XP (2023), the ISE B3 continues to be an important measure of the ESG performance of Brazilian companies, highlighting those that are well positioned in relation to the agenda. Thus, the index increases market transparency and supports investors in making the best investment decisions, while encouraging listed companies to improve their ESG practices. However, we emphasize our understanding that even the companies selected to integrate the portfolio have room to improve their ESG strategies going forward.

When analyzing the sectoral results, it is observed that the sectors of basic materials and electricity were the ones that contributed the most to the return of the ISE B3, while the sectors of Non-cyclical Consumption and financial were the ones that contributed the least. On the other hand, the information technology sector showed the highest revenue growth among ISE B3 companies in 2023, while the *Utilities* sector showed the lowest growth.

Still on XP's market analysis (2023), the Commodities sector presents higher volatility and systemic risk, while the Utilities sector presents lower volatility and risk. For S&P Global (2023), the healthcare sector has lower credit risk compared to other sectors in the ISE B3.3.

For EY (2023), digitalization and sustainability are the main trends impacting the ISE B3 sectors. For Deloitte (2023), the increase in demand for renewable energy and the growing

concern about corporate governance are trends that can benefit the Electric Energy and *Utilities sectors.*

In 2023, the ISE outperformed the Ibovespa, the main index of the Brazilian stock exchange. This positive performance can be attributed, in part, to the strong presence of companies in the energy and consumer goods sectors, which performed well in the year. Some macroeconomic trends, such as economic growth, inflation, and interest rates, can influence the performance of businesses in different industries.

In addition, environmental regulation can bring changes in environmental laws and regulations can affect the costs and prospects of companies in sectors such as energy, basic materials and civil construction, as well as consumer demand for sustainable products and services can benefit companies in sectors such as consumer goods, food and beverages, developing technological innovation, in the development of new sustainable technologies can create opportunities for companies in various sectors.

7 CONTRIBUTIONS TO PRACTICE

In this chapter, it is presented how the intervention was carried out in practice, with the main results obtained through the intervention, contribution and opportunities for improvement and suggestions.

7.1 CONTRIBUTION OF THE STUDY IN PRACTICE TO ISE B3 AND ITS CORRELATION WITH ESG GUIDELINES AS A TECHNICAL PRODUCT

By analyzing the contribution of the present study in the correlation between the dimensions and the ISE B3 index for ESG practices, we can evidence attractiveness contributions that contribute to the practice of the companies participating in the index. In line with B3's ISE methodology, the 187 companies that were invited to participate in this year's selection process need to be part of the portfolio (B3, 2024).

As a contribution to the study of the human capital dimension, factors such as evaluating the attractiveness of the company for talent, tend to show companies with good people management practices, with training and development actions, tend to attract and retain talent. This contribution can lead to an increase in the productivity and competitiveness of the company, with improved productivity and competitiveness.

For the corporate governance and senior management dimension, it is integrated to evaluate the quality of the company's management, which can help investors make more informed decisions about investments. In addition, improving corporate governance, with the implementation of good corporate governance practices, can improve the company's management, leading to an increase in transparency, *accountability*, and company responsibility. As a possible result, there is a chance of reducing the risk of fraud and scandals.

To evaluate the business model and innovation dimension, it is important to evaluate the sustainability of the business model, with analysis of the business model and the company's innovation capacity, helping to evaluate the sustainability of the business model. This factor can help to increase the company's competitiveness, with better innovation capacity and investment in research and development can improve the company's innovation capacity, increasing the development of new products and services that can increase the company's profitability.

For the assessment of the Social Capital dimension, questions that evaluate the analysis of the company's social capital can help to assess the company's relationship with its *stakeholders*, which can help the company to identify opportunities to improve its relationships with its *stakeholders*.

For the analysis of the Environment dimension, it tends to evaluate the environmental impact of the company, an opportunity that can identify opportunities to reduce its environmental impact. This can lead to an increase in the company's sustainability. This policy is related to the implementation of good environmental management practices, which is a factor that can reduce the company's environmental impact, leading to a decrease in costs and an increase in the company's competitiveness.

For the dynamic dimension of the *Carbon Disclosure Project*, assessing the company's transparency regarding climate change can help investors make more informed investment decisions. The company can improve its response to CDP to increase transparency regarding climate change. With these climate change mitigation contributions, the company can take steps to reduce its greenhouse gas emissions.

8 FINAL CONSIDERATIONS

The study based on the 6 dimensions allows investors to select companies that take into account environmental, social and governance (ESG) factors. This makes it possible to build investment portfolios that are socially responsible and aligned with sustainable practices. The study can help identify companies with good governance, strong human capital and a sustainable business model.

Analyzing the ISE B3 portfolio, in the last three years, the consolidation of annual growth in 5 of the 6 dimensions of the index is identified. The only dimension that suffered a retraction over the period was the *Carbon Disclosure Project*, with a retraction in 2023. It is important to remember that statistically the data in this study are from asymmetric facts to the right and have a normality for their analysis.

