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# RISK OF SHARES OF COMPANIES WITH STRONG ESG PRACTICES

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## ABSTRACT

The objective of this study is to examine the risk of Brazilian publicly traded companies with strong ESG practices. All Brazilian listed companies with available data in the Economatica and Refinitiv Eikon databases were considered. Data on the disclosure of ESG practices were collected from the Refinitiv Eikon platform, separating companies that reported an ESG score from those that did not. Data on the beta coefficient, which represents the variation in companies' stock prices, were obtained from the Economatica database. The data were analyzed using descriptive statistics and a t-test for differences in means. The results indicate that companies that adopt and disclose ESG practices present, on average, higher risk than other firms. These findings contradict the theoretical expectation and the study hypothesis, since lower risk was not observed for ESG-oriented firms. One possible explanation is that many of these companies operate in high-risk regulated sectors and are therefore required to disclose certain ESG practices. Another possible reason is that the adoption of ESG practices may represent an attempt by firms already operating in risky sectors to mitigate their risk. From a theoretical perspective, the study contributes by clarifying the relationship between risk and ESG in Brazil, complementing the literature with counterintuitive evidence. From a practical perspective, it assists economic agents in assessing the volatility of sustainable assets and fosters social debate on the effectiveness of corporate ESG practices.

**Keywords:** Risk. ESG. Brazilian companies.

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## 1 INTRODUCTION

Risk is linked to the idea of the probability of financial losses arising from exposure to situations in which there is an expectation of gain. Thus, in the investment context, risk is directly related to the degree of uncertainty regarding the expected return of a given financial asset (Silva et al., 2011). Whenever risk is involved, the notion of return is simultaneously present. In this relationship, investments with a lower level of risk tend to yield lower returns, while investments with a higher degree of uncertainty are associated with higher expected returns (Silva et al., 2011).

In risk analysis, one of the most widely used models is the Capital Asset Pricing Model, CAPM. This model examines the behavior of assets within the broader capital market context, demonstrating the sensitivity between asset return and market return in order to measure the degree of systematic risk. Because it reflects risk inherent to the asset market, systematic risk cannot be eliminated through diversification or any other strategy. By contrast, unsystematic risk reflects the behavior of an asset in an isolated context, being related to firm-specific characteristics and their respective sectors. This type of risk can be reduced through asset diversification in portfolio construction (Capriolli, 2022).

More recently, within the investment domain, one of the aspects that has attracted growing attention concerns ESG practices, an acronym for environmental, social, and governance. ESG practices are criteria used by companies to guide the preparation of their qualitative and quantitative social reports (Martins, 2022). This practice has increasingly been adopted by firms in global markets, reflecting emerging concerns driven by financial scandals, environmental challenges, social debates, among other factors (Silva et al., 2011).

Habib and Mourad (2024), in their study on the influence of ESG practices on the corporate performance of American companies, report results suggesting that firms with higher environmental, social, and corporate governance performance exhibit higher market value indicators. They therefore conclude that strong ESG practices, both overall and in individual dimensions, can improve corporate performance, representing an opportunity for managers to focus on the adoption and enhancement of ESG practices in pursuit of superior performance.

The adoption of behaviors aligned with ESG practices is undertaken by modern companies aware of their responsibilities. Moreover, a firm may benefit financially and in terms of market value, since such practices enhance competitiveness (Martins, 2022). Consequently, some companies, seeking to become more competitive and attract greater external and internal capital, have adopted improved corporate governance practices (Silva et al., 2011).

Mazzioni et al. (2023), in their studies on the relationship between ESG practices, market value, and corporate reputation, conclude that firms that disclose ESG information strengthen their corporate reputation, a valuable outcome that positively affects market value. In addition, their results support the notion that ESG practices signal to stakeholders a reduction in socioenvironmental risks linked to organizational objectives.

Investors, regulators, and other stakeholders increasingly demand that companies demonstrate commitment by disclosing their performance in alignment with multiple ESG metrics and assumptions. The growing movement and calls for regulation of ESG practices aim to require companies to disclose such information and to ensure that all firms are assessed from this perspective. This contributes to many organizations anticipating and adapting to stakeholder interests (Edmans, 2023).

