

## Article

# Stopping or Continuing to Follow Best Practices in Terms of ESG during the COVID-19 Pandemic? An Exploratory Study of European Listed Companies

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**Abstract:** This study aims to examine the effect of the COVID-19 pandemic on environmental, social, and governance (ESG) performance for European listed companies. The purpose of this study is to understand if and how the COVID-19 pandemic outbreak influenced the behavior of European companies in terms of best practices in ESG. In this paper, we consider the ESG score as a proxy of management practices. The ESG score was collected for all companies included in the STOXX 600 index (from the Refinitiv Eikon database) and analyzed using fixed and random effects. The sample is composed of 600 European listed companies and covers the period from 2018 to 2021. The results show that even in a health crisis with economic repercussions for the whole world, companies have continued to increase their commitment to ESG targets. The results are robust, also considering the different components of the ESG score (environment, social, governance) individually. This paper validates the significance for companies to improve their ESG performance even during unstable times. Our analysis has implications from several perspectives, adding supplementary information and considerations to the uncompleted debate examining the effects of external shocks on ESG performance.

**Keywords:** environmental; social; governance; ESG; sustainability performance; COVID-19; STOXX 600

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## 1. Introduction

The spread of the COVID-19 pandemic was declared a global epidemic by the World Health Organization in March 2020. Unlike the financial crises of the last decades, which emerged from financial distress, the COVID-19 pandemic is a health crisis with economic and financial consequences for the entire world. The beginning COVID-19 pandemic negatively affected socio-economic conditions [1] because it triggered a severe break in many economic activities worldwide [2]. The negative effects of the COVID-19 pandemic were on equity markets [3], investments [4], and commodity markets [5]. Fetzer et al. (2020) [6] showed that the virus’s arrival dramatically increased economic trouble and deteriorated the economic outlook. Therefore, governments introduced some policies never before seen in the world (i.e., lockdown).

The measures taken by the governments during the COVID-19 pandemic resulted in a shutdown of a relevant share of economic activity in most of the world’s countries, without a well-defined perspective of when the situation would be back to normal [7].

During the COVID-19 spread, some companies implemented strong responses—cancelling investments or dismissing employees—while others implemented relatively inexpensive measures, such as working from home or part-time work [8]. The general business outlook of the firm determines the company's strategy. Since the COVID-19 pandemic forced companies to make a wide range of relevant strategic decisions, the pandemic constitutes a laboratory in which to study the company behavior in response to a huge exogenous shock that affected the entire economy.

Prior studies have principally focused the analysis on the correlation between ESG and the COVID-19 pandemic from an investor point of view, examining how ESG stocks performed during the COVID-19 pandemic. For instance, recent works showed that companies with higher ESG scores are subject to lower risk and remain stable during turbulent times [9,10].

Other studies examined socially responsible investment funds [11], green funds [12], and ESG stocks [13] to document a relatively better performance of ESG assets compared to their traditional counterparts during financial turbulence.

Therefore, studies explained that due to the overperformance of ESG investments during the COVID-19 pandemic, there was an increased appeal for investors toward ESG strategies as they consider ESG stocks as comparable alternatives to conventional safe-havens such as gold or bond [14]. Investors pay extra attention to company fundamentals during periods of economic slowdowns [15]. Companies with good fundamentals and long-term sustainability are expected to be more resilient to financial turbulence in a well-organized way [16]. Therefore, investors become more aware of securer investment strategies, such as the ESG one, to prevent their exposure to the downside risk of the market [17].

Many studies have focused their attention on the effect of the COVID-19 pandemic on firm behavior. The impact of the COVID-19 pandemic on company behavior was significant and can be assessed on various levels. The crisis revealed the ability of companies to adapt to the new context, both in strategy and in operations. For instance, Al-Fadly (2020) [18] showed that companies had changed strategy in terms of labor force (generating high unemployment), supply chain (moving production plants), and cash flow management. Juergensen et al. (2020)[19] examined the logistic challenges during the COVID-19 pandemic, showing an impact on strategic decisions in this field. A study by Yacoub et al. (2021) [20] showed that companies cancelled investments in the renovation of fixed assets since they focused on reducing the costs to facilitate the firm survival. Scholars also found positive consequences of the COVID-19 pandemic on companies' capabilities; for example, an accelerated digitalization has been noted, even for companies that were not technologically confident before the COVID-19 pandemic [21].

However, although many studies analyzed the effect of the Covid-19 pandemic on firm behavior and strategy, to our knowledge, there are no studies focused on examining how companies responded during the COVID-19 pandemic in terms of ESG practices.

ESG practices are basically management practices usually adopted by the firms to reach the expectations of the environment, society, and shareholders [22,23].

