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ARTICLE

Corporate controversies and market-to-book: the moderating role of ESG practices

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Abstract

Purpose – The aim of this study is to analyze the moderating role of ESG practices in the relationship between corporate controversies and companies' market-to-book performance.

Theoretical framework – ESG effect, ESG controversies and market performance.

Design/methodology/approach – We investigated 3,267 companies from 20 countries with the highest GDP in 2021. ESG ratings and other variables were collected from the Refinitiv database. The cross-country analysis considered panel data regressions with fixed effects by year, industry and country from 2016 to 2020.

Findings – The results showed that corporate controversies have a negative effect on companies' market performance, while engagement in ESG practices has a positive effect. However, when analyzing the relationship between corporate controversies and market-to-book value in companies with high ESG ratings, the negative effect of controversies is not significant.

Practical & social implications of research – This research contributes by indicating the negative consequences of corporate controversies in terms of market performance and signaling that ESG practices are important to meet the needs of stakeholders, but are not enough to mitigate the impact of ESG controversies on market performance.

Originality/value – To the best of our knowledge, this is the first paper to demonstrate that ESG practices are not strong enough to mitigate the negative effects of ESG controversies on market performance in a large sample.

Keywords: Corporate controversies, ESG, market-to-book.

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1 Introduction

Engagement in environmental, social and governance (ESG) practices represents the concern of companies with protecting and preserving the environment (environmental pillar), protecting human and social rights (social pillar), and protecting the interests of their shareholders and potential investors (governance pillar). Although there is no consensus on the concept of ESG practices, Carroll (1979) is considered a pioneer in dealing with the subject, defining socially responsible companies as those that are primarily concerned with making a profit, obey the law, have an ethical posture, and are good corporate citizens.

The issue of corporate engagement in ESG practices has been increasingly debated in the literature, especially regarding its implications for academics and professionals (Kraus et al., 2020; Nirino et al., 2021; Shobhwani & Lodha, 2023). This involvement with ESG practices has several positive effects at the corporate level, such as building trust, which is essential for corporate reputation (Park et al., 2014).

Corporate reputation built through ESG engagement can affect the organization's financial performance, since it signals a commitment to long-term practices and information transparency (Yuan et al., 2022). From this perspective, ESG engagement has a positive effect on financial performance, as already demonstrated by studies such as those by Sánchez-Infante Hernández et al. (2020), Uyar et al. (2020), and Melinda and Wardhani (2020). At the corporate level, the main stream of research is on the effect of ESG engagement on company performance, which aims to identify the beneficial potential of such practices (Gangi et al., 2019; Nirino et al., 2021; Shobhwani & Lodha, 2023).

However, while there are results indicating that companies with better ESG performance have better financial performance (Velte, 2017; Fatemi et al., 2018; Aboud & Diab, 2018; Yu et al., 2018; Sánchez-Infante Hernández et al., 2020; Melinda & Wardhani, 2020; Qureshi et al., 2021; Nirino et al. 2021; De La Fuente et al., 2022; Palupi, 2023; Chen et al., 2023), there are also findings that ESG engagement undermines or does not affect financial performance (Nelling & Webb, 2009; Garcia et al., 2017; Kim et al., 2018; Shobhwani & Lodha, 2023).

Unlike practices that demonstrate companies' commitment to ESG, there are also recent scandals and controversies involving ESG that may demonstrate behavior that is at odds with sustainability principles (Janney & Gove, 2011; Melinda & Wardhani, 2020). Thus, ESG controversies can harm the reputation of organizations and, consequently, their financial performance, since reputation can be considered a key factor for their performance (Aguilera et al., 2007; Melinda & Wardhani, 2020).

According to Nirino et al. (2021), there is a gap regarding the effect of corporate controversies on company performance and especially on how ESG can mitigate this potential negative effect. In this sense, the study by Li et al. (2019) showed that when a company is involved in an environmental controversy, it will seek to develop new socially responsible strategies to restore good relationships with stakeholders and minimize the negative effects on performance. Empirically, Nirino et al. (2021) showed that ESG engagement mitigates the negative effect of controversies on market performance.

However, the research of Nirino et al. (2021) focused on analyzing 356 European companies during a specific period, leaving an open gap regarding the potential impact of ESG practices on the relationship between corporate controversies and financial performance in different contexts. Thus, this research differs by extending the sample investigated to G20 countries, as well as by considering the market-to-book measure as market performance, which, unlike Tobin's Q (which considers the efficiency of investments in physical assets), compares the market value with the book value of a company's assets in general.

It is important to analyze this effect in different countries, since ESG practices are affected by several aspects at the country level, such as national culture (Shin et al., 2022; DasGupta & Roy, 2023), religiosity, and corruption (Chantziaras et al., 2020), among other factors. Thus, this research extends the sample investigated by the previous literature and analyzes the moderating role of ESG practices in the relationship between corporate controversies and financial performance, in companies that operate in 20 countries with relevant economic prominence in recent years.

In general, this research analyzes two opposing forces of the ESG issue (good ESG practices and ESG controversies) and finds that the fact that companies try to compensate for controversies through good ESG practices does not mitigate the negative effect of exposure to these negative externalities. However, when analyzing the social, environmental, and governance dimensions separately and controlling for populous country bias,

we find that engagement in social practices exacerbates the negative effect of controversies, while engagement in governance practices appears to be efficient at mitigating such negative effects. For environmental practices, the results were non-significant.

Thus, this research contributes by providing empirical evidence on these two ESG forces and their impact on market performance, reinforcing the positive effect of good ESG practices on market performance and the negative effect of corporate controversies. For companies, this research contributes by demonstrating that engaging in ESG with the intention of compensating for corporate controversies is not an effective corporate strategy, at least in terms of the impact of all these practices on market performance.

However, corporate governance practices in an isolated analysis seem to compensate for the negative effect of controversies, which demonstrates the potential benefits of companies investing in control and monitoring mechanisms. For the literature, this research contributes by demonstrating divergent results when considering a large sample of companies located in 20 countries, which means that future research can investigate aspects at the country level that explore how these relationships behave in nationally different contexts.