This perspective of modern companies, associated with a new management approach, shows how organizations are adapting to their environment. Business development combined with the adoption of ESG practices highlights firms that consider issues beyond profit, that value individuals in terms of employees, fair wages, fair prices, and other socioenvironmental concerns (Redecker and Trindade, 2021).

It is assumed that ESG practices may affect corporate risk, since when stakeholder interests and needs are met, they tend to become more loyal to the organization. This loyalty strengthens

corporate reputation, leading stakeholders to react less strongly to negative news and consequently reducing its adverse effect on firm performance (Sassen et al., 2016). According to Sassen et al. (2016), the satisfaction of multiple stakeholders implies lower risk, resulting in lower volatility in a company's share price in the capital market.

In stakeholder capitalism, corporate prosperity and longevity are not restricted to financial performance and dividend payments. Other factors are also relevant, such as demonstrating positive impacts on society, alignment with sustainable development commitments, clarity in corporate positioning, and the construction of strong relationships with stakeholders. These elements contribute to brand appreciation and market value (Mazzioni et al., 2023). In this context, the adoption of strong ESG practices has been used as a means to generate value, improve corporate image before stakeholders, and consequently reduce risk (Sassen et al., 2016).

Empirical evidence reinforces this perspective. Sassen et al. (2016) found that integrating ESG factors into strategic planning and corporate objectives contributes to risk mitigation. Similarly, Correa García and Vásques Arango (2020) found that the disclosure of ESG indices exerts a positive influence on financial performance, emphasizing that firms that direct efforts toward non-financial commitments are able to enhance results and expand growth.

Despite the evidence presented by Habib and Mourad (2024) and Correa García and Vásques Arango (2020) regarding the benefits of ESG for firm performance and growth, a gap remains in the literature concerning risk related aspects in this context within the Brazilian market. Furthermore, although Sassen et al. (2016) and Mazzioni et al. (2023) suggest that stakeholder loyalty and corporate reputation reduce volatility, it remains unclear whether this premise holds given the specific characteristics of emerging economies such as Brazil.

In light of the above, and considering that ESG practices may exert a significant effect on corporate risk, the general objective of this study is to **examine the risk of Brazilian publicly traded companies with strong ESG practices**. The hypothesis is that firms with strong ESG practices present, on average, lower risk than other companies. To this end, risk metrics of firms with higher ESG scores were analyzed and compared with those of other firms, in order to identify significant differences in risk levels between the groups.

By comparing the risk of companies that adopt strong ESG practices with that of other firms, this research may assist various users involved in and interested in the topic. Investors, for example, may use the findings to assess the degree to which corporate risk is affected by the adoption or non adoption of sustainable practices, thereby supporting better informed investment decisions. Corporate managers may also benefit from the evidence presented here by evaluating the need to implement additional or more robust socioenvironmental practices.

As a contribution to academia, this study seeks to generate results that help clarify remaining questions regarding the relationship between risk and ESG practices. It aims to complement previous research on the subject and to encourage further studies in other contexts and with different samples. From a societal perspective, this research may also contribute broadly. By addressing a relevant and impactful topic such as ESG practices, it can support the consolidation and debate of this theme and promote greater corporate attention and commitment to social wellbeing within the environments in which firms operate.

## 2 LITERATURE REVIEW

### 2.1 Risk Analysis

According to Souza (2011), risk is characterized by situations in which the outcome does not exactly match what was expected and may be positive or negative. Unlike uncertainty, risk allows the identification of probabilities of occurrence to a greater or lesser degree, as in games of chance or investments. In capital markets, there is a risk-return relationship in which any asset must offer a return proportional to the risk assumed, considering uncertainties, time horizons, or specific characteristics (Capriolli, 2022). This return may also represent losses, resulting from

exposure in the pursuit of gains. Thus, risk constitutes an attempt to measure uncertainty regarding expected return (Silva et al., 2011).