This paper provides the first evidence of how companies responded, in terms of following the best ESG practices, to the global crises induced by the COVID-19 pandemic. Based on a sample of 600 firms included in the European STOXX 600 index, we study the effect of the COVID-19 pandemic on the propensity of firms to continue following the best ESG practices. Specifically, we address one question:

“Is a huge exogenous shock such as the COVID-19 pandemic able to significantly affect a firm's tendency to follow the best ESG practices?”

In consideration of the growing importance of sustainability dynamics and considering also the relevant economic effects of the COVID-19 pandemic, our study allows us to obtain important information on the choices made by companies (and which they could adopt in similar situations).

In fact, companies could decide either to reduce ESG activities fearing the negative economic effects generated by the pandemic or, conversely, to increase ESG practices as a management strategy with the aim of countering the aforementioned effects. In the absence of studies on the behavior of companies in a crisis (such as the COVID-19 pandemic), this study represents an important opportunity to deepen managerial choices.

We discover that although the COVID-19 pandemic heavily influenced firm behavior in terms of workforce, investments, supply chain, etc., it did not affect firm tendency to follow the best ESG practices, since like in the pre-COVID-19 period, they continued to invest in ESG with notably results in terms of ESG score.

These results are relevant as they show how companies today are inclined to follow the best ESG practices, even during a turbulent time. This means that ESG is a key aspect that firms are prone to consider even during a huge exogenous shock.

With our study, we contribute to the existing literature in some ways. Firstly, to the best of our knowledge, this is the first study that investigates the effect of the COVID-19 pandemic on a company's inclination to continue to follow the best ESG practices. Second, our findings have important implications in confirming the relevance for firms of ESG practices also during turbulent times; all the companies should know that even during periods of cutting workforce and cutting investments, ESG practices are always one of the primary interests of companies, because companies know that equity market investors and portfolio managers use ESG stocks to diversify and hedge their portfolios against the risk of the market.

The rest part of the paper is structured as follows: Section 2 presents a literature analysis; Section 3 presents data, research methodology, and findings; Section 4 presents the empirical results; Section 5 exposes and critically discusses the results of the analysis. Section 6 presents a list of limitations and recommendations for further research. Finally, Section 7 integrates the key points of discussion and conclusions, contributing theoretical and practical insights.

## 2. Literature Review and Hypotheses Development

According to numerous theories, the ultimate goal of a company not only lies in the creation of value for shareholders but also refers to the care of the environment and the community in which the company operates [24,25]. Among the various theories, the legitimacy one affirms that the survival of companies is tied to the legitimacy that the environment accords to the activities carried out by a company [26–28]. Legitimacy is the condition that occurs when the organization's value system and rules are consistent with those existing in the context in which the organization operates. The legitimacy theory requires that companies engage in operating within the values and "social norms" provided by the context in which they operate [29]. According to this theory, every company must be able to be perceived as perfectly in line with the rules of the society in which it operates [30]. Indeed, each company operates under an implicit social contract. According to Gray et al. (2009) [31], organizations can continue to exist just if the society in which they are based perceives them as operating according to a value system commensurate with the society's value system. Especially in recent years, the relationship between the activities carried out by companies and the legitimacy recognized by the context in which the companies operate is a strong object of interest. Financial performance is flanked by sustainable performance (ESG performance), capable of increasing the legitimacy of corporate operations [32]. In the current economic environment, ESG performance depends on the legitimacy of an enterprise in society, that is, on governance and compliance with society's expectations concerning environmental and social standards [26]. According to the legitimacy theory, care for the environment, employee well-being, and good governance policies are the goals that the company must pursue beyond creating value for shareholders [33]. This new approach can be renamed as "ESG conduct", and, according to several scholars, it is the main legitimization strategy on which companies are orienting themselves in today's economic environment [32]. Companies are known to operate with limited resources,