The detailed analysis reveals complex and interdependent relationships between the variables. Companies that invest in all the dimensions analyzed tend to have *score* growth over the period within the ISE B3 index, as well as the sector in which it is positioned.

Correlation and regression matrix analyses indicate that Human Capital is strongly related to Corporate Governance and Senior Management, Business Model and Innovation, and Social Capital. The Environment and the *carbon disclosure project* can have a stronger impact on Human Capital and, consequently, better organizational performance, but this relationship needs more investigation to be confirmed.

It is important to consider causality when interpreting the results and to seek additional evidence. Develop management strategies that consider the interdependencies between variables to optimize human capital and organizational performance, so that the relationships between variables can be continuously monitored to adapt to changes in the business and market context.

It is of paramount importance to develop management strategies that consider the interdependencies between variables to optimize Human Capital and organizational performance. Continuously monitor the relationships between variables to adapt to changes in the business context and the market. Companies looking to improve their score in the should adopt a holistic view of sustainability, investing in all the dimensions analyzed.

It is important to focus on human capital, business model and innovation, and corporate governance and senior management, as these dimensions have the greatest impact on the *score scores*, as well as on the relationships studied. Understanding the relationships between Human

Capital and other variables is essential for the formulation of effective management strategies to achieve organizational sustainability.

The ISE B3 encourages companies listed on B3 to adopt good ESG practices to become eligible for the index, but this range can be increased with greater incentives for ESG practices.

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APPENDIX A – RESEARCH QUESTIONNAIRE APPLIED

Ranking/ Score - ISE 2022 Portfolio – base year 2021 – Score 2022

Corporate Name	Sector	Ranking	Wallet?	ISE B3 2021 Score
EDP - ENERGIAS DO BRASIL S.A.	Public Utility/Electric Power (Distribution)	1	Yes	90,25
LOJAS RENNER S.A.	Cyclical Consumption/Trade/Fabrics, Apparel and Footwear	2	Yes	85,13
CPFL ENERGIA S.A.	Public Utility/Electric Power (Distribution)	3	Yes	81,99
TELEFÔNICA BRASIL S.A	Telecommunications	4	Yes	81,71
NATURA &CO HOLDING S.A.	Non-Cyclical Consumption/Personal Use and Cleaning Products/Personal Use Products	5	Yes	80,89
KLABIN S.A.	Basic Materials/Wood and Paper/Pulp and Paper	6	Yes	80,81
ITAÚ UNIBANCO HOLDING S.A.	Finance & Other/Financial Intermediaries/Banks	7	Yes	79,9
AMBIPAR PARTICIPAÇÕES E EMPREENDIMENTOS S/A	Public Utility/Water and Sanitation	8	Yes	79,04
SUZANO S.A.	Basic Materials/Wood and Paper/Pulp and Paper	9	Yes	78,79
ENGIE BRASIL ENERGIA S.A.	Public Utility/Electric Energy (Generation and Transmission)	10	Yes	78,22
CIA PARANAENSE DE ENERGIA - COPEL	Public Utility/Electric Power (Distribution)	11	Yes	77,54
BCO BRADESCO S.A.	Finance & Other/Financial Intermediaries/Banks	12	Yes	77,33
TIM S.A.	Telecommunications	13	Yes	77,18
NEOENERGIA S.A.	Public Utility/Electric Power (Distribution)	14	Yes	77
BRASKEM S.A.	Basic Materials/Chemicals/Petrochemicals	15	Yes	76,69
ECORODOVIAS INFRAESTRUTURA E LOGÍSTICA S.A.	Industrial Goods/Transportation/Highway Operation	16	Yes	76,47
BCO BTG PACTUAL S.A.	Finance & Other/Financial Intermediaries/Banks	17	Yes	75,54
ITAUSA S.A.	Finance & Other/Financial Intermediaries/Banks	18	Yes	75,52
AES BRASIL ENERGIA S.A.	Public Utility/Electric Energy (Generation and Transmission)	19	Yes	74,74
CCR S.A.	Industrial Goods/Transportation/Highway Operation	20	Yes	74,64