Negative news related to sustainability issues affects the company's reputation (Melinda & Wardhani, 2020). In this way, ESG controversies have been shown to be associated with a decrease in company value (Orlitzky, 2013). Ye and Hu (2022) demonstrated that the severity of corporate misconduct also affects market reactions, with higher severity leading to stronger negative signals. Wong and Zhang (2022) also showed that adverse media coverage of ESG issues has a significant and negative impact on firm valuation.

Li et al. (2019) observed that when a controversy occurs, the company adopts new responsible behavior strategies so that the relationship with stakeholders returns to that of the pre-controversy period. When arguing that there is little accumulated knowledge regarding the impact of controversies on financial performance, Nirino et al. (2021) investigated a group of European companies and proposed identifying the positive moderating role of ESG practices, considering Tobin's Q, ROA, and ROE as proxies for organizational performance.

This study extends the result found by Nirino et al. (2021) by considering a sample of companies located in many countries with different cultures and institutional factors and using market-to-book as a proxy for organizational performance. Furthermore, the moderating effect of the ESG controversy is added to the individual relationship of the ESG pillars on corporate performance. Finally, the direct ESG relationship is disaggregated into pillars to observe which pillar is considered essential for achieving the best corporate performance.

The study contributes by indicating that socio-environmental practices boost corporate image and the confidence of investors and shareholders in the company's ability to create value. However, governance is the only ESG pillar that is capable of protecting stakeholders' interests by mitigating the negative effects of ESG controversies on business performance.

This research contributes to companies by demonstrating that if they want to build a good reputation with their stakeholders, they need to engage in ESG practices, since these practices have a positive impact on market performance, which in turn can increase their visibility to potential investors and shareholders. In terms of social contribution, the study suggests that stakeholders monitor the news published about the company more effectively. This behavior encourages companies to better manage their ESG practices to avoid becoming embroiled in controversies, a factor that results in a loss of value creation for shareholders.

2 Literature review and research hypotheses

ESG engagement can be viewed with skepticism by information users, since these actions can be used as greenwashing or social washing practices (Brooks & Oikonomou, 2018). This view explains organizational engagement in ESG practices carried out with the intention of not attracting the attention of interested parties to undesirable practices, which represents a "green curtain" for the company.

This is in fact the explanation of research that has found that ESG behavior has no impact or has a negative impact on the performance of organizations (Kim et al., 2018). Despite this skeptical view of the benefits of ESG engagement, recent research has generated evidence that ESG practices have been carried out by companies in a legitimate and committed manner as a way of signaling transparency and concern for external parties (Uyar et al., 2020; Melinda & Wardhani, 2020).

In addition to signaling less risk (Wu & Hu, 2019), it also leads to greater projections in terms of market value (Grassmann, 2021), greater support from creditors (Luo et al., 2019), and benefits in terms of brand image (Martín-de-Castro, 2021). Previous studies by Velte (2017), Fatemi et al. (2018), Aboud and Diab (2018), Yu et al. (2018), Qureshi et al. (2021), De La Fuente et al. (2022), and Chen et al. (2023) have found empirical evidence that proves the positive effect of ESG practices and corporate social responsibility strategies on various measures of performance.

Velte (2017) studied German companies to investigate the relationship between ESG and corporate financial performance (ROA and Tobin's Q). The study found that ESG performance has a positive impact on corporate financial performance, and governance performance has the greatest impact on corporate financial performance.

Fatemi et al. (2018) studied U.S. firms and found that ESG strengths increase company value (Tobin's Q), while weaknesses decrease it. ESG practices alone reduce valuation. However, they play an important moderating role by mitigating the negative effect of weaknesses and mitigating the positive effect of strengths. De La Fuente et al. (2022) also studied U.S. firms and showed that ESG practices improve companies' long-term performance (Tobin's Q). The study demonstrated that the environmental and social pillars exert a greater influence.

Aboud and Diab (2018) investigated the impact of disclosure of environmental, social, and governance (ESG) practices on firm value (Tobin's Q) in the Egyptian context. The results indicated that firms listed in the ESG index have higher firm value, and that there is a positive association between firms' higher rankings in the index and firm value, as measured by Tobin's Q.

The study by Yu et al. (2018) examined whether ESG disclosure scores affect firm value by analyzing a sample of large-cap companies in 47 developed and emerging countries. They found evidence that greater ESG practices increase company value, as measured by Tobin's Q. When examining companies listed on the world's main stock exchanges, Chen et al. (2023) investigated how ESG affects companies' financial performance. The results indicated that ESG performance and its dimensions have a positive impact on firm performance as measured by ROA.

Qureshi et al. (2021) analyzed a sample of the 100 Best Corporate Citizens in the United States. The study confirmed the existence of a relationship between ESG aspects and market-based financial performance (MKT and Tobin's Q). The evidence suggests that sustained higher commitment to the environmental pillar, consistent socially responsible behavior, and rationalized governance mechanisms of the sampled firms are perceived as value-adding by market players.

Previous literature highlighting the many benefits of ESG practices is considered to support our first research hypothesis, which supports the premise that companies that engage in ESG disclosure have, among other benefits, a higher market value than companies that are less engaged in such practices, due to the corporate reputation of these ESG companies and their signaling of long-term commitment. Thus, the first research hypothesis is as follows:

H_1: ESG practices are positively related to market performance.

Unlike practices that demonstrate the engagement of companies in ESG, there are also recent scandals and controversies involving ESG that may demonstrate behavior that is at odds with sustainability principles (Janney & Gove, 2011). Corporate controversies are the result of irresponsible behavior, as was the case with several corporate scandals such as Enron, Parmalat, etc. (Jasinenko et al., 2020).

These practices can therefore harm the reputation of organizations and consequently their financial performance, since reputation can be considered a key factor for performance (Aguilera et al., 2007). According to Passas et al. (2022), both investors and consumers avoid dealing with companies that have been involved in scandals related to monopolistic behavior, fraud, workplace harassment, or environmental incidents. According to the authors, when companies are involved in such scandals, they experience negative news coverage that damages their reputation. As a result, their market share, financial performance, and market value are negatively affected.