which, although sufficient to guarantee the correct performance of operational activities, are in any case subject to decisions to the detriment of other projects. In particular conditions, such as financial crises, it is even more important for companies to manage their resources and choose carefully how best to use them. If, on the one hand, in times of crisis, there is a greater need for investments in socially useful projects, on the other hand, it is precisely in these moments that it becomes more difficult for companies to generate value. Several scholars have investigated the behavior of companies, confirming that, on the one hand, they are aware of the social importance of investments in CSR in times of crisis, but on the other, crises, for the reasons set out above, lead to the stalemate, the postponement and, sometimes, the annulment of socially useful projects [34]. Investments in CSR represent an interesting tool for companies to use to increase their reputation in the market or defend it in the event of a crisis. Therefore, in a sense, CSR investments are considered by some authors as reputational protection, similar to insurance [35]. In recent years, the definition of a company has changed in accordance with the evolution of the social environment in which they operate. For example, Sunder (1997) [36], considering a company as a socially responsible entity, defined it as “a set of contracts” among employees, customers, managers, shareholders, suppliers, auditors etc. In this context, the “socially responsible investments”, defined by the European Social Investment Forum as a process in which investors financial objectives are combined with environmental, social, and corporate governance issues (also called ESG factors), are fundamental. Investing in socially useful projects guarantees a good return to the company in terms of image. The development of CSR projects positively differentiates companies operating in a given market by increasing the gap with others [37] and increasing the recognition by stakeholders [38]. In moments of economic crisis, Wilson (2008) [39] suggests that companies should continue to invest in socially useful projects, as the only way to overcome these moments is to support the needs of the social environment in which they operate. Furthermore, some scholars [15] have shown how socially responsible investments can be even more profitable when the markets suffer due to economic events and are not dependent on the work of companies. In difficult environmental contexts such as that caused by the COVID-19 pandemic, investments in CSR can improve the environment in which companies operate, thus also defending the interests of investors [40]. Indeed, the pandemic has changed how businesses understand and view CSR investments, with more and more importance given to the benevolent effects of investments in CSR, intended to reduce the damage caused by COVID-19. In conclusion, the pandemic has created a new balance in corporate interests, prompting companies to balance their efforts between profit orientation and social responsibility. The management of socially responsible investments carried out by companies is now an extremely decisive factor. Several studies have shown that investors are inclined to invest in companies that support growth and the protection of the environment in which they operate [41]. However, this trend does not translate into a waste of company resources; although the socially responsible behavior of companies is approved by most of the investors, they are still attentive to the careful management of resources by the company. Therefore, socially useful investments with no economic return will not be well regarded by shareholders [42]. For this reason, companies that make investments in ESG have a competitive advantage that manifests itself more in times of joint market crises [35]. In fact, these companies can exploit the most direct relationship with their stakeholders, united by shared values, using their resources more efficiently in order to generate greater economic benefits [43]. The effects of an ESG investment-oriented approach are different. First of all, companies that invest in socially useful projects obtain a good image return that allows them to increase their awareness on the market, also determining good consequences on the marketability of their products [44–47]. This aspect also strengthens the profitability of these companies, and in times of crisis, companies that invest in CSR will have less difficulty than others because stakeholders will see them as also useful for the economic environment in which they operate [44,48,49]. Finally, several studies show that companies that invest in ESG attract more loyal investors, share the same values, and can

persist even in times of crisis when general investors divest their business [50–56]. In the end, social investments, in general, can help companies regain lost consumer confidence [57], and the “ESG conduct” creates a better relationship with customers to guarantee a better performance in economic [58] and financial [59] terms.

According to various scholars, these results suggest that during a crisis, such as that of COVID-19, companies are more inclined to make ESG investments or to increase those already underway.

Thus, our hypothesis is as follows:

**H1.** *During the COVID-19 pandemic companies continued to invest in ESG, showing the relevance for the companies for continuing to follow best practices in terms of ESG.*

### 3. Research Methodology

#### 3.1. Sample and Empirical Setting

The best setting in which to test our theory should allow us to perceive how and if, during the COVID-19 crisis, European companies continued to follow best practices in all ESG areas. Specifically, our sample is made up of all the European listed companies that are part of the STOXX Europe 600 Index. Different circumstances make the European setting appropriate for our study. First of all, Europe is characterized by relevant geographical and social differences, allowing a different propensity to follow best practices in ESG. Second, European listed companies are constrained by law to disclose ESG information following the EU Directive 95/2014. Furthermore, several scholars [60] have highlighted how European companies are increasingly careful to share their nonfinancial information in corporate reporting. Therefore, the sample of companies used in the present study is probably not influenced by selection bias (a problem that generally exists in analyses that consider data provided by companies voluntarily). Third, the focus on one geographical area (even if there are some cultural differences across European countries) reduces the risk of an omitted-variable problem that generally characterizes multigeographical areas studies, where it is difficult to control for all the time-variant geographical area characteristics simultaneously affecting the dependent and the independent variables [61]. To perform the analysis, we built a unique database with firm-level data from Thomson Reuters, a database containing company ESG scores and financial information. The ESG scores provided by Refinitive Workspace are “designed to transparently and objectively measure a company’s relative ESG performance across ten themes (emissions, environmental product innovation, human rights, shareholders, etc.) based on company reported data” [62]. The Thomson Reuters database has built and validated a measure of the ESG score at the company level in Europe, with information taken from annual reports, CSR reports, stock exchange filings, company websites, etc. That database is considered the world’s largest ESG rating [63]. Our firm-level data database includes information on the STOXX Europe 600 Index companies. The STOXX Europe 600 Index is derived from the STOXX Europe Total Market Index (TMI) and is a subset of the STOXX Global 1800 Index. With a fixed number of 600 components, the STOXX Europe 600 Index represents large, mid, and small capitalization companies across 17 countries of the European region: Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, and the United Kingdom. We used data for the years 2018, 2019, 2020, and 2021. Our dataset contains a total of 600 companies, for 2400 firm-year observations.