COSAN S.A.	Oil, Gas & Biofuels/Exploration, Refining & Distribution	21	Yes	74,58
DURATEX S.A.	Basic Materials/Wood and Paper/Wood	22	Yes	74,55
FLEURY S.A.	Health/Medical Serv.Hospital, Analysis and Diagnostics	23	Yes	74,27
CIA BRASILEIRA DE DISTRIBUIÇÃO	Non-Cyclical Consumption/Trade and Distribution/Food	24	Yes	74,05
CIA ENERGETICA DE MINAS GERAIS - CEMIG	Public Utility/Electric Power (Distribution)	25	Yes	73,42
AMERICANAS S.A	Cyclical Consumption/Trade/Miscellaneous Products	26	Yes	72,97
BRF S.A.	Non-Cyclical Consumption/Food/Meat and Derivatives	27	Yes	72,79
PETROBRAS DISTRIBUIDORA S/A	Oil, Gas & Biofuels/Exploration, Refining & Distribution	28	Yes	72,66
BCO BRASIL S.A.	Finance & Other/Financial Intermediaries/Banks	29	Yes	71,77
RUMO S.A.	Industrial Goods/Transportation/Rail	30	Yes	71,12
MOVIDA PARTICIPACOES SA	Cyclical Consumption/Miscellaneous/Car Rental	31	Yes	70,62
BCO SANTANDER (BRASIL) S.A.	Finance & Other/Financial Intermediaries/Banks	32	Yes	70,56
M.DIAS BRANCO S.A. IND COM DE ALIMENTOS	Non-Cyclical Intake/Food/Miscellaneous Food	33	Yes	69,87
MARFRIG GLOBAL FOODS S.A.	Non-Cyclical Consumption/Food/Meat and Derivatives	34	Yes	69,23
RAIA DROGASIL S.A.	Healthcare/Trade & Distribution/Medicines & Other Products	35	Yes	67,29
CIELO S.A.	Finance and Other/Miscellaneous Financial Services	36	Yes	67,24
JBS S.A.	Non-Cyclical Consumption/Food/Meat and Derivatives	37	No	65,9
SUL AMERICA S.A.	Finance and Others/Pension and Insurance/Insurance	38	Yes	65,32
CENTRAIS ELET BRAS S.A. - ELETROBRAS	Public Utility/Electric Energy (Generation and Transmission)	39	Yes	65,04
AREZZO INDÚSTRIA E COMÉRCIO S.A.	Cyclical Consumption/Fabrics, Apparel & Footwear/Footwear	40	Yes	64,39
CIA SIDERÚRGICA NACIONAL	Basic Materials/Steel and Metallurgy/Copper Artifacts	41	No	64,28
LIGHT S.A.	Public Utility/Electric Power (Distribution)	42	Yes	64,11
SimPAR S.A.	Finance & Other/Diversified Holdings	43	Yes	63,53
MINERVA S.A.	Non-Cyclical Consumption/Food/Meat and Derivatives	44	Yes	63,46
MRV ENGENHARIA E PARTICIPACOES S.A.	Cyclical Consumption/Civil Construction/Developments	45	Yes	62,97

WEG S.A.	Industrial Goods/Machinery and Equipment/Motors, Compressors and Others	46	Yes	62,78
GRENDENE S.A.	Cyclical Consumption/Fabrics, Apparel & Footwear/Footwear	47	No	62,2
VIA VAREJO S.A.	Cyclical Consumption/Trade/Household Appliances	48	Yes	61,97
MAGAZINE LUIZA S.A.	Cyclical Consumption/Trade/Household Appliances	49	Yes	61,47
USINAS SID DE MINAS GERAIS S.A.-USIMINAS	Basic Materials/Steel and Metallurgy/Steel	50	No	61,08
CAPITAL SOCIALN MINERAÇÃO S.A.	Basic Materials/Mining/Metal Minerals	51	No	60,73
AZUL S.A.	Industrial Goods/Transportation/Air Transportation	52	Yes	58,89
AMBEV S.A.	Non-Cyclical Consumption/Beverages/Beers and Soft Drinks	53	No	58,83
IOCAPITAL HUMANOPE MAXION S.A.	Cyclical Consumption/Automobiles and Motorcycles	54	Yes	58,24
IRANI PAPEL E EMBALAGEM S.A.	Basic Materials/Wood and Paper/Pulp and Paper	55	No	56,81
CTEEP - CIA TRANSMISSÃO ENERGIA ELÉTRICA PAULISTA	Public Utility/Electric Energy (Generation and Transmission)	56	No	55,15
ODONTOPREV S.A.	Health/Medical Service Hospital,Analysis and Diagnostics	57	No	54,77
CIA LOCAÇÃO DAS AMÉRICAS	Cyclical Consumption/Miscellaneous/Car Rental	58	No	54,07
GUARARAPES CONFECCOES S.A.	Cyclical Consumption/Trade/Fabrics, Apparel and Footwear	59	No	53,27
WE WILL RENT TRUCKS, MACHINES AND EQUIPMENT. S.A.	Industrial Goods/Services/Miscellaneous Services	60	No	53,15
ALIANSCE SONAE SHOPPING CENTERS S.A.	Finance and Other/Real Estate Exploration	61	No	50,69
GAFISA S.A.	Cyclical Consumption/Civil Construction/Developments	62	No	48,29
CESP - CIA ENERGÉTICA DE SÃO PAULO	Public Utility/Electric Energy (Generation and Transmission)	63	No	48,07
HYPERA S.A.	Healthcare/Trade & Distribution/Medicines & Other Products	64	No	47,87
ANIMA HOLDING S.A.	Cyclical Consumption/Miscellaneous/Educational Services	65	No	47,59
NOTRE DAME INTERMEDICA PARTICIPACOES SA	Health/Medical Service Hospital,Analysis and Diagnostics	66	No	46,72
AERIS IND. AND COM. DE EQUIP.	Industrial Goods/Machinery and Equipment/Machine. and Equip. Industrial	67	No	43,86

