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CSR in Times of Crisis According to ESG Indicators in Europe: Analysis of the Impact of COVID-19

La RSC en tiempos de crisis según los indicadores ASG en Europa: análisis del impacto del COVID-19[1]

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ABSTRACT

We live in a globalised world, characterised in recent times by events that have led to crises of international and global scope, in which companies have played a leading role. These circumstances have created a unique opportunity to study how Corporate Social Responsibility (CSR) varies as companies adapt to this new environment. A key example of this is the situation resulting from the COVID-19 pandemic. This health crisis has obliged companies to adopt new management guidelines to adapt to the difficult conditions of this setting and be able to survive in this "new normal". Thus, it will be interesting to know whether the impact of this global health crisis, which hit countries differently, has affected companies' environmental, social and governance (ESG) indicators. Using a large sample of companies from European Union (EU) countries, the results confirm that corporate engagement in CSR increased during the pandemic (2020-2022) compared to the previous period (2017-2019). Additionally, the results of this study confirm that the intensity of the impact of this crisis improves the companies' ESG indicators. From a practical standpoint, it is possible to establish certain political and management implications based on our findings and use them to plan possible strategies for potential future crises.

Keywords: Covid-19, CSR, ESG, Environmental, Social, Governance.

RESUMEN

Vivimos en un mundo globalizado caracterizado en los últimos tiempos por acontecimientos que han derivado en crisis de alcance internacional y mundial, en las que las empresas juegan un papel protagonista. Estas circunstancias crean una oportunidad única para estudiar cómo varía la responsabilidad social corporativa (RSC) al adaptarse las compañías al nuevo entorno, siendo un buen ejemplo al respecto el relacionado con la situación derivada del Covid-19. Esta crisis sanitaria provocó que las empresas se vieran obligadas a adoptar nuevas pautas de gestión para adaptarse a las difíciles condiciones del entorno y poder sobrevivir en esa «nueva normalidad». Así, será interesante saber si el impacto de esta crisis, que fue desigual entre países, afecta a los indicadores ambientales, sociales y de gobierno (ASG) de las compañías. Utilizando una amplia muestra de empresas de los países de la Unión Europa (UE), los resultados confirman que el compromiso empresarial en materia de RSC aumentó en el periodo de la pandemia (2020-2022) con respecto al periodo previo (2017-2019). Adicionalmente, los resultados de este estudio confirman que la intensidad del impacto de dicha crisis hace que mejoren los indicadores ASG. Desde un punto de vista práctico, es posible establecer ciertas implicaciones a nivel político y de gestión a partir de nuestros resultados y aprovecharlos para planificar posibles actuaciones frente a potenciales crisis futuras.

Palabras clave: COVID-19, CSR, ASG, Environmental, Social, Governance.

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1. INTRODUCTION

Worldwide crises are worth studying in depth due to their significance in the economic and business context. For example, the recent COVID-19 pandemic rapidly impacted daily life and business and interrupted commerce and the movement of goods and people for some time. This pandemic affected, to a greater or lesser degree, all the countries in the world, with many people infected and many deaths. This was accompanied by great social, financial and educational disorder, among other effects (Akrofi & Antwi, 2020). The number of infected people in Europe by the end of 2022 reached nearly 270 million (World Health Organization [WHO], 2023). Although in countries that enacted strict social distancing rules and restricted movement from the beginning of the pandemic the number of people infected was relatively low, in others, much higher numbers were observed, with differing recuperation horizons (Barmparis & Tsironis, 2020).

This health crisis has obliged companies to adopt new management guidelines to adapt to the difficult conditions of this setting and be able to survive in this "new normal" (Carracedo *et al.*, 2021). The COVID-19 crisis has had adverse effects on organisations, such as falling sales (Meyer *et al.*, 2022; Purwanto *et al.*, 2020), loss of employment or pay cuts, reduced productivity and business closings, and these adverse effects have had different repercussions in different sectors (Carroll, 2021). However, it has also brought some positive changes, like implementing innovative activities resulting in new products and services (Amoah *et al.*, 2021) and improvements in environmental, social and governance aspects, as will be discussed in this study. In general, worldwide crises, such as the COVID-19 pandemic, demonstrate the need for companies to initiate new ways of acting to improve citizens' quality of life (Purwanto *et al.*, 2020).