Based on the premise that the irresponsible behavior of companies results in corporate scandals (Jasinenko et al., 2020) and that these scandals are disseminated by the global media in a negative way (Passas et al., 2022), it is understood that companies involved in corporate controversies will have their financial performance impaired, as highlighted by Passas et al. (2022) when listing the damaging potential of these events. This is the second research hypothesis:

H_2: ESG controversies are negatively correlated with market performance.

ESG controversy reflects negative media coverage of a company's involvement in controversial ESG issues

(Refinitiv Eikon, 2022). ESG better illustrates the company's good practices, but ESG controversy exerts an inverse condition of better performance for the company. Therefore, the higher the value of a company's ESG controversy, the worse the company's good ESG practices (Aguilera et al., 2007; Sánchez-Infante Hernández et al., 2020).

Considering that ESG controversies can harm organizations' market performance, our third hypothesis argues that ESG engagement, on the other hand, can mitigate this negative effect of controversies, as it demonstrates companies' concern for their stakeholders and has positive effects on performance. According to Nirino et al. (2021), when a company is more engaged in ESG practices, stakeholders and the community in general are likely to trust that company and react less negatively to controversies that may arise.

However, according to Klein and Dawar (2004), the reaction of stakeholders to ESG controversies depends on the company's current ESG behavior. If the company has "proactive" ESG behavior that emerged and persisted before the ESG controversy, then it is likely to enjoy the positive effect of its reputation and established trust with stakeholders. However, if the ESG behavior is of a "reactive" nature and emerged only after the ESG controversy, stakeholders are likely to perceive this behavior as symbolic and not as a potential beneficial compromise of the organization.

Research by Kang and Kim (2014) shows that companies lose market share when there is negative news associated with their business. Furthermore, research by Krüger (2014) shows that investors have a strong negative response to negative reports on ESG. This becomes even more evident when the negative information concerns employees and the environment or community (Chollet & Sandwidi, 2018).

In this way, it is believed that ESG practices that exist in the same period as ESG controversies can mitigate the negative effect of such scandals that are disclosed and disseminated in the global media. As argued by Park et al. (2014), genuine engagement in ESG practices can lead a company to have a good reputation among its stakeholders and consequently mitigate the negative effects of controversies on market performance. Similarly, Nirino et al. (2021) hypothesized that ESG practices would mitigate the negative effects of ESG controversies. This is the third research hypothesis:

H_3: ESG practices positively moderate the relationship between ESG controversies and market performance.

Stakeholder theory argues that companies should be managed for the benefit of all stakeholders, including shareholders, but also other stakeholders, such as employees, local communities, customers, suppliers, regulators, and others. The ESG approach is related to stakeholder theory and so-called stakeholder capitalism, from the perspective of meeting the interests of all individuals or groups in relation to organizational objectives. In this sense, ESG practices guide organizations in achieving their objectives while satisfying all interested parties. Stakeholder theory is also linked to business performance and profit, with a defense of the "business case" for a stakeholder model (Freeman, 2010).

In general, managers must formulate and implement strategies that are coherent with all groups that in some way affect and/or are affected by the company's business, with ESG being a strategically viable tool. Thus, the main task of management would be to manage and integrate the relationships and interests of stakeholders (Freeman & McVea, 2001), making ESG a strategy for generating competitive advantage.

ESG strategies have emerged as a way of demonstrating that the concerns of these organizations go far beyond simply maximizing profit for their shareholders. Therefore, the concepts under the ESG tripod find support in stakeholder theory, which views the company as a social organization that needs to offer some benefit to all stakeholders (Alakent & Ozer 2014).

3 Research design

This section presents the research design, sample, and empirical model. The research variables presented here are market-to-book value, ESG controversies, and ESG.

3.1 Sample

Table 1 presents the distribution of the 16,335 observations by country and year. To delineate the sample, we excluded firm-year observations with missing values, the financial industry, companies from countries where no company disclosed ESG practices, firms with less than 5 observations (to form the unbalanced sample), and firms with negative equity. Finally, we also excluded observations of companies with extreme values (top and bottom 1 percent) in continuous variables to ensure that

Table 1
Sample by country and year

Countries	2016	2017	2018	2019	2020	Total	%
Australia	245	245	245	245	245	1,225	7.50%
Brazil	62	62	62	62	62	310	1.90%
Canada	211	211	211	211	211	1,055	6.46%
China	130	130	130	130	130	650	3.98%
France	78	78	78	78	78	390	2.39%
Germany	70	70	70	70	70	350	2.14%
India	78	78	78	78	78	390	2.39%
Indonesia	33	33	33	33	33	165	1.01%
Italy	25	25	25	25	25	125	0.77%
Japan	372	372	372	372	372	1,860	11.39%
South Korea	97	97	97	97	97	485	2.97%
Mexico	32	32	32	32	32	160	0.98%
Netherlands	32	32	32	32	32	160	0.98%
Poland	16	16	16	16	16	80	0.49%
Russia	30	30	30	30	30	150	0.92%
Spain	34	34	34	34	34	170	1.04%
Sweden	51	51	51	51	51	255	1.56%
Turkey	18	18	18	18	18	90	0.55%
United Kingdom	232	232	232	232	232	1,160	7.10%
United States of America	1,421	1,421	1,421	1,421	1,421	7,105	43.50%
Total	3,267	3,267	3,267	3,267	3,267	16,335	100.00%

the results were not biased by the presence of outliers, since the type of regression estimated is based on the average of the estimators, which can be biased by extreme values.

In terms of countries, we highlight those that belong to the Group of 20. We excluded countries that had less than 10 companies in the sample, as they were considered non-representative, since they provided few observations and consequently non-representative insights into the study phenomenon.

Finally, our sample was composed by 3,267 firms, as shown in the Table 1. The period of analysis corresponds to the period from 2016 to 2020. The initial cutoff in 2016 is due to the fact that it is the first year after the establishment of the 17 SDGs by the United Nations Summit. This period corresponds to 1/3 of the expected time to achieve the goals of the 2030 Agenda. Antoncic et al. (2020) found a positive relationship between ESG and SDGs, arguing that they complement each other, improve the information in sustainability reports, and make companies more likely to attract investment from interested parties.