GERAÇÃO DE ENERGIA S/A				
LOCAWEB SERVIÇOS DE INTERNET S.A.	Information Technology/Programs and Services	68	No	40,4
SYN Prop and TeCapital Humano SA	Finance and Other/Real Estate Exploration	69	No	39,06
GRUPO DE MODA SOMA S.A.	Cyclical Consumption/Trade/Fabrics, Apparel and Footwear	70	No	38,89
CURY CONSTRUTORA E INCORPORADORA S.A.	Cyclical Consumption/Civil Construction/Developments	71	No	37,26
POSITIVO TECNOLOGIA S.A.	Information Technology/Computers and Equipment	72	No	33,54
LOJAS QUERO-QUERO S/A	Cyclical Consumption/Trade/Miscellaneous Products	73	No	23,16

Source: Adapted B3 (2023)

Ranking/ Score - ISE Portfolio 2022 – base year 2022 – Score 2023

Corporate Name	**Sector**	**Ranking**	**Wallet?**	**ISE B3 2022 Score**
EDP - ENERGIAS DO BRASIL S.A.	Public Utility/Electric Power (Distribution)	1	Yes	89,99
TELEFÔNICA BRASIL S.A	Telecommunications	2	Yes	87,67
LOJAS RENNER S.A.	Cyclical Consumption/Trade/Fabrics, Apparel and Footwear	3	Yes	86,65
KLABIN S.A.	Basic Materials/Wood and Paper/Pulp and Paper	4	Yes	86,04
Brazilian Aluminum Company	Basic Materials/Mining/Metal Minerals	5	Yes	86,02
CPFL ENERGIA S.A.	Public Utility/Electric Power (Distribution)	6	Yes	84,87
AMBIPAR PARTICIPAÇÕES E EMPREENDIMENTOS S/A	Public Utility/Water and Sanitation	7	Yes	83,4
BCO BRADESCO S.A.	Finance & Other/Financial Intermediaries/Banks	8	Yes	83,25
BCO PAN S.A.	Finance & Other/Financial Intermediaries/Banks	9	Yes	83,24
ENGIE BRASIL ENERGIA S.A.	Public Utility/Electric Energy (Generation and Transmission)	10	Yes	82,71
TIM S.A.	Telecommunications	11	Yes	82,16
AMERICANAS S.A	Cyclical Consumption/Trade/Miscellaneous Products	12	No*	82,07

SUZANO S.A.	Basic Materials/Wood and Paper/Pulp and Paper	13	Yes	81,8
CIA PARANAENSE DE ENERGIA - COPEL	Public Utility/Electric Power (Distribution)	14	Yes	81,17
CCR S.A.	Industrial Goods/Transportation/Highway Operation	15	Yes	80,74
BCO SANTANDER (BRASIL) S.A.	Finance & Other/Financial Intermediaries/Banks	16	Yes	80,58
CTEEP - CIA TRANSMISSÃO ENERGIA ELÉTRICA PAULISTA	Public Utility/Electric Energy (Generation and Transmission)	17	Yes	80,28
AES BRASIL ENERGIA S.A.	Public Utility/Electric Energy (Generation and Transmission)	18	Yes	80,16
ITAÚ UNIBANCO HOLDING S.A.	Finance & Other/Financial Intermediaries/Banks	19	Yes	80,15
ITAUSA S.A.	Finance & Other/Diversified Holdings	20	Yes	79,77
BCO BRASIL S.A.	Finance & Other/Financial Intermediaries/Banks	21	Yes	79,34
CIA ENERGETICA DE MINAS GERAIS - CEMIG	Public Utility/Electric Power (Distribution)	22	Yes	78,89
CENTRAIS ELET BRAS S.A. - ELETROBRAS	Public Utility/Electric Energy (Generation and Transmission)	23	Yes	78,82
NATURA &CO HOLDING S.A.	Non-Cyclical Consumption/Personal Use and Cleaning Products/Personal Use Products	24	Yes	78,42
ECORODOVIAS INFRAESTRUTURA E LOGÍSTICA S.A.	Industrial Goods/Transportation/Highway Operation	25	Yes	78,25
CIA BRASILEIRA DE DISTRIBUIÇÃO	Non-Cyclical Consumption/Trade and Distribution/Food	26	Yes	77,93
MARFRIG GLOBAL FOODS S.A.	Non-Cyclical Consumption/Food/Meat and Derivatives	27	Yes	77,89
DEXCO S.A.	Basic Materials/Wood and Paper/Wood	28	Yes	77,62
M.DIAS BRANCO S.A. IND COM DE ALIMENTOS	Non-Cyclical Consumption/Food/Miscellaneous Foods	29	Yes	77,41
BRASKEM S.A.	Basic Materials/Chemicals/Petrochemicals	30	Yes	76,97
MAGAZINE LUIZA S.A.	Cyclical Consumption/Trade/Household Appliances	31	Yes	76,48
BRF S.A.	Non-Cyclical Consumption/Food/Meat and Derivatives	32	Yes	76,19
NEOENERGIA S.A.	Public Utility/Electric Power (Distribution)	33	Yes	76,09