Risk is therefore linked to the probability that actual return will differ from what is expected, either positively or negatively (Damodaran, 2012). For Lapponi (2006), risk is essentially negative, associated with unfavorable outcomes. Silva et al. (2011), in turn, emphasize the pursuit of maximizing gains without increasing the probability of losses. Ross et al. (2002) indicate that rational investors tend to be risk-averse, allocating resources according to their preferences (Silva et al., 2011).

Risk mitigation may occur through diversification, which reduces only diversifiable risk associated with firm-specific factors such as suppliers or clients. Non-diversifiable risk of a macroeconomic nature cannot be eliminated (Damodaran, 2012; Silva et al., 2011). In financial markets, risk extends beyond price volatility and encompasses monetary, exchange rate, and political aspects (Capriolli, 2022; Silva, 2006). Market interdependence reinforces the importance of risk management, which is essential to protect liquidity and prevent excessive indebtedness (Kimura and Perera, 2005).

In agency relationships, conflicts arise between principal and agent, generating additional costs (Jensen and Meckling, 2008). Equity-based incentives may align interests and reduce managerial risk aversion (Low, 2009). Rajgopal and Shevlin (2002) advocate compensation contracts that encourage projects aimed at increasing firm value. Rengel et al. (2020) add that higher remuneration can reduce stock price volatility, strengthen corporate image, and decrease risk for medium- and long-term investors.

Markowitz (1952) contributed the optimal portfolio model, and in the 1960s the CAPM emerged, relating risk and return in a simplified manner, although based on unrealistic assumptions (Damodaran, 2012). The CAPM uses beta to measure the sensitivity between asset return and market return (Capriolli, 2022). Studies indicate that reputation, firm size, and profitability reduce stock risk, while leverage and weak governance increase it (Carvalho et al., 2019).

Finally, Silva et al. (2011) emphasize that strong corporate governance practices attract investors and reduce risk, aligning with ESG logic. Firms that adopt such practices obtain fairer prices and a lower cost of capital (Rodrigues, 1999). Fernandes and Linhares (2017) highlight that ESG investments present a better risk-return relationship. Guimarães and Malaquias (2022) add that green investments can generate risk-adjusted returns, especially during periods of financial constraint, particularly when supported by regulatory policies.

## 2.2 Risk in Relation to ESG Practices

The term ESG is an acronym for Environmental, Social, and Governance, and expresses the growing movement of companies adopting and disclosing practices aligned with the general interests of society. It therefore refers to information disclosed regarding corporate image, relationships with investors, and the manner in which firms deal with risks (Tian and Chen, 2009).

According to Silva (2021), ESG is a modern term that refers to concern with sustainable development. The acronym is closely linked to the responsibility of companies and their investors in pursuing this objective, as they are highly relevant and influential participants in this scenario. Thus, environmental, social, and corporate governance issues are the most relevant dimensions to be considered and addressed in business activity, enabling societal progress through the mitigation of natural disasters or social problems (Silva, 2021).

Similarly, Todelo et al. (2023) define ESG as a strategy that brings together a set of environmental, social, and corporate governance criteria that are fundamental in risk analysis and investment decisions. An investor concerned with these issues will therefore observe not only financial indicators but also environmental, social, and governance indices before making an investment decision.

Redecker and Trindade (2021) argue that companies that do not adhere to, adapt to, and effectively engage with ESG practices face the risk of losing investments in the near future. Investors have increasingly sought to build investment portfolios that explore opportunities generated by sustainability, together with the mitigation of risks arising from economic, political, and social volatility (Todelo et al., 2023).

In line with the adoption of ESG practices, global financial markets have been affected by scandals involving large national and international corporations. As a result, investors have shown growing distrust and increasingly seek environments favorable to capital allocation, moving away from a simplistic view focused solely on profitability and paying greater attention to the risks involved in business activity (Silva et al., 2011).

The introduction of ESG practices by firms has become urgent due to the collateral effects that the planet and society have experienced, as well as the demands of regulators and clients who are increasingly aware of and committed to the positive impact that companies can and should generate (Todelo et al., 2023). This has triggered rising pressure for corporate positioning and engagement in order to become more transparent, ethical, and sustainable, causing ESG to gain strength and importance in virtually all spheres (Todelo et al., 2023).