Another current topic is corporate social responsibility (CSR) since it has long been evident that the shift in citizens' value systems has resulted in increased concern about social and environmental issues (Nieto & Fernández Gago, 2004). The use of environmental, social and governance indicators (ESG) is crucial to determine whether a company stands out in these areas, as this is relevant information for sustainability reports and gaining investors' trust (Ferrell, 2021; Li & Mei, 2021), in addition to having a positive impact on company value (Wong *et al.*, 2021). Integrating ESG factors can improve long-term performance for investors, who increasingly demand these factors (Delgado-Ceballos *et al.*, 2023). This is due to the fact that ESG performance may affect the relationship between sustainable investment and financial performance, which is the principal objective of companies (Khan *et al.*, 2016; Kocmanova *et al.*, 2012). Various articles (Costa *et al.*, 2022; Park *et al.*, 2023) contend that CSR and ESG are different but complementary concepts since both involve considering the impact of business decisions on society and the environment. CSR aims to hold firms accountable for more than just complying with their legal obligations. It intends to have a positive impact on society and the environment. Meanwhile, the ESG criteria permit the efforts made in these areas to be measured (Barko *et al.*, 2022).

With the spread of global health crises, such as COVID-19, great concern about environmental, social and governance problems has arisen. Broadstock *et al.* (2021) analyse the link between the role of performance in ESG and the COVID-19 pandemic, and they conclude that portfolios high in ESG generally perform better than those low in ESG. They find that ESG performance mitigates financial risk during financial crises, and the role of ESG performance lessens in "normal" times, confirming its importance in crises. It seems, therefore, that strengthening a firm's environmental, social and governance responsibilities is always relevant, but it is especially so after a global pandemic.

In this context, this study aims to contrast the effects of global crises, like that of COVID-19, on firms' CSR and ESG matters. Specifically, unlike previous works whose study periods were the years of the COVID-19 pandemic (Boubaker *et al.*, 2022; Broadstock *et al.*, 2021; García-Sánchez & García-Sánchez, 2020; Qiu *et al.*, 2021), this study first analyses whether there really was a change during the years of the pandemic (2020, 2021 and 2022), compared to the period just before this global health crisis (2017, 2018 and 2019), in CSR issues. In addition, we analyse whether the intensity of COVID-19, which impacted countries differently as evidenced by the differences in the numbers of infected people, affects the indicators of environmental, social and governance matters in organisations.

Consequently, the main contributions of this study are the following. First, it provides evidence about whether the pandemic has caused a change in the responsible behaviour of companies. This topic is relevant due to firms' increasing interest in corporate sustainability. Second, the extant literature has analysed other relationships of cause and effect, such as whether CSR practices can mitigate the adverse effects of COVID-19 and therefore help firms survive (Boubaker *et al.*, 2022; Pham *et al.*, 2021), the link between ESG and the companies' objectives during COVID-19 (Arias *et al.*, 2024), or the relationships among specific company characteristics, such as the board of directors and ESG performance during this crisis (Paolone *et al.*, 2024). However, this study analyses the relationship between the intensity of the COVID-19 pandemic and each of the ESG indicators in companies. As far as we know, this relationship has not been analysed before, and it is essential for different agents, like managers and investors, to learn how firms could be affected by unforeseen events like this one in the future. In addition, a quantitative analysis has been undertaken in response to calls in previous studies (Nahar & Mohamad, 2023; Ranjbari *et al.*, 2021). Ranjbari *et al.* (2021), in an exhaustive review of the implications of COVID-19 for sustainable practices, observed that 88% of the sample articles applied a qualitative approach. These authors proposed that more quantitative studies on these topics be carried out in the future. To do this, the present study uses a broad sample of European Union (EU) countries comprising 1,786 firms from different sectors. This contrasts with previous empirical research, which has only studied the effects in one country, for one year, or in one sector.

The rest of the paper is organised as follows. First, section 2 presents the conceptual model and the theoretical framework supporting the research hypotheses. Next, section 3 explains the design used to collect the data and define the variables. Section 4 presents the methodology used in the empirical analysis and the results. Finally, section 5 explains the main conclusions and implications of the results, the limitations and future lines of research.

2. THEORETICAL FRAMEWORK AND HYPOTHESES

2.1. The COVID-19 pandemic as a driver of corporate social responsibility

As Freeman (1984) asserts, according to the stakeholder theory, a company must adequately manage its relationships with stakeholders to become successful. In critical periods, such as a global crisis like the one provoked by the COVID-19 pandemic, it is especially relevant that these stakeholders feel supported.

According to the institutional theory (DiMaggio & Powell, 1983; Meyer & Rowan, 1977), organisations adapt to their surroundings, following the laws and norms in each case and seeking legitimacy by becoming isomorphic with their institutional environment. That is, they pursue acceptance from their external environment. Following this legitimacy theory, firms should continuously legitimise their activities to maintain the unity between the objectives of society and those of the organisation to ensure their survival.

Therefore, in a crisis context like that caused by COVID-19, it seems especially reasonable that firms seek to enhance and promote CSR actions to achieve this legitimacy in the eyes of society and, consequently, help ensure their survival. Between the period before COVID-19 and during the pandemic, there are likely to be differences since companies had to test their capacity to adapt to new circumstances in times of uncertainty and respond to new social, environmental and economic challenges. Fortunately, many companies not only resisted engaging in unethical commercial practices during this period but they actively participated in diverse CSR activities. This has been especially true of firms that could provide immediate assistance in the fight against the virus, thereby boosting their CSR practices (Aguinis *et al.*, 2020; He & Harris, 2020).