RAIA DROGASIL S.A.	Healthcare/Trade & Distribution/Medicines & Other Products	34	Yes	76,01
AREZZO INDÚSTRIA E COMÉRCIO S.A.	Cyclical Consumption/Trade/Fabrics, Apparel and Footwear	35	Yes	75,93
FLEURY S.A.	Health/Medical Service Hospital,Analysis and Diagnostics	36	Yes	75,9
BCO BTG PACTUAL S.A.	Finance & Other/Financial Intermediaries/Banks	37	Yes	75,82
COSAN S.A.	Oil, Gas & Biofuels/Exploration, Refining & Distribution	38	Yes	75,78
RAÍZEN S.A.	Non-Cyclical Consumption/Agriculture/Agriculture	39	Yes	75,76
ENEVA S.A	Public Utility/Electric Energy (Generation and Transmission)	40	Yes	75,62
IRANI PAPEL E EMBALAGEM S.A.	Basic Materials/Packaging	41	Yes	75,54
B3 S.A. - BRAZIL, STOCK EXCHANGE, BRANCH	Finance and Other/Miscellaneous Financial Services	42	Yes	75,27
RUMO S.A.	Industrial Goods/Transportation/Rail	43	Yes	74,8
WEG S.A.	Industrial Goods/Machinery and Equipment/Motors, Compressors and Others	44	Yes	74,73
MRV ENGENHARIA E PARTICIPACOES S.A.	Cyclical Consumption/Civil Construction/Developments	45	Yes	74,33
CIELO S.A. - PAYMENT INSTITUTION	Finance and Other/Miscellaneous Financial Services	46	Yes	74,1
AZUL S.A.	Industrial Goods/Transportation/Air Transportation	47	Yes	73,6
JBS S.A.	Non-Cyclical Consumption/Food/Meat and Derivatives	48	No	71,84
VIBRA ENERGIA S.A.	Oil, Gas & Biofuels/Exploration, Refining & Distribution	49	Yes	71,33
Rede DOr São Luiz S.A.	Health/Medical Service Hospital,Analysis and Diagnostics	50	Yes	70,93
IOCAPITAL HUMANOPE MAXION S.A.	Cyclical Consumption/Automobiles and Motorcycles	51	Yes	70,91
AERIS IND. AND COM. DE EQUIP. GERAÇÃO DE ENERGIA S/A	Industrial Goods/Machinery and Equipment/Machine. and Equip. Industrial	52	Yes	70,56
MOVIDA PARTICIPACOES SA	Cyclical Consumption/Miscellaneous/Car Rental	53	Yes	70,36
SENDAS DISTRIBUIDORA S.A.	Non-Cyclical Consumption/Trade and Distribution/Food	54	Yes	70,14

SLC AGRICOLA S.A.	Non-Cyclical Consumption/Agriculture/Agriculture	55	Yes	69,58
GRENDENE S.A.	Cyclical Consumption/Fabrics, Apparel & Footwear/Footwear	56	Yes	69,02
GUARARAPES CONFECCOES S.A.	Cyclical Consumption/Trade/Fabrics, Apparel and Footwear	57	Yes	68,71
MINERVA S.A.	Non-Cyclical Consumption/Food/Meat and Derivatives	58	Yes	68,22
ALIANSCE SONAE SHOPPING CENTERS S.A.	Finance and Other/Real Estate Exploration	59	Yes	68,17
SANTOS BRASIL PARTICIPACOES S.A.	Industrial Goods/Transportation/Support Services and Storage	60	Yes	66,26
HYPERA S.A.	Healthcare/Trade & Distribution/Medicines & Other Products	61	Yes	66,21
USINAS SID DE MINAS GERAIS S.A.-USIMINAS	Basic Materials/Steel and Metallurgy/Steel	62	Yes	66,02
LIGHT S.A.	Public Utility/Electric Power (Distribution)	63	No*	64,74
VIA S.A	Cyclical Consumption/Trade/Household Appliances	64	Yes	64,44
SIMPAR S.A.	Finance & Other/Diversified Holdings	65	Yes	63,76
WE WILL RENT TRUCKS, MACHINES AND EQUIPMENT. S.A.	Cyclical Consumption/Miscellaneous/Car Rental	66	Yes	63,64
AMBEV S.A.	Non-Cyclical Consumption/Beverages/Beers and Soft Drinks	67	Yes	63,23
SANITATION COMPANY OF PARANÁ - SANEPAR	Public Utility/Water and Sanitation	68	Yes	60,97
DIAGNOSTICS OF AMERICA S.A.	Health/Medical Service Hospital,Analysis and Diagnostics	69	Yes	59,87
COGNA EDUCAÇÃO S.A.	Cyclical Consumption/Miscellaneous/Educational Services	70	Yes	59,21
GAFISA S.A.	Cyclical Consumption/Civil Construction/Developments	71	Yes	59,1
ODONTOPREV S.A.	Health/Medical Serv.Hospital, Analysis and Diagnostics	72	No	58,38
GRUPO DE MODA SOMA S.A.	Cyclical Consumption/Trade/Fabrics, Apparel and Footwear	73	No	55,6
PORTO SEGURO S.A.	Finance and Others/Pension and Insurance/Insurance	74	No	54,67
CAMIL ALIMENTOS S.A.	Non-Cyclical Consumption/Food/Miscellaneous Foods	75	No	52,94