Descriptive statistics for the variables are reported in Table 1. All data are computed at the end of each fiscal year.

**Table 1.** Descriptive statistics.

Variable	Obs	Mean	Std. dev.	Min	Max
ROE	2260	0.1720065	0.7840669	−20.8333	20.46
ROA	2123	0.0626377	0.109072	−0.3326	2.4377
Employees	1700	38272.66	75305.56	15	667748
Debt-to-equity	2330	1.016698	1.936193	0	64.10714
ESG score	2318	67.49478	16.49772	1.555589	95.6182

### 3.2. Variable's Specification

Table 2 shows the variables that were extracted to perform multivariate regression analyses:

**Table 2.** Selected variables.

Type of Variable	Variable
Independent variable	Year
Dependent variable	ESG Score
Control variable	N. employees (ln)
	Debt-to-Equity ratio
	Revenues (ln)
	ROE
	ROI
	ROA
	Industry

#### 3.2.1. Independent Variable

**Year.** Since the study aims to analyze if, during the COVID-19 crisis (from the year 2020), companies continued to follow best practices in all ESG areas, we used the variable “year” to understand how and if, before and during the COVID-19 crisis, the ESG score changed. Therefore, with our variable, we can understand how companies continued to follow best practices in ESG even during the COVID-19 crisis.

Having data for the years 2018, 2019, 2020, and 2021, we analyzed the changes in the ESG score along the period (2018–2019, before COVID-19; 2020–2021, during COVID-19).

#### 3.2.2. Dependent Variable

The key dependent variable of our analysis is the ESG score. According to the prior study of Gallo and Christensen (2011) [64], we employed the multidimensional definition of corporate sustainable responsibility and concentrated on the three pillars: environmental, social, and corporate governance (ESG). The ESG score of Thomson Reuters calculates the mean of environmental, social, and governance scores. The ESG score ranges between 100 (highest ESG score) and 0 (lowest ESG score).

#### 3.2.3. Control Variable

Care must be taken when making wide generalizations on company outcomes based on specific samples [65]. In order to compare behavior among companies, a common ground must be established. According to prior studies [66], we controlled for revenues and employees (as natural logarithm) to account for size. We included those controls because smaller firms might have access to a lower quantity of resources and, therefore, might invest less in ESG. We also included a control variable to capture cross-industry differences (industry) and a control variable to capture the company's financial position (debt-to-equity ratio). Moreover, we also included some control variables to account for firm performance (ROI, ROE, ROA). In fact, some studies explain that ESG scores are able to influence firm performance [9,67,68]; therefore, we included also performance variables to account for those elements able to influence the results.

### 3.2.4. Estimation Technique

Since the study aims to observe companies' behavior across time, we built a panel dataset (also known as cross-sectional time-series data). Panel data allow to control for variables that are impossible to measure, such as cultural factors, differences in business practices across companies, or variables that change over time but not across entities (i.e., national policies, international agreements, federal regulations, etc.). This accounts for the individual heterogeneity.

Having a panel dataset allows the use of two widely used estimation techniques: fixed-effects and random-effects. To run our analysis, we used STATA statistical software (v17.0).

Even if, generally, studies used only one of the two estimation techniques, using the Hausman test (1978) [69] to identify the best one, in this case, we used both methods to have more robust results.

The fixed-effects technique explores the relationship between predictor and outcome variables within an entity (company, country, person, etc.). Each entity has its own individual characteristics that may or may not influence the predictor variables. When using a fixed-effects technique, we assume that something within the individual may impact or bias the predictor or outcome variables, and we need to control for this. This is the rationale behind the assumption of the correlation between an entity's error term and predictor variables. Fixed effects remove the effect of those time-invariant characteristics so we can assess the net effect of the predictors on the outcome variable.

The rationale behind the random-effects technique is that the variation across entities is assumed to be random and uncorrelated with the predictor or independent variables included in the model. Therefore, if there are reasons to believe that differences across entities have some influence on the dependent variable, it is better to use random effects. An advantage of the random-effects technique is that it is possible to include time-invariant variables (i.e., industry). In the fixed-effects model, these variables are absorbed by the intercept.

Since it is possible that differences across entities have some influence on the dependent variable, we tested the hypothesis using both estimation techniques.