Some studies claim that the COVID-19 pandemic has created opportunities for firms to increase their CSR activities and address global challenges despite the economic instability of this difficult period (Abed, 2022; He & Harris, 2020; Navickas *et al.*, 2021). Other studies (Khanchel *et al.*, 2023; Poursoleyman *et al.*, 2024) confirmed that the companies that engaged in more CSR practices during the pandemic were less affected by it. Ferrón-Vílchez & Leyva-de la Hiz (2023) share this opinion and add that resilient SMEs were able to improve their profitability during the pandemic. This is so because SMEs more oriented towards CSR practices are more resilient and, therefore, in better conditions to resist adverse economic situations like the COVID-19 crisis. For possible future periods of crisis, Qiu *et al.* (2021) explain that companies should not only invest in CSR during a crisis but should regularly commit to these activities to increase the effectiveness of their investment in CSR and avoid a notable difference between pre- and post-crisis periods.

Considering the arguments explained above, the first hypothesis is:

H1. Firms' commitment to CSR is greater during the COVID-19 pandemic than in the pre-pandemic period.

2.2. The influence of COVID-19 on firms' environmental, social and governance indicators during the pandemic

A crisis can provoke changes in society, lifestyles, health and the business environment. Thus, after experiencing a global crisis like COVID-19, it is reasonable to assume that notable changes have been made, whether due to learning, the need to adapt or fear of a similar situation in the future, among other reasons. Nevertheless, the pandemic did not affect everyone equally. There could be differences between organisations in one place or another, depending on their specific context. In the case of this pandemic, which was managed differently in each location (Barrachina & Barrachina, 2021; Nhamo *et al.*, 2020; Yan *et al.*, 2020), it is to be expected that the management and impact would differ for different organisations. As Shen *et al.* (2020) explain in their study, the impact of COVID-19 on firm performance is more pronounced in the areas and industries more affected by the virus.

Below, considering the context of a crisis, such as the COVID-19 pandemic, we will analyse each ESG component separately and examine how these indicators might have been affected.

Firms' environmental indicator

Environmental sustainability is one of the three dimensions of sustainable development, together with the social and economic dimensions (Woodcraft, 2012). Protecting the environmental may stimulate the ecological transformation of companies (Wang *et al.*, 2024) without hurting corporate competitiveness (Liu *et al.*, 2023; Liu *et al.*, 2024).

Therefore, many companies have remained committed and have adapted their practices to address the environmental impact of the pandemic. For example, they have taken measures to reduce energy and water consumption and promote the circular economy. With the increase in consumer awareness and the demand for sustainable products and services, some firms have increased their efforts in this area (Carroll, 2021). Moreover, teleworking has reduced vehicle traffic, resulting in less pollution, which has positively impacted the environment (Riggs, 2020).

Various studies (Colli, 2020; Kumar, 2021; Rashed *et al.*, 2020) have determined that water consumption and greenhouse gas emissions decreased during the COVID-19 pandemic. The reduction in pollutants from vehicles and industry has also had positive effects on bodies of water (Rashed *et al.*, 2020). Therefore, the fact that industries were inactive in many countries may have significantly reduced industrial waste emissions. In turn, this reduction led to a limit on the use of fossil fuels and conventional energy sources due to less energy demand in industries (Colli, 2020; Kumar, 2021). Moreover, the increase in online shopping with subsequent home delivery helped to reduce emissions. This mode of shopping has since become a much-used and more sustainable option for many consumers (Rita *et al.*, 2021). Finally, recent qualitative studies have demonstrated that firms have improved their environmental management systems (with better use of energy and water and reduced impact of

gas emissions) as a result of the COVID-19 pandemic (Islam *et al.*, 2024; Rumman *et al.*, 2024).

Therefore, the following hypothesis is proposed:

H2. The intensity of the impact of the COVID-19 pandemic affected positively the firms' environmental indicators.

Firms' social indicator

Although it is true that, on many occasions, the pandemic has had a very negative impact on people, companies have collaborated to mitigate these effects and have acted positively towards the community, their employees and consumers. As a global health emergency, the pandemic has greatly affected social sustainability since it threatened people's quality of life, well-being and safe and healthy lives. Health, well-being and education are citizens' basic social needs (Ranjbari *et al.*, 2021).

This crisis has produced an increase in donations and social engagement. Many organisations have allocated resources to support affected communities, donated medical supplies and financed research on the virus (Carroll, 2021). Others have aided the community and its most vulnerable citizens through associations and non-governmental organisations. Specifically, the economic consequences of the pandemic have made it necessary that firms helped in different areas, such as food, health, society and technology (Raimo *et al.*, 2021).