CIA SANEAMENTO DE MINAS GERAIS-COPASA MG	Public Utility/Water and Sanitation	76	No	50,64
IGUATEMI S.A.	Finance and Others/Real Estate Exploration/Real Estate Intermediation	77	No	50,22
SYN PROP AND TECAPITAL HUMANO S.A.	Finance and Other/Real Estate Exploration	78	No	48,6
TRÊS TENTOS AGROINDUSTRIAL S/A	Non-Cyclical Consumption/Agriculture/Agriculture	79	No	45,16
GETNET ADQ. E SERV MAS DE PGTO S.A - INST PGTO.	Finance and Other/Miscellaneous Financial Services	80	No	42,08
LOJAS QUERO-QUERO S/A	Cyclical Consumption/Trade/Miscellaneous Products	81	No	36,84
LOCAWEB SERVIÇOS DE INTERNET S.A.	Information Technology/Programs and Services	82	No	34,64
EZ TEC EMPREEND. E PARTICIPAÇÕES S.A.	Cyclical Consumption/Civil Construction/Developments	83	No	34,1

Source: Adapted B3 (2023)

Ranking/ Score - ISE Portfolio 2022 – base year 2023 – Score 2024

Corporate Name	**Sector**	**Ranking**	**Wallet?**	**ISE B3 2023 Score**
TELEFÔNICA BRASIL S.A	Telecommunications	1	Yes	89,16
LOJAS RENNER S.A.	Cyclical Consumption/Trade/Fabrics, Apparel and Footwear	2	Yes	87,82
Brazilian Aluminum Company	Basic Materials/Mining/Metal Minerals	3	Yes	87,31
BCO PAN S.A.	Finance & Other/Financial Intermediaries/Banks	4	Yes	86,43
ENGIE BRASIL ENERGIA S.A.	Public Utility/Electric Energy (Generation and Transmission)	5	Yes	86,26
AMBIPAR PARTICIPAÇÕES E EMPREENDIMENTOS S/A	Public Utility/Water and Sanitation	6	Yes	85,49
SUZANO S.A.	Basic Materials/Wood and Paper/Pulp and Paper	7	Yes	85,32
KLABIN S.A.	Basic Materials/Wood and Paper/Pulp and Paper	8	Yes	85,32
NEOENERGIA S.A.	Public Utility/Electric Energy (Generation and Transmission)	9	Yes	84,97
CPFL ENERGIA S.A.	Public Utility/Electric Power (Distribution)	10	Yes	84,74