To assess the relations, we used the STATA function "xtreg", which is able to estimate cross-sectional time-series regression models, and with "re" option (for the random-effects model) and with "fe" option (for the fixed-effects model).

## 4. Empirical Results

### 4.1. Regression Analysis

Table 3 reports the results of our hypothesis. All columns of Table 3 display the estimates and show a continuous and uninterrupted increase in the ESG score since the effect is positive and statistically significant. In fact, coefficients are positive and very significant ( $p > 0.01$ ) for all the years of our analysis; specifically, we note that the ESG score has increased with a higher magnitude in the COVID-19 years (2020 and 2021) as compared to 2019. As expected, the ESG score in 2019 (ante COVID-19) increased (prior studies explained that companies were continuing to invest in ESG), with a coefficient of 1.765 or 1.770, but in 2020 and 2021, it increased by a higher amount (4.854 and 6.488 for years 2020 and 2021, fixed effects; 4.731 and 6.344 for years 2020 and 2021, random effects). Specifically, Table 3, Column 1 reports the results of a fixed-effects regression of year on ESG score. Table 3, Column 2 reports the results of a random-effects regression of year on ESG score. Both regressions are significant. The results support our hypothesis and are consistent with an increase in ESG scores in contexts of crisis such as the COVID-19 pandemic, showing the relevance for the company for continuing to follow best practices in terms of ESG.

**Table 3.** Principal analysis.

Dependent Variable	(1)	(2)
	Fixed Effects ESG Score	Random Effects ESG SCORE
year = 2019	1.765 *** [0.382]	1.770 *** [0.374]
year = 2020	4.854 *** [0.525]	4.731 *** [0.504]
year = 2021	6.488 *** [0.593]	6.344 *** [0.580]
n. employees (ln)	5.700 ** [2.809]	2.745 *** [0.641]
Debt-to-Equity ratio	−0.347 *** [0.0732]	−0.307 *** [0.0750]
Revenues (ln)	0.896 [1.595]	2.192 *** [0.625]
ROE	−0.373 ** [0.146]	−0.320 ** [0.135]
ROI	−0.478 *** [0.0438]	−0.637 *** [0.188]
ROA	2.241 [6.743]	−6.106 [4.910]
industry		−0.0557 [0.0417]
Constant	−9.496 [28.88]	−8.119 [11.11]
Observations	1139	1139
R-squared	0.336	0.331
Number of FirmID	360	360

Robust standard errors in brackets. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ .

#### 4.2. Robustness Checks

To validate our main findings, we implemented some robustness checks. The additional checks provide indication that our results are robust to different specifications.

##### 4.2.1. Change of Control Variables

The investigation might be prejudiced by control variables able to influence the results. For this reason, we ran the models while considering the sensitivity to the exclusion of some relevant control variables (industry, performance variables, debt-to-equity ratio, number of employees), executing different models. The analysis results based on the exclusion of some control variables, reported in Table 4, confirm the baseline findings.



**Table 4.** Robustness checks analysis—change of control variables.

Dependent Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Fixed Effects ESG Score	Random Effects ESG Score	Fixed Effects ESG Score	Random Effects ESG Score	Fixed Effects ESG Score	Random Effects ESG Score	Fixed Effects ESG Score	Random Effects ESG Score
year = 2019	1.856 *** [0.287]	1.722 *** [0.285]	1.873 *** [0.282]	1.767 *** [0.279]	1.991 *** [0.330]	2.113 *** [0.316]	1.765 *** [0.382]	1.762 *** [0.375]
year = 2020	4.612 *** [0.427]	4.282 *** [0.399]	4.631 *** [0.420]	4.361 *** [0.392]	4.952 *** [0.422]	5.092 *** [0.411]	4.854 *** [0.525]	4.717 *** [0.503]
year = 2021	6.348 *** [0.498]	5.993 *** [0.480]	6.306 *** [0.489]	6.016 *** [0.474]	7.025 *** [0.487]	7.207 *** [0.472]	6.488 *** [0.593]	6.324 *** [0.579]
Debt-to-Equity ratio	−0.345 *** [0.0807]	−0.296 *** [0.0770]			−0.200 *** [0.0541]	−0.184 *** [0.0462]	−0.347 *** [0.0732]	−0.308 *** [0.0754]
Revenues (ln)	3.367 *** [1.211]	4.407 *** [0.394]	3.848 *** [1.242]	4.485 *** [0.395]	1.161 [1.143]	1.639 *** [0.603]	0.896 [1.595]	2.205 *** [0.624]
ROE	−0.377 ** [0.155]	−0.308 ** [0.136]	0.0765 [0.166]	0.0779 [0.168]			−0.373 ** [0.146]	−0.323 ** [0.135]
ROI	−0.418 *** [0.110]	−0.596 *** [0.188]	−0.386 *** [0.139]	−0.564 *** [0.183]			−0.478 *** [0.0438]	−0.642 *** [0.193]
ROA	−5.266 [5.282]	−11.87 *** [4.321]	−4.764 [5.397]	−10.54 ** [4.351]			2.241 [6.743]	−6.485 [4.891]
industry		−0.0424 [0.0364]		−0.0390 [0.0360]		−0.0377 [0.0399]		
n. employees (ln)					5.873 *** [2.198]	3.476 *** [0.560]	5.700 ** [2.809]	2.796 *** [0.639]
Constant	−9.709 [27.42]	−31.80 *** [9.223]	−21.10 [28.09]	−34.06 *** [9.244]	−17.21 [23.46]	−5.178 [11.16]	−9.496 [28.88]	−10.70 [10.90]
Observations	1557	1557	1588	1588	1448	1448	1139	1139
R-squared	0.296	0.294	0.296	0.295	0.355	0.353	0.336	0.331
Number of FirmID	468	468	472	472	396	396	360	360