3.2 Dependent variable

The market-to-book ratio was calculated by dividing the firm's market value by the book value of shareholders' equity, indicating whether a company is overvalued or undervalued in the market. This measure is also a differential in the paper of Nirino et al. (2021), who examined Tobin's Q, ROA, and ROE as market performance, and it is used in this research since, according to Palupi (2023), ESG practices can enhance a firm's market value and make it more appealing to investors.

On the contrary, studies such as that of Shobhwani and Lodha (2023) found that other measures may not be affected by ESG, such as ROA and ROE, because they are not market-based measures that imply long-term benefits and not the timely reaction of the market. When analyzing ESG controversies, it was deemed appropriate to analyze the market-to-book, which adds evidence to the literature by examining a different metric from Nirino et al. (2021) and tends to reflect the level of ESG controversies, as it is a market-based performance measure.

3.3 Independent variable

ESG controversies were measured using the ESG controversies category score available in the Refinitiv database, as in previous studies (Li et al., 2019; Nirino et al., 2021). This measure takes into account an organization's exposure to environmental, social and governance controversies and the extent to which its negative events were reflected

in the global media during each period (Refinitiv Eikon, 2022). The controversy score ranges from 0 to 100, with 100 indicating a company that is highly involved in corporate controversies and 0 indicating a company that has no negative exposure on environmental, social and governance issues.

3.4 Moderating variable

ESG practices were measured using the ESG score available in the Refinitiv database, as in previous studies (Bofinger et al., 2022). The ESG score ranges from 0 to 100 points, with 100 indicating that the company engages in all items analyzed by the database and has the best score achievable. The information analyzed by the database is divided into environmental, social and governance pillars, which are further divided into "sub-dimensions" such as emissions, green product innovation, human rights, CSR strategies, among others.

The aggregated ESG measure captures over 630 company-level items that are reflected in 186 indicators (Refinitiv Eikon, 2022), which includes most of the indicators used by other rating providers, such as MSCI KLD, which includes only 70 indicators (Bofinger et al., 2022). The ESG score is composed of the ENV score, SOC score, and GOV score. Each score (ENV, SOC, and GOV) is in turn made up of specific sub-dimensions within each pillar. The environmental pillar consists of practices related to resource use, emissions, and innovation; the social pillar consists of practices related to workforce, human rights, community, and product responsibility, and governance consists of practices related to management, shareholders, and corporate social responsibility strategies.

According to the documents available in the database, the ESG information provides a comprehensive and rounded score of a company's ESG engagement. The score provided by the Refinitiv Eikon database has been used in previous literature and is considered a reliable ESG score (Uyar et al., 2020; Eliwa et al., 2021).

3.5 Empirical model

Figure 1 presents the conceptual model of the research and the proposed hypotheses.

The first hypothesis of this research proposes that ESG controversies will negatively affect the market value (expressed by market-to-book) of the companies, while the second hypothesis of this research proposes that ESG practices will positively affect the market value of the companies in the sample. To test these hypotheses, we regressed ESG controversies ($ESG\_controv_{it}$) and ESG (ESG_{it}) on market-to-book, as shown in Equation 1.

$$MTB_{it} = \beta_0 + \beta_1 ESG\_controv_{it} + \beta_2 ESG_{it} + \beta_3 SIZE_{it} + \beta_4 LEV_{it} + \beta_5 INT_{it} + \beta_6 SG_{it} + \Sigma_{Country\_dummy} + \Sigma_{Industry\_dummy} + \Sigma_{Year\_dummy} + \varepsilon_{it} \quad (1)$$

Our variables of interest are β_1 and β_2. It is expected that β_1 is negative, which means that companies associated with environmental, social and governance controversies have a lower market value. It is expected that β_2 is positive, which means that companies engaged in ESG practices have a higher market value than the others.

The third research hypothesis aims to test the moderating role of ESG practices in the relationship between ESG controversies and market-to-book. To test this hypothesis, we first transformed the ESG_controv and ESG variables into dummy variables, which aimed to correct for existing multicollinearity problems when interacting with the scores. Thus, for the controversies variable, we assigned 1 to companies that had 100 points in the score and 0 otherwise, while for the ESG variable, we assigned 1 to companies that had more than 50 points in the score and 0 otherwise.

We interacted scores with the categorical variables of controversies and ESG and regressed them on the market-to-book variable, according to Equation 2.

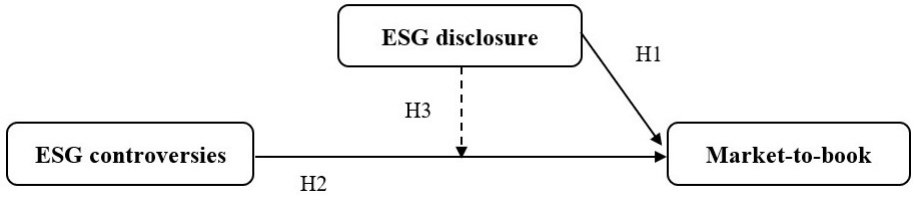

Figure 1. Conceptual model and hypotheses

$$MTB_{it} = \beta_0 + \beta_1 ESG\_controv_{it} + \beta_2 ESG_{it} + \beta_3 ESG\_controv_{it} * ESG_{it} + \beta_4 SIZE_{it} + \beta_5 LEV_{it} + \beta_6 INT_{it} + \beta_7 SG_{it} + \Sigma_{Country\_dummy} + \Sigma_{Industry\_dummy} + \Sigma_{Year\_dummy} + \varepsilon_{it} \quad (2)$$

Regarding the variable β_3, which is the variable of interest, a positive relationship is expected, which means that high involvement in ESG practices mitigates the negative effects of ESG controversies on market-to-book. In addition to the variables of interest, we included control variables such as size ($SIZE_{it}$), leverage (LEV_{it}), intangibility (INT_{it}), sales growth (SG_{it}) and year, industry, and country fixed effect controls. This study uses several control variables to control for firm characteristics that may affect firm value, namely firm size, industry classification, growth, leverage, and intangibility. Meanwhile, to control for differences in characteristics across countries, this study uses the World Governance Index (Wang & Sarkis, 2017; Melinda & Wardhani, 2020; Nirino et al., 2021).