TIM S.A.	Telecommunications	11	Yes	84,07
BCO BRADESCO S.A.	Finance & Other/Financial Intermediaries/Banks	12	Yes	83,67
NATURA &CO HOLDING S.A.	Non-Cyclical Consumption/Personal Use and Cleaning Products/Personal Use Products	13	Yes	83,52
BCO SANTANDER (BRASIL) S.A.	Finance & Other/Financial Intermediaries/Banks	14	Yes	82,73
CIA PARANAENSE DE ENERGIA - COPEL	Public Utility/Electric Power (Distribution)	15	Yes	82,42
BCO BRASIL S.A.	Finance & Other/Financial Intermediaries/Banks	16	Yes	82,33
CIA BRASILEIRA DE DISTRIBUIÇÃO	Non-Cyclical Consumption/Trade and Distribution/Food	17	Yes	81,78
AES BRASIL ENERGIA S.A.	Public Utility/Electric Energy (Generation and Transmission)	18	Yes	81,5
B3 S.A. - BRAZIL, STOCK EXCHANGE, BRANCH	Finance and Other/Miscellaneous Financial Services	19	Yes	81,49
COSAN S.A.	Oil, Gas & Biofuels/Exploration, Refining & Distribution	20	Yes	81,47
CCR S.A.	Industrial Goods/Transportation/Highway Operation	21	Yes	81,47
RAIZEN S.A.	Non-Cyclical Consumption/Agriculture/Agriculture	22	Yes	81,3
ECORODOVIAS INFRAESTRUTURA E LOGÍSTICA S.A.	Industrial Goods/Transportation/Highway Operation	23	Yes	81,08
ITAÚ UNIBANCO HOLDING S.A.	Finance & Other/Financial Intermediaries/Banks	24	Yes	80,9
ITAUSA S.A.	Finance & Other/Diversified Holdings	25	Yes	80,59
Rede DOr São Luiz S.A.	Health/Medical Service Hospital,Analysis and Diagnostics	26	Yes	80,5
CTEEP - CIA TRANSMISSÃO ENERGIA ELÉTRICA PAULISTA	Public Utility/Electric Energy (Generation and Transmission)	27	Yes	80,46
RAIA DROGASIL S.A.	Healthcare/Trade & Distribution/Medicines & Other Products	28	Yes	80,15
MARFRIG GLOBAL FOODS S.A.	Non-Cyclical Consumption/Food/Meat and Derivatives	29	Yes	79,91
RUMO S.A.	Industrial Goods/Transportation/Rail	30	Yes	79,88
CIA ENERGETICA DE MINAS GERAIS - CEMIG	Public Utility/Electric Energy (Generation and Transmission)	31	Yes	79,55
BRASKEM S.A.	Basic Materials/Chemicals/Petrochemicals	32	No	79,47
CENTRAIS ELET BRAS S.A. - ELETROBRAS	Public Utility/Electric Energy (Generation and Transmission)	33	Yes	79,21

BCO BTG PACTUAL S.A.	Finance & Other/Financial Intermediaries/Banks	34	Yes	78,72
DEXCO S.A.	Basic Materials/Wood and Paper/Wood	35	Yes	78,58
AZUL S.A.	Industrial Goods/Transportation/Air Transportation	36	Yes	78,12
SLC AGRICOLA S.A.	Non-Cyclical Consumption/Agriculture/Agriculture	37	Yes	77,77
FLEURY S.A.	Health/Medical Service Hospital,Analysis and Diagnostics	38	Yes	77,38
BRF S.A.	Non-Cyclical Consumption/Food/Meat and Derivatives	39	Yes	77
CIELO S.A. - PAYMENT INSTITUTION	Finance and Other/Miscellaneous Financial Services	40	Yes	76,59
AREZZO INDÚSTRIA E COMÉRCIO S.A.	Cyclical Consumption/Trade/Fabrics, Apparel and Footwear	41	Yes	76,54
IOCAPITAL HUMANOPE MAXION S.A.	Cyclical Consumption/Automobiles and Motorcycles	42	Yes	76,16
MAGAZINE LUIZA S.A.	Cyclical Consumption/Trade/Household Appliances	43	Yes	76,03
ENEVA S.A	Public Utility/Electric Energy (Generation and Transmission)	44	Yes	75,96
MRV ENGENHARIA E PARTICIPACOES S.A.	Cyclical Consumption/Civil Construction/Developments	45	Yes	75,79
VIBRA ENERGIA S.A.	Oil, Gas & Biofuels/Exploration, Refining & Distribution	46	Yes	74,56
M.DIAS BRANCO S.A. IND COM DE ALIMENTOS	Non-Cyclical Consumption/Food/Miscellaneous Foods	47	Yes	74,38
IRANI PAPEL E EMBALAGEM S.A.	Basic Materials/Packaging	48	Yes	74,33
WEG S.A.	Industrial Goods/Machinery and Equipment/Motors, Compressors and Others	49	Yes	74,03
AERIS IND. AND COM. DE EQUIP. GERAÇÃO DE ENERGIA S/A	Industrial Goods/Machinery and Equipment/Machine. and Equip. Industrial	50	No	73,26
ENAUTA PARTICIPAÇÕES S.A.	Oil, Gas & Biofuels/Exploration, Refining & Distribution	51	Yes	72,33
GUARARAPES CONFECCOES S.A.	Cyclical Consumption/Trade/Fabrics, Apparel and Footwear	52	Yes	72,22
SENDAS DISTRIBUIDORA S.A.	Non-Cyclical Consumption/Trade and Distribution/Food	53	Yes	72,21
MINERVA S.A.	Non-Cyclical Consumption/Food/Meat and Derivatives	54	Yes	71,69
GRENDENE S.A.	Cyclical Consumption/Fabrics, Apparel & Footwear/Footwear	55	Yes	70,71
HYPERA S.A.	Healthcare/Trade & Distribution/Medicines & Other Products	56	Yes	69,87
MOVIDA PARTICIPACOES SA	Cyclical Consumption/Miscellaneous/Car Rental	57	Yes	69,84