The ESG theme has gained substantial relevance in recent years. The adoption of practices that meet this context has increasingly become an obligation rather than a differentiating factor for companies seeking to improve their relationships with stakeholders. This need directly affects managers, who must understand the subject and adapt to these growing changes (Menezes, 2022).

With the aim of generating value for the organization, many companies are attentive and engaged in this scenario, since these practices have come to be evaluated by financial markets. In this sense, firms with adequate ESG indicators will be ahead of their competitors and will present assets that are more highly valued in the market (Todelo et al., 2023).

According to Mazzioni et al. (2023), the disclosure of environmental, social, and governance information aligned with sustainable development objectives clarifies corporate positioning and interactions with stakeholders, resulting in brand appreciation and increased market value. Furthermore, in stakeholder capitalism, companies need to demonstrate how they contribute to society in addition to delivering financial performance and paying dividends.

The essence of this business development oriented towards sustainability lies in valuing individuals, offering dignity to employees, producing with quality, offering fair prices, showing concern for environmental preservation, and maintaining an ethical posture in society (Redecker and Trindade, 2021). In this context, for an organization to succeed in adopting sustainable practices, it must go beyond local regulations and consider practices that generate positive impacts on a global scale, rather than only in its immediate environment, while paying attention to all stakeholders (Todelo et al., 2023).

Therefore, from the perspective of stakeholder theory, whose foundations are attributed to Freeman (1984), adopting sustainable practices implies that firms are not concerned only with shareholders or potential investors, but also with all groups that may affect or be affected by their activities. This understanding reinforces the relevance of ESG practices, as it highlights the need to consider multiple interests in environmental, social, and governance terms.

ESG standards have increased awareness among involved parties, strengthened stakeholder positioning, channeled societal expectations toward companies, and attracted media attention, which pressures governments and organizations to comply with these standards. This new scenario has changed business structures, establishing systems more suited to relevant issues, such as self-regulation initiatives by organizations seeking to improve their sustainable performance (Sousa Neto et al., 2022).

In the corporate environment, ESG represents better organizational risk management, contributing to reputation, cost reduction, and the strengthening of relationships with stakeholders (Todelo et al., 2023). In the Brazilian capital market, companies with stronger governance

practices may have stock returns less influenced by macroeconomic factors, which reduces exposure to external risks and allows greater benefit from economic growth when compared to firms that do not adopt such practices (Silva, 2006).

According to Silva (2021), companies have social responsibility, since the notion that firms exist solely to generate profits no longer prevails. Having the capacity to generate wealth, they should contribute to the continued progress of humanity rather than its destruction. However, Sousa Neto et al. (2021), in an empirical study of the Brazilian market, showed that voluntary disclosure of environmental information by companies is not motivated by transparency or strong corporate governance practices, but rather by the objective of improving corporate image and credibility.

Mazzioni et al. (2023) observed that firms aligning their priorities with ESG practices and signaling greater dedication and care toward stakeholders reduced legal and reputational risks. According to Santos et al. (2022), the disclosure of ESG information reduces information asymmetry, increases corporate credibility, and makes creditors more willing to provide credit. Thus, more transparent companies tend to have greater access to long-term financing due to lower perceived risk (Santos et al., 2022).

These results are consistent with the research of Oliveira Júnior et al. (2023) on systematic risk in Brazilian firms. Their findings indicate that companies that disclosed higher quality accounting information were able to reduce systematic risk by minimizing information asymmetry problems. The study suggests that higher information quality reduces investor-perceived risk, making investors feel more secure and comfortable in allocating capital due to clarity and trust in the information conveyed.

Todelo et al. (2023) found that companies adhering to ESG practices presented higher returns than other firms. This is justified by the fact that such businesses tend to be well-managed, with solid governance structures that support better decision-making, as well as stronger relationships with employees, clients, suppliers, and other stakeholders, leading to higher productivity, lower turnover, and higher revenues. Furthermore, according to Todelo et al. (2023), firms that integrate ESG into their planning achieve greater brand appreciation, easier access to funding, and more business opportunities in the sustainable ecosystem that is being created.