Robust standard errors in brackets. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ .

#### 4.2.2. Censoring

As a further robustness check, we restricted the sample by considering different percentages of censoring. Specifically, we reduced the sample by dropping-out the values exceeding an upper limit (right censoring) or falling below a lower limit (left censoring) of the distribution. Table 5 shows the estimated effect of the COVID-19 crisis on company behavior considering a change in the sample size due to censoring of 1%, 2%, 5%, 10%, and 20%. Considering the different specifications, the effect with different sizes of censoring remains statistically and economically significant.

**Table 5.** Robustness checks analysis—censoring.

Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Fixed Effects ESG	Random Effects ESG	Fixed Effects ESG	Random Effects ESG	Fixed Effects ESG	Random Effects ESG	Fixed Effects ESG	Random Effects ESG	Fixed Effects ESG	Random Effects ESG
Censoring	1%	1%	2%	2%	5%	5%	10%	10%	20%	20%
year = 2019	1.715 *** [0.367]	1.718 *** [0.359]	1.716 *** [0.367]	1.721 *** [0.358]	1.738 *** [0.365]	1.748 *** [0.356]	1.734 *** [0.362]	1.751 *** [0.354]	1.690 *** [0.357]	1.723 *** [0.350]
year = 2020	4.759 *** [0.498]	4.655 *** [0.478]	4.743 *** [0.498]	4.642 *** [0.478]	4.721 *** [0.498]	4.626 *** [0.477]	4.662 *** [0.495]	4.573 *** [0.475]	4.509 *** [0.491]	4.436 *** [0.472]

year = 2021	6.379 ***	6.259 ***	6.355 ***	6.239 ***	6.330 ***	6.224 ***	6.289 ***	6.192 ***	6.009 ***	5.942 ***
	[0.562]	[0.553]	[0.563]	[0.554]	[0.563]	[0.553]	[0.558]	[0.549]	[0.551]	[0.543]
n. employees (ln)	5.660 **	2.657 ***	5.698 **	2.649 ***	5.806 **	2.636 ***	5.966 **	2.589 ***	6.380 **	2.493 ***
	[2.801]	[0.618]	[2.803]	[0.617]	[2.796]	[0.614]	[2.789]	[0.606]	[2.803]	[0.585]
Debt-to-Equity ratio	-0.344 ***	-0.306 ***	-0.332 ***	-0.295 ***	-0.316 ***	-0.281 ***	-0.310 ***	-0.276 ***	-0.315 ***	-0.281 ***
	[0.0727]	[0.0744]	[0.0760]	[0.0794]	[0.0822]	[0.0869]	[0.0860]	[0.0906]	[0.0849]	[0.0885]
Revenues (ln)	0.928	2.208 ***	0.913	2.199 ***	0.860	2.171 ***	0.726	2.099 ***	0.407	1.922 ***
	[1.594]	[0.622]	[1.594]	[0.621]	[1.589]	[0.618]	[1.566]	[0.608]	[1.533]	[0.583]
ROE	-0.366 **	-0.316 **	-0.338 **	-0.290 *	-0.300 *	-0.254	-0.282	-0.238	-0.283	-0.242
	[0.144]	[0.135]	[0.151]	[0.149]	[0.169]	[0.174]	[0.181]	[0.186]	[0.179]	[0.181]
ROI	-0.478 ***	-0.573 ***	-0.477 ***	-0.572 ***	-0.476 ***	-0.571 ***	-0.471 ***	-0.569 ***	-0.464 ***	-0.569 ***
	[0.0419]	[0.106]	[0.0424]	[0.106]	[0.0434]	[0.106]	[0.0453]	[0.107]	[0.0447]	[0.115]
ROA	1.527	-6.218	1.434	-6.329	1.279	-6.529	1.325	-6.667	1.352	-6.877
	[6.602]	[4.811]	[6.601]	[4.811]	[6.598]	[4.813]	[6.604]	[4.805]	[6.548]	[4.719]
industry		-0.0554		-0.0561		-0.0566		-0.0577		-0.0601
		[0.0408]		[0.0407]		[0.0404]		[0.0397]		[0.0382]
Constant	-9.686	-7.506	-9.723	-7.230	-9.660	-6.520	-8.377	-4.640	-5.632	-0.129
	[28.87]	[11.13]	[28.86]	[11.11]	[28.79]	[11.06]	[28.49]	[10.86]	[27.83]	[10.42]
Observations	1139	1139	1139	1139	1139	1139	1139	1139	1139	1139
R-squared	0.343		0.342		0.342		0.342		0.332	
Number of FirmID	360	360	360	360	360	360	360	360	360	360