The extant literature also suggests that the relationships between a company and its employees, clients and the local community can shape corporate resilience during a crisis (Ding *et al.*, 2021). Social commitment could strengthen the links between a company and its stakeholders, and these stronger ties can, in turn, help to retain high-quality employees and maintain supply chains and loyal customers in difficult times (Albuquerque *et al.*, 2019). Telework should also be mentioned when discussing social issues and workers. Although telework presented some challenges, such as concentration and coordination problems, prolonged working hours, worse mental health and employees' loss of privacy (Afonso *et al.*, 2022; Katsabian, 2020), it also had positive effects. Working from home allowed some employees more autonomy, decision-making power, job satisfaction, productivity and work-life balance (Campo *et al.*, 2021; Fana *et al.*, 2020; Liu *et al.*, 2021; Massimo, 2020; Moens *et al.*, 2020). In fact, despite the challenges, most workers wanted to continue teleworking after the lockdown was lifted (Baek *et al.*, 2021; Moens *et al.*, 2020).

Nevertheless, it is important to mention that many employees were laid off, saw their working hours reduced or had to work in dangerous conditions, and parents had difficulties caring for their children (Carroll, 2021). In addition, some employees' salaries were cut during this difficult time (Meyer *et al.*, 2022). In any case, employees in countries where the pandemic had less impact were less affected by the crisis than others (Adams-Prassl *et al.*, 2020). The intensity of COVID-19 also influenced job insecurity, provoking emotional exhaustion and organisational deviation, although companies may take measures to alleviate these harmful effects (Lin *et al.*, 2021; Phugat *et al.*, 2021).

Companies responded to consumers' need for social commitment. This is because the pandemic was traumatic for many of them, causing physical, psychological and emotional damage. Thus, it is more likely that responsible and pro-social behaviour could satisfy more of consumers' social and self-fulfilment needs (He & Harris, 2020). Specifically, Waheed *et al.* (2022) found that in uncertain times, such as the pandemic period, clients are more attached to and satisfied with organisations that are socially responsible and value their stakeholders.

Therefore, during the pandemic, it seems that firms were concerned about recuperating well-being and providing benefits to society, their employees and consumers since it was a time in which society faced serious threats to living standards and health.

In line with the previous arguments, the following hypothesis is proposed:

H3. The intensity of the impact of the COVID-19 pandemic affected positively the firms' social indicators.

Firms' governance indicator

The interruption caused by the pandemic also affected organisations' governance practices and standards due to the challenges posed by COVID-19. However, there are contrasting opinions about whether the relationship between the impact of the pandemic and governance has been positive or negative.

According to Patel & Patel (2020), social distancing made shareholder and board meetings difficult to carry out in person, which caused delays in urgent commercial transactions and the postponement of annual general assemblies. However, Kaur *et al.* (2021) examined the new challenges the pandemic posed for boards of directors, such as virtual meetings, adequate board composition, dynamic risk assessment and continuity and resilience, and they found that virtual meetings, rapid and efficient responses and the efficiency of the board helped firms survive. COVID-19 has also created opportunities to improve governance and prioritise key sectors (Ajeigbe & Ganda, 2023). In general, COVID-19 has highlighted the importance of governance in crisis management and protecting shareholders' interests (Kumar *et al.*, 2021). According to Amorelli & Sánchez (2023), the pandemic had a less adverse effect on corporate commitment to stakeholders in companies with more women on the board. Furthermore, board members guarantee the continued social and environmental commitment of previous years, with their contribution being especially relevant in companies whose revenue was affected by the pandemic.

It is important to point out that more emphasis was placed on risk prevention and strategic planning during the pandemic. Thus, companies had to adapt their strategies and make quick decisions to address different challenges. This led to a greater focus on risk management and implementing mechanisms to

evaluate and mitigate risks (Pourmansouri *et al.*, 2022), indicating that this area took on special relevance in firms during these times of crisis. In terms of company strategic planning, COVID-19 could inhibit the implementation of global socio-economic activities, threatening the achievement of the Sustainable Development Goals (SDGs). However, it could also be a driver for a more sustainable way of living (Rassanjani *et al.*, 2021).

It seems reasonable to expect that organisations want to plan ahead and strengthen their government structures (meeting format, strategic priorities, etc.) to be more resilient and prepared for another crisis (Patel & Patel, 2020).

In light of the previous arguments, the last hypothesis is proposed:

H4. The intensity of the impact of the COVID-19 pandemic affected positively the firms' governance indicators.

3. RESEARCH DESIGN

3.1. Sample

The Refinitive Eikon database was used to obtain the sample and collect the information necessary to measure most of the variables. In addition, information about the number of people infected with COVID-19, provided by the World Health Organisation (2023), and the total population of each country in the study, offered by Eurostat (2023), were used to construct the main explanatory variable.