In research on risk and ESG performance, Vasconcelos et al. (2023) concluded that greater corporate engagement in ESG practices can meet stakeholder needs, contribute to the construction of a positive corporate image, and encourage user loyalty, who perceive the mitigation of risks affecting the organization. In addition, they suggest that investors are more willing to invest in firms with higher ESG performance, as they convey security and lower risk.

Pástor et al. (2021) explain that ESG-related risk is not limited to volatility aspects, but incorporates dimensions linked to environmental and social externalities, reflecting both in asset pricing and in real impacts on society. According to Pástor et al. (2021), assets underlying sustainable firms tend to offer lower expected returns, since investors are willing to pay a premium for sustainability and consequently greater market stability. By contrast, assets of firms that generate negative externalities, being more exposed to climate and social risks, must compensate investors with higher returns.

Godfrey et al. (2009) analyzed the relationship between corporate social responsibility and shareholder value from the perspective of the risk management hypothesis. Their results showed that certain corporate social responsibility practices can act as a protective mechanism similar to insurance, mitigating value losses when a firm faces negative events. For example, one documented finding by Godfrey et al. (2009) was that activities directed toward secondary stakeholders or society at large create moral capital capable of reducing sanctions and preserving market value, while practices aimed solely at business partners did not present the same effect.

Considering the research problem and the potential relationship between ESG practices and corporate risk, the following hypothesis is formulated:

**H1:** Companies with strong ESG practices present, on average, lower risk than other firms.

## 3 METHODOLOGY

### 3.1 Research Classification

This research adopts a quantitative approach, as it examines numerical data through statistical procedures in order to achieve its objectives. Quantitative research analyzes reality in an objective manner by testing hypotheses and generalizing results through the use of statistical procedures and technological resources such as software, which assist the researcher in evaluating, describing, interpreting, and presenting data as part of the research findings (Nascimento and Cavalcante, 2018). According to Nascimento and Cavalcante (2018), quantitative studies are characterized by objective variables, from which different observers are able to reach the same results.

Regarding the objective of the study, it has a descriptive character, since it seeks to describe the relationship between variables representing risk and ESG. Descriptive research aims to outline characteristics of a given population or phenomenon, as well as to establish relationships between variables that support the understanding of practical behavior (Gil, 2002). This type of research contributes by providing new perspectives on an already known reality, with the purpose of observing, recording, and analyzing phenomena or processes, without addressing content merit and without researcher interference (Nunes et al., 2016).

With respect to data collection procedures, this study relied on secondary data obtained from the Economatica and Refinitiv Eikon databases. This type of research, focused on secondary sources, is not characterized by a simple repetition of what has already been recorded on a given subject, but rather by enabling the analysis of a topic from a new perspective, focus, or approach, leading to innovative conclusions (Marconi and Lakatos, 2003).

Regarding data analysis procedures, the technique employed was the statistical method, which according to Gil (2008) is grounded in the application of statistical probability theory, so that through tests it becomes possible to determine numerically the probability of correctness of a given conclusion. Furthermore, this analytical technique strengthens related conclusions through experimentation and observation. For Marconi and Lakatos (2003), the statistical method aims to provide a quantitative description of society and can be considered more than a rational description, given its experimental nature.

### 3.2 Sample Definition

The present study aims to examine the risk of Brazilian publicly traded companies with strong ESG practices. For this purpose, all Brazilian listed companies with available data in the Economatica and Refinitiv Eikon databases were considered, covering the period from 2019 to 2023, with data available as of December 31 of each year, totaling 1,402 firm-year observations.

The decision to include all companies with available data in the collection process is intended to avoid any bias or compromise of results arising from sample selection, thereby ensuring that the research encompasses a broader context and seeks a more faithful representation of the Brazilian scenario. The chosen period of the last five years is justified by the availability of the most recent data, which enables a reasonable analysis capable of identifying and understanding the relationship between the variables and allowing for more consistent conclusions.

### 3.3 Description of Variables

The variables used in this study to examine the risk of Brazilian publicly traded companies in relation to their respective ESG practices were:

**i)** Beta Coefficient **(β)**: Used to measure corporate risk, this coefficient is applied in the Capital Asset Pricing Model. Widely used in capital markets, this model aims to demonstrate the sensitivity of an asset to the market in which it is inserted (Capriolli, 2022). Accordingly, the study relied on data obtained on company risk through the Economatica platform.