SANTOS BRASIL PARTICIPACOES S.A.	Industrial Goods/Transportation/Support Services and Warehousing	58	Yes	69,36
VIA S.A (Casas Bahia Group)	Cyclical Consumption/Trade/Household Appliances	59	Yes	68,76
OMEGA ENERGIA S.A. (Serena)	Public Utility/Electric Energy (Generation and Transmission)	60	Yes	68,68
CIA SANEAMENTO DE MINAS GERAIS-COPASA MG	Public Utility/Water and Sanitation	61	Yes	68,53
CEA MODAS S.A.	Cyclical Consumption/Trade/Fabrics, Apparel and Footwear	62	Yes	68,38
ALIANSCE SONAE SHOPPING CENTERS S.A.	Finance and Other/Real Estate Exploration	63	Yes	67,95
AUREN ENERGIA S.A.	Public Utility/Electric Energy (Generation and Transmission)	64	Yes	67,7
USINAS SID DE MINAS GERAIS S.A.-USIMINAS	Basic Materials/Steel and Metallurgy/Steel	65	Yes	66,64
COGNA EDUCAÇÃO S.A.	Cyclical Consumption/Miscellaneous/Educational Services	66	Yes	66,15
ATACADÃO S.A.	Non-Cyclical Consumption/Trade and Distribution/Food	67	No	66,14
WE WILL RENT TRUCKS, MACHINES AND EQUIPMENT. S.A.	Cyclical Consumption/Miscellaneous/Car Rental	68	Yes	66,01
IGUATEMI S.A.	Finance and Other/Real Estate Exploration	69	Yes	65,77
PORTO SEGURO S.A.	Finance and Others/Pension and Insurance/Insurance	70	Yes	65,02
SIMPAR S.A.	Finance & Other/Diversified Holdings	71	Yes	64,94
CAMIL ALIMENTOS S.A.	Non-Cyclical Consumption/Food/Miscellaneous Foods	72	Yes	64,41
JSL S.A.	Industrial Goods/Transportation/Road Transport	73	Yes	64,22
AMBEV S.A.	Non-Cyclical Consumption/Beverages/Beers and Soft Drinks	74	Yes	64,01
SANITATION COMPANY OF PARANÁ - SANEPAR	Public Utility/Water and Sanitation	75	Yes	63,82
MITRE REALTY EMPREENDIMENTOS E PARTICIPAÇÕES S.A.	Cyclical Consumption/Civil Construction/Developments	76	Yes	63,8
ULTRAPAR PARTICIPAÇÕES S.A.	Oil, Gas & Biofuels/Exploration, Refining & Distribution	77	Yes	63,41
WILSON SONS S.A.	Industrial Goods/Transportation/Support Services and Storage	78	Yes	61,81
GRUPO DE MODA SOMA S.A.	Cyclical Consumption/Trade/Fabrics, Apparel and Footwear	79	Yes	61,76
EQUATORIAL ENERGIA S.A.	Public Utility/Electric Power (Distribution)	80	Yes	61,52

CYRELA BRAZIL REALTY S.A.EMPREEND E PART	Cyclical Consumption/Civil Construction/Developments	81	No	61,1
GAFISA S.A.	Cyclical Consumption/Civil Construction/Developments	82	Yes	59,83
YDUQS PARTICIPACOES S.A.	Cyclical Consumption/Miscellaneous/Educational Services	83	No	59,32
DIAGNOSTICS OF AMERICA S.A.	Health/Medical Service Hospital,Analysis and Diagnostics	84	No	58,37
GOL LINHAS AEREAS INTELIGENTES S.A.	Industrial Goods/Transportation/Air Transportation	85	No	56,69
TRÊS TENTOS AGROINDUSTRIAL S/A	Non-Cyclical Consumption/Agriculture/Agriculture	86	No	56
ODONTOPREV S.A.	Health/Medical Service Hospital,Analysis and Diagnostics	87	No	55,07
PBG S/A	Industrial Goods/Engineering & Construction/Construction Products	88	No	51,98
UNIPAR CARBOCLORO S.A.	Basic/Chemical/Miscellaneous Chemical Materials	89	No	51,92
EMPREENDIMENTOS PAGUE MENOS S.A.	Healthcare/Trade & Distribution/Medicines & Other Products	90	No	51,52
JALLES MACAPITAL HUMANOADO S.A.	Non-Cyclical Consumption/ Processed Foods/Sugar and Alcohol	91	No	51,29
LOCAWEB SERVIÇOS DE INTERNET S.A.	Information Technology/Programs and Services	92	No	48,98
EZ TEC EMPREEND. E PARTICIPAÇÕES S.A.	Cyclical Consumption/Civil Construction/Developments	93	No	45,07
LOJAS QUERO-QUERO S/A	Cyclical Consumption/Trade/Miscellaneous Products	94	No	44,32
HELBOR EMPREENDIMENTOS S.A.	Cyclical Consumption/Civil Construction/Developments	95	No	39,51
MARISA LOJAS S.A.	Cyclical Consumption/Trade/Fabrics, Apparel and Footwear	96	No	29,22

Source: Adapted B3 (2024)