Robust standard errors in brackets. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

#### 4.2.3. Changing Dependent Variable

As a further robustness check, we used as a dependent variable all the components of the ESG score (environmental, social, governance). Table 6 shows the estimated effect of the COVID-19 crisis on company behavior considering the components of the ESG score. Considering the different specifications, the effect with different sizes of censoring remains statistically and economically significant.

**Table 6.** Robustness checks analysis—changing dependent variables.

Dependent Variable				(4)	(5)	(6)
	Environmental Score (Fixed Effects)	Environmental Score (Random Effects)	Social Pillars Score (Fixed Effects)	Social Pillars Score (Random Effects)	Governance Pillars Score (Fixed Effects)	Governance Pillars Score (Random Effects)
year = 2019	1.704 ***	1.575 ***	1.713 ***	1.599 ***	2.133 ***	2.363 ***
	[0.464]	[0.445]	[0.448]	[0.433]	[0.748]	[0.749]
year = 2020	4.295 ***	4.044 ***	3.530 ***	3.191 ***	7.291 ***	7.494 ***
	[0.604]	[0.577]	[0.581]	[0.547]	[0.924]	[0.877]
year = 2021	6.064 ***	5.784 ***	4.497 ***	4.130 ***	9.739 ***	9.853 ***
	[0.736]	[0.715]	[0.597]	[0.608]	[1.110]	[1.016]
n. employees (ln)	1.805	1.630 *	4.544	3.560 ***	9.643 **	2.041 ***
	[3.773]	[0.957]	[3.049]	[0.765]	[3.982]	[0.776]
Debt-to-Equity ratio	-0.172	-0.177	-0.138 *	-0.107	-0.628 ***	-0.496 ***
	[0.132]	[0.129]	[0.0805]	[0.0808]	[0.0894]	[0.114]
Revenues (ln)	3.204	3.880 ***	-0.254	1.756 **	-0.0525	1.199
	[2.039]	[0.885]	[1.544]	[0.777]	[2.546]	[0.797]
ROE	-0.305 *	-0.305 *	-0.0898	-0.0455	-0.825 ***	-0.643 ***

	[0.173]	[0.168]	[0.113]	[0.107]	[0.191]	[0.248]
ROI	−0.104 **	−0.113 **	−0.316 ***	−0.461 ***	−1.126 ***	−1.401 ***
	[0.0492]	[0.0473]	[0.0479]	[0.157]	[0.0750]	[0.342]
ROA	−9.406	−14.97 **	8.818	−0.199	1.439	−8.567
	[9.051]	[7.293]	[7.510]	[6.349]	[17.14]	[11.14]
Constant	−26.76	−37.49**	31.69	−1.976	−30.07	16.42
	[36.69]	[16.85]	[29.25]	[13.33]	[44.07]	[13.99]
Observations	1136	1136	1139	1139	1139	1139
R-squared	0.216		0.154		0.253	
Number of FirmID	358	358	360	360	360	360

Robust standard errors in brackets. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

## 5. Discussion

Our findings add to the ongoing discussion of how the COVID-19 pandemic influenced company behavior in terms of ESG practices. Specifically, our results explain that during the COVID-19 pandemic, companies continued to invest in ESG, showing the relevance for the companies for continuing to follow best practices in terms of ESG, even during instable times.

Our findings are consistent with prior literature that explain how, in difficult environmental contexts such as that caused by the COVID-19 pandemic, investments in ESG can improve the environment in which companies operate [40].

Therefore, even if the COVID-19 pandemic has altered the way in which companies allocate their resources [70,71], this shock did not induce companies to decrease their ESG interest, probably because they wanted to exploit the benevolent effects of investments in ESG, intended to reduce the damage caused by COVID-19.