**ii)** ESG Score: Used to measure the level of ESG practices adopted by firms. Based on the ESG index classification available on the Refinitiv Eikon platform, this score ranges from 0 to 100, where 0 represents companies with no reported ESG practices and 100 represents companies that are benchmarks in the field, reporting multiple ESG related activities. (Schleich, 2022).

To examine the relationship between the variables, the observations were divided into two groups. The first group consisted of observations from companies with strong ESG practices, that is, those whose ESG score was different from 0, meaning they reported ESG practices. The second group comprised observations with an ESG score equal to 0, representing firms with no disclosed ESG activity. In this sense, the study aims to compare the average risk, measured by the beta coefficient, across the groups in a distinct manner and subsequently evaluate the results.

### 3.4 Procedures for data analysis

In the data analysis stage, the study employed statistical techniques involving descriptive measures such as mean, standard deviation, percentiles, maximum, and minimum values in order to present the variables in a distinct manner. For hypothesis testing, a t test for differences in means was used to compare the average beta coefficient, representing risk, between the two groups. This approach addresses risk in two contexts, with and without ESG practices, seeking to validate or reject the null hypothesis that the mean risk of both groups is equal.

Casado (2013), in a study on the application of the t test, concluded that when the test is applied under certain assumptions of data normality, equality of variances, and samples larger than ten observations, it yields robust and satisfactory results. The use of these techniques in the present study makes it possible to assess the significance of the results, determining whether they can or cannot be attributed to chance. However, statistics alone do not interpret all findings, and it remains the responsibility of the researcher to link empirical data to theoretical frameworks that allow the generalization of research results (Gil, 2002).

## 4 RESULTS

Table 1 presents the descriptive statistics for the research variables. The study examined 1,402 firm year observations over the period from 2019 to 2023.

**Table 1**
*Descriptive statistics for the research variables*

| Variable | #obs. | Mean | S.D. | Mín. | $P_{25}$ | $P_{50}$ | $P_{75}$ | Máx. |
|---|---|---|---|---|---|---|---|---|
| **BETA** | 1.402 | 0,8540 | 0,4739 | -5,0285 | 0,5482 | 0,8388 | 1,1532 | 2,6125 |
| **ESG** | 1.402 | 0,4073 | 0,4915 | 0,0000 | - | - | - | 1,0000 |

Note. BETA represents the variation in stock prices in response to market fluctuations. ESG is a dummy variable for the disclosure of ESG practices, taking the value 1 when the company reports ESG practices and 0 otherwise.
Source: Author's own elaboration.

It is observed that the average corporate risk measured by BETA was 0.85, with values ranging from -5.02 to 2.61. This range indicates the presence of firms with high volatility, while the median of 0.83 suggests that most observations are concentrated at moderate risk levels. The relatively high dispersion, with a standard deviation of 0.47, reinforces the heterogeneity of the sample and demonstrates the existence of companies with markedly distinct risk profiles. Regarding the disclosure of ESG practices, 40.73 percent of the observations correspond to firms that reported at least one ESG initiative, while 59.27 percent did not disclose any such activity. This finding suggests that although a relevant share of organizations is engaged in ESG related actions, the majority still does not incorporate such initiatives into their operations.

A Table 2 evidencia a quantidade de observações e média de risco por setores da economia.