To operationalize the equations in the main analysis, we used ordinary least squares (OLS) regression, with year, industry, and country fixed effect controls. To do this, we relaxed the normality assumption according to the central limit theorem, based on its supposition that in large amounts of data distribution errors are normal. We also controlled for heteroscedasticity issues using robust standard errors. The multicollinearity test (variance inflator factor) and Durbin Watson test were operationalized and are presented in the results tables.

As an additional test, we ran the weighted least squares (WLS) regression model, which gives more (less) weight to countries with fewer (more) observations, which is useful when considering a research sample like the one in this paper, where the USA, Japan, Australia, and the UK represent approximately 70% of the total observations. The WLS regression was operationalized without fixed effect controls, as the observations from each country were already taken into account when generating the country weights used in the regression. The VIF test is presented in all WLS regressions in the result tables.

4 Results

Table 2 summarizes the descriptive statistics for the test variables. The significant values of Panel A show that most of the sample consists of companies that are highly involved in controversies related to ESG, since the 25th percentile, median and 75th percentile of the variable $ESG\_controv_{it}$ have a score of 100 points, which directly reflects the considerably high mean of the variable. On the contrary, if we look at ESG engagement, we see that there are companies that are less engaged (25th percentile) and more engaged (75th percentile) with such practices.

Regarding ESG dimensions, we see that the averages for environmental (ENV_{it}), social (SOC_{it}) and governance (GOV_{it}) practices are close, but that the greatest engagement is in corporate governance disclosure (GOV_{it}). This result is naturally expected, since these are more mature practices that began to be developed before social and environmental practices (Refinitiv Eikon, 2022).

Panel B of Table 2 compares the research variables between groups of companies that are more engaged in ESG (with scores above 50 points) and less engaged (with scores below 50 points). The results indicate that companies that are more engaged in ESG have the lowest averages of market-to-book (MTB_{it}), ESG controversies ($ESG\_controv_{it}$) and sales growth (SG_{it}), while the same companies seem to be larger ($SIZE_{it}$), more leveraged (LEV_{it}) and have a higher level of intangibles (INT_{it}) in their assets. All differences shown between the groups are statistically significant.

Panel C of Table 2 compares the research variables between groups of companies that are more controversial on ESG (with scores above 50 points) and less controversial (with scores below 50 points). The results indicate that more controversial companies have lower averages of market-to-book (MTB_{it}), ESG engagement (ESG_{it}), are smaller companies ($SIZE_{it}$), have lower levels of leverage (LEV_{it}), and lower levels of intangibility in their assets (INT_{it}). On the other hand, the most controversial companies are those with the highest average sales growth (SG_{it}).

Another important aspect to analyze in Panels B and C is that the number of observations of companies considered to be more and less engaged in ESG is similar, with 7,474 observations representing the companies most involved in ESG, while 8,861 observations represent the least engaged. However, if we carry out this analysis between the groups with more/less ESG controversies, we find that there is a concentration of companies involved in such controversies, representing 15,111 observations, while the least controversial group represents only 1,224 observations.

Table 3 presents the correlation matrix. It can be seen that in the correlation between market-to-book and the independent variables, there is a negative correlation with ESG, which probably stems from the

Table 2
Descriptive statistics

Panel A – Summary statistics full sample					
Variables	**Mean**	**SD**	**P25**	**Median**	**P75**
MTB_{it}	3.2840	4.0437	1.1269	2.0110	3.7177
$ESG\_controv_{it}$	91.6247	21.5386	100	100	100
ESG_{it}	47.4281	20.7009	30.6853	47.0344	63.6454
ENV_{it}	39.2512	29.6818	9.8457	38.6762	65.1376
SOC_{it}	47.2516	24.0464	28.6493	45.9943	66.4733
GOV_{it}	53.2504	22.7366	35.8730	54.7423	70.9376
$SIZE_{it}$	22.0983	1.6539	21.0485	22.0991	23.1747
LEV_{it}	1.8504	2.3898	0.6463	1.1845	2.1184
INT_{it}	0.0739	0.1029	0.0053	0.0308	0.1025
SG_{it}	0.0757	0.2601	-0.0372	0.0428	0.1433
Observations			16,335		

Panel B – Difference of means between different levels of ESG					
Variables	**ESG>50**		**ESG<50**		***t***
	Mean	**SD**	**Mean**	**SD**	
MTB_{it}	3.1113	3.8564	3.4297	4.1899	5.0179***
$ESG\_controv_{it}$	0.8704	25.8315	0.9548	16.1205	25.4301***
$SIZE_{it}$	22.9911	1.3705	21.3453	1.4898	-72.9541***
LEV_{it}	2.1132	2.5614	1.6288	2.2108	-12.9740***
INT_{it}	0.0757	0.0991	0.0723	0.1059	-2.1430**
SG_{it}	0.0487	0.0023	0.0985	0.2958	12.2435***
Observations	7,474		8,861		

Panel C – Difference of means between different levels of ESG controversies					
Variables	**ESG_controv>50**		**ESG_controv<50**		***t***
	Mean	**SD**	**Mean**	**SD**	
MTB_{it}	3.2767	3.9861	3.3752	4.6982	0.8195
ESG_{it}	46.4408	20.4256	59.6166	20.1997	21.7237***
$SIZE_{it}$	21.9877	1.5966	23.4637	1.7385	30.8929***
LEV_{it}	1.7834	2.2933	2.6783	3.2493	12.6612***
INT_{it}	0.0730	0.1017	0.0849	0.1160	3.9060***
SG_{it}	0.0793	0.2619	0.0320	0.2334	-6.1216***
Observations	15,111		1,224		

Note: ***, ** significant at the 1% and 5% level, respectively; Statistics are aggregated by firm-year; all variables were deflated by the average of total assets; SD denotes standard deviation; Q1 denotes the first quintile; Q3 denotes the third quintile; the sample period is 2016-2020; financial industry companies were excluded; to minimize the influence of outliers, all continuous variables were winsorized at 1% at the top and bottom; MTB_{it} represents market-to-book; $ESG\_controv_{it}$ represents the corporate controversy score from 0 to 100; ESG_{it} represents the ESG score from 0 to 100; ENV_{it} represents the environmental practices score from 0 to 100; SOC_{it} represents the social practices score from 0 to 100; GOV_{it} represents the corporate governance practices score from 0 to 100; $SIZE_{it}$ represents size, calculated as the natural logarithm of total assets; LEV_{it} represents leverage, calculated as total liabilities divided by total equity; INT_{it} represents intangibility, calculated as intangible assets divided by total assets; SG_{it} represents sales growth, calculated as year 2 sales minus year 1 sales divided by year 1 sales.

different correlation signs between ESG and market-to-book. While higher levels of social engagement seem to be correlated with higher levels of market-to-book, environmental and governance engagement appears to be negatively correlated with market-to-book. It should be noted, however, that this is a univariate analysis and does not consider longitudinal factors and controls for other important variables.