For the period 2017-2022, listed companies from the 28 EU countries have been considered since the United Kingdom was member of the EU during some of the years of the study period (Ministerio de Asuntos Exteriores, Unión Europea y Cooperación, 2023). It was deemed appropriate to begin the study in 2017 to verify the proposed research model three years before the COVID-19 pandemic and during the three years of the pandemic. The study period ended in 2022 because no data were available past this point.

To obtain the sample, companies listed in the EU during the period 2017-2022 with information about the dependent variables used in this study (CSR and each of the components of ESG) were collected, resulting in 2,183 companies and 13,098 observations. Next, two filters were applied. First, companies with data regarding the dependent variables for only one year of the study were eliminated (98 companies and 588 observations). Second, financial and insurance firms were excluded (299 companies, 1,794 observations) due to the particular characteristics of these kinds of firms, such as their specific accounting practices and the regulation and structure of financial markets (Ben Saad *et al.*, 2022; Lins *et al.*, 2019). After applying these two filters, the result was an unbalanced panel of 1,786 companies and 10,716 observations of companies from 22 EU countries. Table 1 shows the 22 EU countries whose firms comprised the sample for this study. It is necessary to mention that to test Hypotheses 2, 3 and 4, the final sample of the estimations rises to 1,807 observations (746 companies). This is due to some missing values and the use of lags to control a possible endogeneity problem.

Table 1
Sample distribution by country

Country	Companies		Observations	
	Number	Percentage	Number	Percentage
Austria	31	1.74	186	1.74
Belgium	44	2.46	264	2.46
Cyprus	11	0.62	66	0.62
Czech Republic	1	0.06	6	0.06
Denmark	54	3.02	324	3.02
Finland	74	4.14	444	4.14
France	163	9.13	978	9.13
Germany	250	14.00	1,500	14.00
Greece	25	1.40	150	1.40
Hungary	5	0.28	30	0.28
Ireland	48	2.69	288	2.69
Italy	103	5.77	618	5.77
Luxembourg	34	1.90	204	1.90
Malta	6	0.34	36	0.34
Netherlands	64	3.58	384	3.58
Poland	26	1.46	156	1.46
Portugal	13	0.73	78	0.73
Romania	1	0.06	6	0.06
Slovenia	1	0.06	6	0.06
Spain	63	3.53	378	3.53
Sweden	293	16.41	1,758	16.41
United Kingdom	476	26.65	2,856	26.65
TOTAL	1,786	100.00	10,716	100.00

Source: Own elaboration.

3.2. Variables

Dependent variables

To test Hypothesis 1, corporate social responsibility is the variable analysed. For the rest of the hypotheses, dimensions of ESG are considered.

First of all, corporate social responsibility (CSR) is measured through the daily decisions regarding economic, social and environmental matters reported by the firm. The scores for this variable range from 0 to 100, with the companies reporting the best CSR actions receiving a score of 100 (Refinitiv, 2023).

Firms' environmental, social and governance indicators were also obtained from the Refinitiv Eikon database. The information for these variables is not only that issued by the companies themselves but is complemented with negative information not reported by the companies, called "controversies", resulting in fewer possibilities of attribution bias (Mezulis *et al.*, 2004). According to Refinitiv (2023), to achieve the necessary information, 630 ESG measures are collected and calculated, of which 186 of the most relevant and comparable, depending on the industry, form subgroups that become the basis of each category's evaluation and scoring. The scores of the categories are then integrated into the scores of the three pillars: environmental, social and governance. In addition, the number of controversies rises

to 23, which are added to the total calculation of the indicator. The final scores are normalised in percentages that range from 0 to 100 on a metric scale, where firms with the best practices and outstanding performance in the considered items receive a score of 100 and vice-versa (Refinitiv, 2023).

The score of the environmental indicator (Environmental) has been created from 158 items, and it measures the impact of an organisation on natural living and not living systems, including the air, earth and water, as well as complete ecosystems. It reflects the extent to which a company uses the best management practices to avoid environmental risks and takes advantage of environmental opportunities to create long-term value for its shareholders.

The score of the social indicator (Social) considers 238 items, and it measures a firm's capacity to create trust and loyalty among its workforce, clients and society by using the best management practices. It is a reflection of the company's reputation, which is a key factor in determining its capacity to create long-term value for its shareholders.

Finally, the score of the governance indicator (Governance) (141 items) measures the firm's systems and processes, which ensure that its board members and executives act in the best interests of its long term shareholders. It reflects a company's capacity, through its use of best management practices, to direct and control its rights and responsibilities through the creation of incentives, as well as checks and balances in order to generate long term shareholder value.