In conclusion, the pandemic has created a new balance in corporate interests, prompting companies to balance their efforts between profit orientation and social responsibility, and in this new context, companies decided to change their resource allocation, but without removing resources from ESG investments [71].

First, our paper contributes to the existing literature on ESG and on COVID-19 effects. Prior studies focused principally on the correlation between ESG and the COVID-19 pandemic from an investor point of view; in this study, we completely changed the perspective, and we analyzed how companies changed their behavior during COVID-19 [9,10,12,13].

Second, the study contributes to the literature on ESG and legitimacy theory [29], providing empirical evidence on the strategic choices made by companies during the COVID-19 pandemic.

Third, the study advances our knowledge about the investment choices in the ESG field, highlighting the propensity of European listed companies to undertake (or continue) ESG practices and, therefore, to invest in these activities.

The study is useful to understand the priority of the interests of the companies, during turbulent times, and it revealed that one of the primary interest of companies is investing in ESG.

## 6. Limitations and Further Research

While this study aims to provide a novel contribution to the emerging literature on the effects of the COVID-19 pandemic on ESG practices, it is still explanatory and presents some limitations that must be considered when approaching this topic, analyzing the results, and generalizing its findings.

First, this study takes advantage of the unique setting in Europe, and the limited sample size and country-specific characteristics inevitably influence the study results and

affect their generalization. Future studies might repeat the analysis by extending the investigation to other countries (i.e., United States, China, etc.), providing a cross-country comparison or, on a longitudinal basis, monitoring the progress of companies' disclosure over the years.

Second, our analysis does not consider any governance of internal organizational factors, such as board composition, organizational size, resources and capabilities, intangibility, and economic performance.

Future studies might consider the effects of institutional, governance, and organizational characteristics on ESG practices and, at the same time, could analyze, through means of qualitative research methods, motivations and drivers of these practices.

These research directions would provide a complete and more in-depth picture of ESG practices, generally considered a topic of crucial importance. Thus, these topics offer relevant opportunities for future research within the corporate sustainability academic domain.

## 7. Conclusions

The study examines the effect of the COVID-19 pandemic on environmental, social, and governance (ESG) performance for European listed companies included in the STOXX 600 index. Moreover, the purpose of the study is to understand if and how the COVID-19 pandemic influenced (and still influences) the behavior of European companies in terms of best practices in ESG. The sample, analyzed using a fixed-effects and a random-effects technique, comprises 600 European listed companies and covers the period from 2018 to 2021; therefore, we performed our analysis using 2400 observations. We have also run several robustness checks through which we can confirm the baseline hypothesis.

Prior studies have principally focused the analysis on the correlation between ESG and the COVID-19 pandemic from an investor point of view [17,67,71,72]. In this aspect, several authors show that companies with higher ESG scores are subject to lower risk and remain stable during turbulent times [14,73], while other studies arrive at opposite results [74]. Other studies have focused their attention on the effect of the COVID-19 pandemic on firm behavior, such as logistic management, the management of the labor force, gender diversity, the moving of the production plants, and cash flow management [75,76]. Despite the previous studies, there are no contributions focused on the examination of how companies responded during the COVID-19 pandemic in terms of ESG practices.

This paper provides the first evidence of how companies responded, in terms of following the best ESG practices, to the global crises induced by the COVID-19 pandemic. We discover that although the COVID-19 pandemic heavily influenced firm behavior in terms of workforce, investments, supply chain, etc., it did not affect the firm tendency to follow the best ESG practices, since like in the pre-COVID-19 period, they continued to invest in ESG with notably results in terms of the ESG score.

Considering the lack of studies about the ESG practices actuated by the company in order to respond to the COVID-19 crisis, our article adds, as the most important contribution, supplementary information and considerations to the uncompleted debate that examines the effects of external shocks on ESG performance. Second, our findings confirm the relevance for firms of ESG practices, and in some cases, especially during turbulent times. Indeed, ESG practices are always one of the primary interests of companies, because companies know that through these practices, it is possible to reduce the negative effects caused by exogenous shocks of the market not dependent on the behavior of the companies. Above all, ESG practices help companies obtain a fair and ethical image, increasing their legitimacy and helping them to gain a competitive advantage over other companies.

This implies that companies should not stop investing in ESG even during turbulent times with external and unprecedented shocks, since is a general primary interest of all companies to continue to invest in ESG in any circumstances. Entrepreneurs should be

aware that stopping to invest in ESG may generate a gap between them and the entrepreneurs who continue to invest in ESG in all the conditions. Therefore, during periods of economic downturn such as during COVID-19, companies should save money and continue to invest in ESG, in order to continue to perform better, as explained by prior studies that show a positive correlation between ESG and performance.

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