**Table 2**

*Number of observations and average risk by sector*

| Sector | Freq. | % Freq. | Mean |
|---|---|---|---|
| Agro and Fishing | 30 | 2.14 | 0.6884 |
| Food and Beverages | 44 | 3.14 | 0.6452 |
| Commerce | 142 | 10.13 | 1.0627 |
| Construction | 124 | 8.84 | 1.0918 |
| Electronics and Electrical Equipment | 16 | 1.14 | 1.0022 |
| Electric Energy | 143 | 10.20 | 0.5304 |
| Finance and Insurance | 123 | 8.77 | 0.7613 |
| Industrial Machinery | 21 | 1.50 | 0.7629 |
| Mining | 18 | 1.28 | 0.9252 |
| Non Metallic Minerals | 10 | 0.71 | 1.1670 |
| Other | 285 | 20.33 | 0.8641 |
| Pulp and Paper | 15 | 1.07 | 0.4968 |
| Oil and Gas | 46 | 3.28 | 1.0141 |
| Chemicals | 34 | 2.43 | 0.7014 |
| Steel and Metallurgy | 74 | 5.28 | 0.8276 |
| Software and Data | 31 | 2.21 | 1.1968 |
| Telecommunications | 31 | 2.21 | 0.7207 |
| Textiles | 79 | 5.63 | 0.7435 |
| Transportation | 70 | 4.99 | 1.1874 |
| Services | 66 | 4.71 | 0.6875 |
| **Vehicles and Auto Parts** | **1402** | **100** | **0.8540** |
| **Total** | | | |

Source: Author's own elaboration.

Based on Table 2, it is possible to identify which sectors exhibit higher risk, as well as their frequency in the sample, allowing an assessment of their impact on the results. The software and data sector presented the highest average risk, at 1.19, with 31 observations in the total sample. The electric energy sector, in turn, was the segment with the largest number of observations, totaling 143, while exhibiting one of the lowest average risk levels, at 0.53.

Table 3 shows the difference in means between firms that disclose ESG practices and those that do not. Observations from companies that reported at least one ESG practice presented a higher average risk than the remaining observations. The mean risk for firms that disclosed ESG practices was 1.01, while the mean risk for the other firms was 0.74.

**Table 3**
*Difference in mean risk between firms with and without ESG disclosure*

| Variable | | #obs. | Mean | Error | S.D. | t | sig. |
|---|---|---|---|---|---|---|---|
| BETA | | | | | | | |
| | ESG = 0 | 831 | 0.7439 | 0.0174 | 0.5016 | | |
| | | | | | | -11.5144 | 0.0000 |
| | ESG = 1 | 571 | 1.0143 | 0.0158 | 0.3770 | | |

**Note.** BETA represents the variation in stock prices in response to market fluctuations. ESG is a dummy variable for the disclosure of ESG practices, taking the value 1 when the company reports ESG practices and 0 otherwise. A t test for difference in means was applied.
Source: Author's own elaboration.

Based on these results, it is concluded that, on average, companies that adopt and disclose ESG practices present higher risk than other firms. This finding contradicts the study hypothesis and some arguments in previous research, which suggest that firms adopting ESG practices exhibit lower risk than others, thus defending a negative association between ESG adoption and corporate risk.

One such study is Mazzioni et al. (2023), who examined the relationship between ESG practices, market value, and corporate reputation and obtained results supporting a negative relationship between ESG adoption and stakeholder risk perception. Likewise, Sassen et al. (2016) reported findings suggesting that the satisfaction of multiple stakeholders leads to lower corporate risk, reflected in reduced stock price volatility in capital markets.

Although these results contradict prior studies (Mazzioni et al., 2023; Sassen et al., 2016), some factors may justify the findings. One possible explanation is that many firms operate in highly regulated and high risk sectors, which require the disclosure of certain ESG practices. This may indicate that companies are not necessarily committed to the principles and ideology aligned with ESG practices and may not be concerned with transmitting such values to their stakeholders. These arguments are supported by Leitão Junior and Freitas (2025), who identified higher systematic risk measured by beta in firms engaged in ESG practices.

Furthermore, if a firm operates in environmentally sensitive sectors that mandate the disclosure of related practices, this may imply a limited impact on its risk. Correa García and Vásques Arango (2020), in their research on the impact of ESG on corporate financial development, concluded that the environmental index was the only dimension that did not present statistical significance regarding firm performance, suggesting a lack of direct association with risk.

In turn, Sassen et al. (2016), in their study on the impact of ESG factors on corporate risk, analyzed the effects of the three ESG pillars separately. Their results indicated that only the social pillar exerts influence on risk, since social practices address stakeholders and society as a whole, resulting in a reduction of total and systematic corporate risk.