In Table 4, column 1 shows that companies engaged in ESG are positively related to market-to-book, which means that such practices contribute to the market performance of these companies, according to H_1. In column 2, the results show a negative relationship between ESG controversies and market value, which means that companies' exposure to negative ESG-related events undermines the market performance of these

Table 3
Correlation matrix (Pearson/Spearman)

Variables	MTB_{it}	$ESG\_controv_{it}$	ESG_{it}	ENV_{it}	SOC_{it}	GOV_{it}	$SIZE_{it}$	LEV_{it}	INT_{it}	SG_{it}
MTB_{it}	1	0.0709*	-0.0354*	-0.1625*	0.1175*	-0.0427*	-0.2192*	0.0811*	0.1945*	0.1640*
$ESG\_controv_{it}$	0.0019	1	-0.2884*	-0.2837*	-0.1718*	-0.1802*	-0.3455*	-0.1422*	-0.0662*	0.0586*
ESG_{it}	-0.0235*	-0.2400*	1	0.8644*	0.8286*	0.6342*	0.5714*	0.2138*	0.1000*	-0.0995*
ENV_{it}	-0.1116*	-0.2321*	0.8648*	1	0.6499*	0.3888*	0.6254*	0.2106*	0.0347*	-0.1268
SOC_{it}	0.0771*	-0.1725*	0.8143*	0.6414*	1	0.3280*	0.4352*	0.1827*	0.1039*	-0.0757*
GOV_{it}	-0.0508*	-0.1464*	0.6460*	0.3917*	0.3166*	1	0.2899*	0.1175*	0.0425*	-0.0544*
$SIZE_{it}$	-0.1705*	-0.3111*	0.5684*	0.6135*	0.4266*	0.3007*	1	0.3828*	0.0547*	-0.0483*
LEV_{it}	0.3152*	-0.1253*	0.1336*	0.1232*	0.0664*	0.0859*	0.2209*	1	0.1601*	-0.0700*
INT_{it}	0.0631*	-0.0371*	0.0273*	-0.0281*	0.0519*	0.0002	0.0207*	0.0503*	1	0.0539*
SG_{it}	0.1022*	0.0542*	-0.0995*	-0.1189*	-0.0850*	-0.0615*	-0.0589*	-0.0612*	0.0556*	1
Observations	16,335									

*Indicates statistical significance at the 1% level.

Note: Statistics are aggregated by firm-year; the sample period is 2016-2020; financial companies were excluded; to minimize the influence of outliers, all continuous variables were winsorized at 1% at the top and bottom.

companies, according to H_2. In column 3, ESG practices and ESG controversies are regressed on market-to-book in the same regression, and the results are the same as in columns 1 and 2. Finally, column 4 reports the results of the moderating role of ESG practices in the relationship between corporate controversies and market-to-book.

When moderating between the ESG score (0 to 100) and the controversy score (0 to 100) in column 4 of Table 4, our model presented considerable multicollinearity problems. Therefore, we decided to work with categorical variables at the time of moderation to correct for this bias in the OLS model. Thus, we assigned 1 to companies that had a controversy score of 100 points and 0 otherwise.

This choice stems from the fact that the distribution of this score between the median and the 25th and 75th percentiles is not capable of differentiating the companies (since they all have 100 points in the score, as shown in Table 2), so we decided to differentiate them by the most controversial (100 points) and the least controversial (less than 100 points). Finally, for the ESG score, we assigned 1 to companies with a score above 50 points (average score from 0 to 100) and 0 otherwise, as its distribution includes companies both above and below this value.

The results do not reject hypothesis 1 that ESG practices are positively related to market performance. The study contributes to the same streams of literature by indicating the benefits of ESG practices. In this regard, several studies have found a positive impact of ESG practices and CSR strategies on various performance measures (Porter & Kramer, 2006; Rettab et al., 2009; Liu et al., 2014; Sánchez-Infante Hernández et al., 2020; Grassmann, 2021).

The results confirm the conclusions of Wu and Hu (2019), Luo et al. (2019), Uyar et al. (2020), and Martín-de-Castro (2021) about ESG practices signaling the beneficial effects of legitimacy to stakeholders. It is suggested that ESG practices can be considered as strategic actions. Although some believe that ESG produces costs in the short term, its ability to have a greater effect on market performance has been proven (Wang & Sarkis, 2017).

The results do not reject hypothesis 2 that ESG controversies are negatively related to market performance. The findings corroborate Janney and Gove (2011), who found that ESG controversies are detrimental to corporate sustainability. The irresponsible behavior captured by ESG controversies is reflected in the demotivation of shareholder expectations, who expect returns on their investments (Aguilera et al., 2007; Passas et al., 2022).

The results in column 4 show a non-significant coefficient for the variable $ESG\_controv_{it}$*ESG_{it}, which means that the relationship between market-to-book and ESG controversies does not depend on companies' ESG engagement. To understand whether the non-significance of ESG engagement is the same for its isolated pillars, Table 5 presents the results taking into account the moderating role of the environmental, social and governance pillars.