Independent variable

The number of employees infected with COVID-19 (incorporated as a logarithm in the regression analyses) (Infected_Covid) is the explanatory variable used to test Hypotheses 2, 3 and 4. Specifically, we have created a variable for each of the pandemic years that is the result of multiplying the number of infected people nationally (Covid_country = the number of confirmed cases of COVID-19 each year in each country/ country's population) by the number of employees in each company (Employees). Thus, this new variable reflects the effect of the pandemic at the country and company levels.

Control variables

Five control variables theoretically related to the dependent variables have been introduced into the proposed econometric model to reduce possible bias in the results when testing the last three hypotheses.

The company's age (Age) is the number of years between its foundation and the reference year (2017-2022). Although some studies have not found a significant relationship between age and CSR actions (Cera *et al.*, 2020; Cincalova & Hedija, 2020), it is possible to argue that young companies carry out fewer actions in these matters due to their lack of financial resources, experience and reputation (Beji *et al.*, 2021; D'Amato & Falivena, 2020; Malik *et al.*, 2020).

The indebtedness of each company (Debt) is calculated as the ratio between total debt and total assets (multiplied by 100). Firms with large amounts of debt are generally more focused on managing commercial risks than CSR practices since, in this context, suppliers can exert pressure on companies to refrain from engaging in sustainable practices that are not directly related to improving financial performance (Sheikh, 2019; Swandari & Sadikin, 2016). On the other hand, one could expect a positive relationship between high debt levels and CSR as an attempt to reduce global risk (Arora & Dharwadkar, 2011; Orlitzky & Benjamin, 2001).

The activity sector each company belongs to (Sector) was measured as a dummy variable taking the value of 1 if, according to the SIC code and the sector the firm belongs to, the company could be classified as "environmentally sensitive" (mining, gas, chemical, paper, iron, steel and other metals) and 0 otherwise. It could be expected that companies in more environmentally sensitive sectors adopt more CSR initiatives (Fernández-Gago *et al.*, 2016; Reverte *et al.*, 2016).

The financial performance of a firm is measured by its economic profitability (Return on Assets) (ROA). On the one hand, if a firm is very profitable, socially responsible practices could be promoted (hypothesis of available funds) (Godos-Díez *et al.*, 2020; Kludacz-Alessandri & Cyganska, 2021; Nguyen *et al.*, 2021; Orlitzky *et al.*, 2003). On the other hand, according to the managerial opportunism hypothesis, if the company's economic performance is high, managers could reduce CSR activities to increase their personal short-term gains (Ballesteros *et al.*, 2015; Raza *et al.*, 2012).

The country where each company is headquartered (Legal_Origin) could contribute to notable differences between organisations based in one place and another since laws and external pressures influence corporate decisions. It is defined as a dummy variable that takes the value of 1 if the company's headquarters is in the United Kingdom or Ireland (countries with an Anglo-Saxon legal system) and 0 otherwise. Specifically, in different contexts, political and legal systems can greatly influence organisations' strategies and activities and, consequently, their sustainability goals and performance (Rosati & Faria, 2019). Countries with a common law legal system have less political influence on economic activities, and organisations are more focused on their shareholders' needs than the needs of their stakeholders (La Porta *et al.*, 1998; Luo *et al.*, 2012; Rosati & Faria, 2019).

Finally, annual effects were considered by adding two dummy variables to the model since the panel encompasses three years.

4. ANALYSES AND RESULTS

4.1. Analyses

To test Hypothesis 1, IBM SPSS Statics 26 was used to determine whether there were differences between the two periods selected, that is, between the socially responsible behaviour of the companies before and during the COVID-19 health crisis. To do this, the mean of the data in each of the periods (the mean of the three years of one period and the mean of the three years of the other period) was calculated. According to the Kolmogorov-Smirnov test, the variable in each period was not normally distributed and due to the fact that

they were related samples, the Wilcoxon test was used to obtain the results corresponding to this hypothesis.

To test the rest of the hypotheses in relation to the pandemic period (2020-2022), a linear regression model (OLS, Ordinary Least Square) clustered at company level was estimated using the cluster option and STATA17 software. This option helps to control the fact that we have information about the firms in more than one moment in time. In addition, the endogenous variables have been lagged by one year to control possible endogeneity problems in the proposed model[2]. The estimations have also been corrected due to a heteroscedasticity problem using the robust option of the STATA software. It was necessary to estimate three regression analyses to test the proposed hypotheses, alternatively considering each of the ESG indicators and including all of the control variables and the annual dummies with the main explanatory variable.

Specifically, the proposed model is a linear regression model, as shown below:

$$INDICATOR\ ESG_i = \alpha_0 + \beta X_{it-1} + \sum_{t=2020}^{2022} D_t + \varepsilon_i$$

where:

X are the explanatory and control variables, $\sum_{t=2020}^{2022} D_t$ is the set of dummy time variables and ε_i is the error term.