Another possible reason is that the adoption of ESG practices may represent an attempt by firms already operating in risky sectors to reduce their risk exposure. Vural Yavas (2021), in research on economic policy uncertainty, stakeholder engagement, and environmental, social, and governance practices, analyzed firm behavior in the European context from 2004 to 2017. The author concluded that during periods of high uncertainty, organizations increase their ESG performance in an effort to reduce risk and achieve greater stability.

Finally, risk is influenced by multiple factors, which may cause the adoption of ESG practices to have no immediate impact on corporate risk. For example, Rengel et al. (2020), in their studies on the relationship between risk and executive compensation in companies listed on B3, found that the association between executive remuneration and corporate risk becomes perceptible only in the medium and long term.

## 5 FINAL CONSIDERATIONS

The general objective of this study was to examine the risk of Brazilian publicly traded companies with strong ESG practices. Data on the disclosure of ESG practices were collected from the Refinitiv Eikon platform, separating companies that reported an ESG score from those that did not. Data on the beta coefficient, representing variation in stock prices, were obtained from the Economatica database. The study population comprised all Brazilian listed companies with available data in both databases over the period from 2019 to 2023, totaling 1,402 observations.

According to the results, companies that adopt and disclose ESG practices present, on average, higher risk than other firms. These findings run counter to theory and to the hypothesis of this study, since lower risk was not observed for firms engaged in ESG practices. A possible explanation for this result lies in the fact that companies more exposed to risk may be precisely those that adopt and disclose ESG practices as a response to institutional and social pressures. Therefore, ESG engagement may reflect not an immediate reduction in risk, but rather a reputational management strategy in the face of greater exposure.

It is understood that the results of this study may contribute to the advancement of research seeking to relate corporate performance to ESG practices. Through a more direct approach to ESG, with a focus on the Brazilian market, new evidence has been obtained to foster debate and discussion on the topic. In addition, the findings help identify market sectors that are more prone to adopting ESG practices, providing further insight into the disclosure of such practices.

Despite these contributions, it is necessary to acknowledge the limitations of the research. The inclusion of the entire population of Brazilian listed companies with available data may have affected the results, since it does not account for sector specific contexts, such as differences in risk levels or regulated sectors that are required to disclose certain ESG practices. The group classification also represents a limitation, as firms were divided into only two groups without assessing the degree of ESG engagement, thereby placing companies with extensive practices and those with minimal practices in the same category. Furthermore, the listing segments of B3, such as Level 1, Level 2, and Novo Mercado, may also be relevant, as each segment imposes different governance and transparency requirements.

As suggestions for future research, it is recommended to employ samples from specific sectors, both higher and lower risk, while also considering whether they are regulated. It is further suggested to incorporate the classification of firms within B3 listing segments, in order to verify whether governance requirements influence the relationship between risk and ESG practices. Finally, to broaden the analysis, future studies may include additional variables that can affect the phenomenon under investigation, such as firm size, leverage, and profitability.

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## CONFLICT OF INTERESTS

The authors declare that there is no conflict of interest regarding this submitted work.

## DATA AVAILABILITY

The dataset that supports the findings of this study is not available.

## AUTHOR CONTRIBUTIONS

| Roles | 1st Author | 2nd Author | 3rd Author | 4th Author |
|---|---|---|---|---|
| Conceptualization | ♦ | ♦ | | |
| Data Curation | ♦ | ♦ | | |
| Formal Analysis | ♦ | ♦ | ♦ | ♦ |
| Funding Acquisition | | ♦ | | |
| Investigation | ♦ | ♦ | ♦ | ♦ |
| Methodology | ♦ | ♦ | ♦ | ♦ |
| Project Administration | ♦ | ♦ | ♦ | ♦ |
| Resources | ♦ | ♦ | ♦ | ♦ |
| Software | ♦ | ♦ | ♦ | ♦ |
| Supervision | | ♦ | ♦ | ♦ |
| Validation | | ♦ | ♦ | ♦ |
| Visualization | ♦ | ♦ | ♦ | ♦ |
| Writing – Original Draft | ♦ | | | |
| Writing – Review and Editing | ♦ | ♦ | ♦ | ♦ |