Table 4
Moderating role of ESG in the relationship between controversies and market-to-book

	MTB_{it} (1)		MTB_{it} (2)		MTB_{it} (3)		MTB_{it} (4)	
	Coefficient	**t-stat**	**Coefficient**	**t-stat**	**Coefficient**	**t-stat**	**Coefficient**	**t-stat**
Intercept	13.1502***	21.47	11.4248***	19.19	13.7854***	20.75	13.3411***	20.41
$ESG\_controv_{it}$			-0.0036**	-2.31	-0.0034**	-2.21	-0.3336**	-2.26
ESG_{it}	0.0188***	10.73			0.0187***	10.71	0.5444***	3.28
$ESG\_controv_{it}*ESG_{it}$							-0.0236	-0.14
$SIZE_{it}$	-0.5338***	-18.54	-0.4043***	-16.75	-0.5495***	-18.77	-0.5037***	-17.87
LEV_{it}	0.6247***	23.21	0.6206***	23.01	0.6241***	23.22	0.6234***	23.16
INT_{it}	-1.3220***	-4.12	-1.4128***	-4.38	-1.2984***	-4.04	-1.345***	-4.19
SG_{it}	1.7125***	13.56	1.6429***	12.93	1.7241***	13.63	1.7012***	13.41
Country effects	Yes		Yes		Yes		Yes	
Industry effects	Yes		Yes		Yes		Yes	
Year effects	Yes		Yes		Yes		Yes	
R^2	29.46%		28.99%		29.49%		29.31%	
Maximum VIF	2.11		1.55		2.25		7.62	
Durbin-Watson	1.6882		1.6782		1.6879		1.6837	
Observations	16,335		16,335		16,335		16,335	

Note: *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. All models were estimated by OLS; R^2 represents the coefficient of determination; N represents the number of firm-year observations; to minimize the influence of outliers, all continuous variables were winsorized at 1% at the top and bottom.

As in the analysis of Table 4, we assign 1 to companies with scores above 50 points, for each of the environmental, social and governance pillars (average score 0 to 100), and 0 otherwise.

It can be seen that there is a different behavior when analyzing the ESG pillars. While the environmental and governance pillars have no significant effect on the relationship between controversies and market performance, the social pillar negatively moderates this relationship. This result demonstrates that the negative effect of ESG controversies is even greater when companies have a high level of engagement in social practices, which may be related to the view of social washing of these practices for companies that already have negative exposures disclosed on social media.

According to Dorfleitner et al. (2023), social washing practices can lead to a lack of trust from stakeholders and investors may become skeptical of claims made by firms that engage in social washing, which could explain our negative effect in the moderation of social practices in the relationship between ESG controversies and market performance. In terms of the positive influence of ESG score, ESG environmental score, and ESG score on firm value, this is consistent with the findings of Melinda and Wardhani (2020).

In addition to the main regression model, we ran the WLS model with the interaction of the overall ESG score and its social, environmental, and governance pillars in Table 6. We ran the WLS regression to reduce the sample bias in countries with many observations, such as the USA, Japan, Australia, and the UK, which account for approximately 70% of the total sample.

The results of the WLS regressions show similar coefficients for the interaction between the overall ESG score and ESG controversies ($ESG\_controv_{it}*ESG_{it}$), for the interaction between the social dimension and ESG controversies ($SOC\_controv_{it}* SOC_{it}$), and for the environmental dimension and ESG controversies ($ENV\_controv_{it}* ENV_{it}$).

However, the coefficient of the interaction between the governance pillar and ESG controversies ($GOV\_controv_{it}* GOV_{it}$) was positive, which means that, controlling for the bias of more populous countries, corporate governance practices appear to mitigate the negative effect of ESG controversies on market-to-book. Therefore, hypothesis 3 was not rejected only in the corporate governance pillar, that is, the governance pillar of ESG practices positively moderates the relationship between ESG controversies and market performance.

Table 5
Moderating role of ESG dimensions in the relationship between controversies and market-to-book

Variables	MTB_{it} (1)		MTB_{it} (2)		MTB_{it} (3)	
	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat
Intercept	13.2501***	20.98	13.3500***	20.60	11.8124***	19.36
$ESG\_controv_{it}$	-0.0928	-0.64	-0.3039**	-2.20	-0.3299**	-2.28
SOC_{it}	0.9540***	5.49				
ENV_{it}			0.6020***	3.75		
GOV_{it}					0.1102	0.69
$ESG\_controv_{it} * SOC_{it}$	-0.3669**	-2.07				
$ESG\_controv_{it} * ENV_{it}$			-0.0497	-0.30		
$ESG\_controv_{it} * GOV_{it}$					-0.0546	-0.32
$SIZE_{it}$	-0.5126***	-18.77	-0.5014***	-17.95	-0.4273***	-16.62
LEV_{it}	0.6229***	23.27	0.6230***	23.18	0.6205***	23.00
INT_{it}	-1.3237***	-4.11	-1.3666***	-4.24	-1.3944***	-4.33
SG_{it}	1.6823***	13.27	1.6862***	13.28	1.6574***	13.06
Country effects	Yes		Yes		Yes	
Industry effects	Yes		Yes		Yes	
Year effects	Yes		Yes		Yes	
R^2	29.48%		29.33%		29.05%	
Maximum VIF	8.39		6.84		8.00	
Durbin-Watson	1.6826		1.6836		1.6795	
Observations	16,335		16,335		16,335	

Note: *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 6
Additional WLS regression test

Variables	MTB_{it} (1)		MTB_{it} (2)		MTB_{it} (3)		MTB_{it} (4)	
	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat
Intercept	17.60***	37.06	17.65***	31.74	16.92***	28.59	16.44***	30.08
$ESG\_controv_{it}$	-0.21	-1.61	0.84***	7.03	-0.38***	-2.74	-0.52***	-3.63
ESG_{it}	0.56***	3.66						
SOC_{it}			2.67***	17.27				
ENV_{it}					0.05	0.33		
GOV_{it}							-0.26	-1.63
$ESG\_controv_{it} * ESG_{it}$	0.01	0.08						
$ESG\_controv_{it} * SOC_{it}$			-1.84***	-11.47				
$ESG\_controv_{it} * ENV_{it}$					0.22	1.34		
$ESG\_controv_{it} * GOV_{it}$							0.39**	2.31
$SIZE_{it}$	-0.71***	-34.57	-0.77***	-31.29	-0.67***	-25.73	-0.64***	-27.64
LEV_{it}	0.59***	48.85	0.60***	22.20	0.59***	21.08	0.59***	20.98
INT_{it}	1.86***	6.76	1.65***	5.73	1.93***	6.69	1.93***	6.68
SG_{it}	1.61***	14.70	1.69***	12.72	1.561***	11.48	1.53***	11.31
Country effects	No		No		No		No	
Industry effects	No		No		No		No	
Year effects	No		No		No		No	
R^2	17.21%		19.24%		16.87%		16.78%	
Maximum VIF	7.45		6.45		6.54		7.69	
Observations	16,335		16,335		16,335		16,335	