Although we initially considered the possibility of using a panel-data methodology, specifically, a two-step dynamic panel-data estimation, the Generalized Method of Moments (GMM) developed by Arellano & Bond (1991), this panel study has a maximum of three years per firm. Thus, it was not viable to apply this methodology since we could not estimate m_2, which tests the lack of second-order correlation of the residuals in first-order differences since a minimum of four years is required (Pindado & Requejo, 2015).

4.2. Results

The results of the first analysis are presented in Table 2. As can be seen, there is a significant difference between the mean values of the variable CSR in the two periods at a 99% confidence level, supporting this study's first hypothesis. This hypothesis proposed that firms' commitment to CSR matters was greater during the COVID-19 pandemic (2020-2022) than in the pre-pandemic period (2017-2019). The COVID-19 health crisis seems to have enhanced companies' engagement in socially responsible actions. Table 3 shows the principal descriptive statistics of the variables used to estimate the models corresponding to Hypotheses 2, 3 and 4.

Table 2
CSR before and during the COVID-19 pandemic

Variables	Pre- COVID		During COVID		Difference		Z
	Mean	Median	Mean	Median	Mean	Median	Wilcoxon
CSR	42.121	41.633	54.925	57.071	12.804	15.438	–24.120***

n = 1,418

* p < 0.10; ** p < 0.05; *** p < 0.01

Source: Own elaboration.

[2] The following variables have been considered endogenous: Infected_Covid and ROA.

Table 3
Descriptive statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Environmental	57.803	23.517	0.000	99.094
Social	65.707	20.034	2.453	97.517
Governance	63.789	19.274	3.548	98.733
Covid_Country	0.192	0.173	0.007	0.698
Employees	28,845.790	64,817.100	3.000	675,805
Infected_Covid[a]	5,896.732	19,183.070	0.104	303,530.400
Age	36.686	33.412	0.000	186.000
Debt	30.745	22.525	0.000	464.942
ROA	5.464	10.187	–113.990	189.889
Other variables	**% (number of observations = 1)**			
Sector	1,045 (48.33)			
Legal_Origin	567 (26.23)			

n = 2,162.

[a] Data obtained before log transformation.

Source: Own elaboration.

Table 4 shows the correlation coefficients among the variables of the proposed model. We used Spearman's correlations since Pearson's correlations do not work well with discrete or non-normal continuous variables (Bishara & Hittner, 2014; Wang *et al.*, 2023), which is the case of some of the variables in this study. Nevertheless, the analysis of the variance inflation factors (VIF) did not show evidence of multicollinearity, as they were all below 10 (Kleinbaum *et al.*, 1988).

The results of the regression analysis for the 2020-2022 period are presented in Table 5. Model 1 (Table 5) indicates that the coefficient of the main explanatory variable for the environmental indicator (Environmental) is positive and significant at the 99% level, confirming Hypothesis 2. Based on this study, the intensity of the impact of the COVID-19 pandemic improves firms' environmental indicators. Regarding firms' social indicator (Social), the variable Infected_Covid shows a positive and significant coefficient at 1% (Model 2, Table 5), indicating that Hypothesis 3 is also accepted. During the COVID-19 health crisis, the intensity of the pandemic seemed to improve firms' social indicators. Finally, as shown in Model 3, the last hypothesis can also be confirmed since the variable of people infected with the virus (Infected_Covid) is significant at a 99% confidence level. The impact of the COVID-19 pandemic improves firms' governance indicators (Governance).

Table 4
Correlation Matrix

Variables	1	2	3	4	5	6	7	8	9
1. Environmental	1								
2. Social	0.666***	1.000							
3. Governance	0.292***	0.364***	1.000						
4. Infected_Covid	0.446***	0.482***	0,294***	1.000					
5. Age	0.228***	0.224***	0,044	0.209***	1.000				
6. Debt	0.088***	0.098***	0,054*	0.118***	−0.054*	1.000			
7. Sector	0.186***	0.193***	0,095***	0.099***	0.126***	−0.191***	1.000		
8. ROA	−0.025	−0.011	−0,012	−0.025	0.015	−0.196***	0.072**	1.000	
9. Legal_Origin	−0.032	−0.118***	0,163***	0.065**	−0.015	−0.034	−0.045	0.037	1

* p < 0.10; ** p < 0.05; *** p < 0.01

n= 1,252

Source: Own elaboration.

Table 5
Regression Analysis[a]

Variables	Model 1	Model 2	Model 3
Infected_Covid	4.638*** (0.434)	4.252*** (0.357)	2.543*** (0.311)
Age	0.055*** (0.020)	0.059*** (0.016)	−0.004 (0.017)
Debt	0.032 (0.048)	0.001 (0.039)	0.010 (0.022)
Sector	6.163*** (1.447)	4.786*** (1.222)	2.550** (1.256)
ROA	0.133** (0.059)	0.002 (0.061)	−0.004 (0.060)
Legal_Origin	−1.793 (1.664)	−5.947*** (1.425)	6.572*** (1.211)
Annual effect considered	Yes	Yes	Yes
F	24.610***	33.61***	17.280***
R_2	0.239	0.281	0.128
Number of companies	692	692	692
Number of observations	1,252	1,252	1,252

In Models 1, 2 and 3, the dependent variable is Environmental, Social and Governance, respectively.