Note: *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

This result indicates that corporate governance practices play a role in mitigating the negative effects of ESG controversies on companies' market performance. This means that companies that have the best corporate governance practices can become more attractive to the market, even if they have media disclosures about ESG controversies. This result confirms the positive potential of corporate governance practices and reinforces these practices as essential for instilling confidence in potential investors and shareholders (Yuan et al., 2022).

Specifically, previous literature contributes to understanding this result, since La Rosa and Bernini (2022) found that the presence of board members with specific competencies related to ESG can weaken the opportunistic implementation of these practices, which consequently reduces the corporate controversies. Brinette et al. (2023) states that the presence of women on boards of directors also contributes to mitigating the negative effects of controversies on company value.

Furthermore, this finding highlights the methodological limitations of operationalizing econometric models for a research sample composed of companies from different countries. The greater number of companies located in the most populous countries may bias the results in terms of generalization, since they mostly capture the effect of companies located in these most populous countries. Thus, this research also contributes by showing that the weighting method (WLS) can be useful when investigating different countries.

It is also highlighted that the corporate governance measure used is responsible for capturing different types of agency conflicts. Since Gillan (2006), it has been known that different countries face different agency problems, with the greatest conflict in some being between directors and shareholders and in others between minority and majority shareholders. By using a metric that includes mechanisms related to management, shareholders, and strategies (Refinitiv Eikon, 2022), this research generates broad and complete results that greater involvement with such governance practices mitigates the negative effect of ESG controversies on market performance.

Finally, the results of this research can be understood in the light of stakeholder theory. Previous research has already shown empirically that different types of stakeholders are prioritized differently by companies, depending on their context. For example, Brazilian companies tend to prioritize their internal stakeholders to the detriment of those abroad (Mascena et al., 2018), and companies located in contexts with unfavorable economic situations end up prioritizing activities related to human resources, while society and the environment receive less attention (Hyz & Sahinidis, 2018). These studies, combined with the results of this research, cover the theory as they show that different pillars of ESG can naturally have different effects in mitigating environmental controversies, depending on macroeconomic aspects.

5 Conclusions

This study analyzed the moderating role of ESG practices in the relationship between corporate controversies and market performance in companies located in 20 economically developed countries. Our main hypothesis was that ESG would mitigate the negative effect of corporate controversies on market performance, but the results showed that the relationship between market-to-book and ESG controversies does not depend on companies' engagement in ESG. In isolated tests, ESG engagement is shown to be positively related to market performance, while corporate controversies are negatively related.

It is concluded that the ESG issue can be analyzed from two different perspectives: its negative and positive effects. In terms of positive effects, business investments made in favor of society, the environment, and governance mechanisms can signal the good reputation of these companies, especially in terms of transparency of information and good relationship with their stakeholders. This behavior seems to be valued by the market, since companies with ESG characteristics are the ones with the highest market-to-book ratios.

On the other hand, within the scope of negative effects, companies may be exposed to negative externalities related to ESG pillars, which may harm the reputation of these companies if disclosed in the global media, in such a way as to reduce their market performance. Taken together, these two forces do not seem to overlap, since when a company has ESG controversies, engaging in good ESG practices is not enough to mitigate the potential negative effects of exposure to controversial situations.

However, when we analyzed the moderating effect of ESG practices on their isolated pillars, it was evident that social and corporate governance practices have different effects. The social dimension exacerbated the negative effect of ESG controversies on market performance, showing that companies that are more engaged in social aspects appear less trustworthy to investors and shareholders,

when they also have controversies related to ESG behavior. On the other hand, the corporate governance dimension mitigated the negative effect of ESG controversies on market performance, confirming the beneficial potential of good governance practices in attracting investors and improving companies' market performance.

In practice, the study contributes by indicating that good social, environmental and governance practices boost investors' positive perceptions of the company's ability to create value. However, only good corporate governance practices can protect stakeholders' interests by mitigating the negative effects of ESG controversies on business performance. This helps companies by highlighting the beneficial potential of ESG practices by directly relating them to better market performance, which means that companies that wish to build their reputation and corporate image among stakeholders can invest financial resources in ESG. This is due to the fact that the positive effect of ESG on financial performance has been demonstrated, a factor that increases organizational visibility among stakeholders.

However, these companies must also be aware of the negative effect of controversies publicized in the media, which are generally not "compensated" for by engaging in ESG practices. Therefore, the results contribute by showing that not all practices aimed at external parties are behaviors that are valued by the market, as explained by stakeholder theory. Social practices, in this research, exacerbated the negative effect of ESG controversies on market performance, which suggests that social practices can sometimes be perceived with a certain skepticism by market participants, as they can be associated with social washing practices.

This study also contributes by advocating for increased stakeholder vigilance regarding news related to the company. This proactive monitoring encourages companies to prioritize effective management of ESG practices, thereby minimizing their involvement in controversies. In doing so, companies safeguard shareholder value creation, which highlights the significant contribution of stakeholder engagement in fostering sustainable business practices.

The research was limited to companies listed on stock exchanges; therefore, the results cannot be generalized to all types of companies. Furthermore, the results did not capture the effects of country-level institutional factors. Finally, the research used only one market-dependent variable to address business performance.

Future research could investigate country-level factors responsible for modifying the moderating role of ESG, since divergent results from the present study have been found in European companies. Aspects such as national culture, religiosity, corruption, legal system, and level of investor protection could explain why ESG mitigates the negative effects of ESG controversies on market performance in one context and not in another.

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