[a] Standardised coefficients with robust standard error in parenthesis.

* p < 0.10; ** p < 0.05; *** p < 0.01.

Source: Own elaboration.

The control variables are significant in at least some of the models, at a 95% or 99% confidence level, except for the variable Debt, which was not significant in any of the three models. The variable Sector is significant in the three econometric models, and the variable ROA is only significant in the first model. Finally, the variables Age and Legal_Origin are significant in two of the three models.

4.3. Robustness tests

As additional tests and to check robustness, the following procedures have been carried out. Instead of considering the actual explanatory variable, the percentage of people infected with COVID-19 each year in each country, defined as the number of confirmed cases each year in each country divided by each country's population, was considered, and the results did not vary. In addition, the Sector variable was alternatively defined as a dummy variable that takes the value of 1 if the company belongs to a regulated sector as opposed to an unregulated sector or belongs to the industrial sector as opposed to the service sector. The variable ROA was substituted for the variable ROE (Return on Equity). Furthermore, two additional variables, the number of women on the board and the number of independent board members, were incorporated into the models. In all of the cases above, the results presented in Table 5 relating to the main explanatory variable did not vary. Finally, it is necessary to mention that the variable Sales (expressed as a logarithm) was added as a proxy variable for company size, with no significant changes in the results since a significant effect of the main independent variable was found in the first two models but not in the model considering the governance dimension of ESG.

5. DISCUSSION AND CONCLUSIONS

Global crises such as the COVID-19 pandemic not only affect people but also have important repercussions for companies all over the world. First of all, using a broad sample of firms from EU countries, this study has analysed whether there has been a change in CSR matters during the pandemic (2020-2022) compared to the period right before this global health crisis began (2017-2019). Subsequently, it has tested whether the intensity of COVID-19, which did not impact all countries equally, as reflected in the number of cases, affected organisations' behaviour in environmental, social and governance issues.

The empirical evidence confirms that commitment to CSR matters was higher during the pandemic than in the pre-pandemic period, in line with the results of other studies that have found a strong commitment to CSR during the pandemic (Aguinis *et al.*, 2020; He & Harris, 2020). It can also be confirmed that the intensity of the impact of the COVID-19 pandemic affected positively the firms' environmental indicators. This argument is support-

ed by previous research showing how some environmental items benefited from the pandemic (Colli, 2020; Kumar, 2021; Rashed *et al.*, 2020). However, this improvement is not necessarily associated with firms' proactive behaviour but may be the result of the pandemic *per se*. This is the case of the environmental indicators, whose improvement could be partly due to the reduction in company activity caused by COVID-19.

Unlike previous studies (Afonso *et al.*, 2022; Katsabian, 2020; Lin *et al.*, 2021; Phugat *et al.*, 2021), our results also show an improvement in the social indicators. In line with studies that support an improvement during the crisis due to, for example, teleworking, which increased job satisfaction among many workers (Campo *et al.*, 2021; Fana *et al.*, 2020; Liu *et al.*, 2021; Massimo, 2020; Moens *et al.*, 2020), support for the community and its more vulnerable members (Raimo *et al.*, 2021) and increased consumer satisfaction (Waheed *et al.*, 2022). Finally, an improvement in the governance indicators can be confirmed, supported by previous studies showing that during this crisis period, governance was essential to manage the crisis and protect shareholders' interests successfully (Kumar *et al.*, 2021).

From an academic point of view, this study contributes to the literature by providing new evidence about CSR and ESG in the context of global crises, such as COVID-19, which has scarcely been studied. These results could be useful for future research aiming to delve deeper into the relationships between firms and their stakeholders and matters concerning the environment in crisis situations. From a practical point of view, it is possible to determine some political and business management implications from the results of this study. First, companies' increased commitment to CSR matters as a result of the pandemic shows their willingness to contribute to the well-being of those around them in difficult times. This should be exploited by public administrations when coordinating responses to potential future crises and establishing permanent relationships with the private sector, which could guarantee firms' continued social commitment. It is also necessary for public figures to promote awareness about diverse problems such as climate change, geopolitical conflicts and increasing inequality, which frequently do not receive the attention they deserve. Given the risk that the measures taken regarding these issues could be too late and knowing that firms are willing to help, it could be effective to emphasise a feeling of urgency to provoke increased commitment on the part of companies. From the business management perspective, firms should reflect on how their response to a crisis defines them as an organisation and identify the elements that comprise their corporate mission and vision. Once their social aims are known, they can design and implement the necessary policies and actions to achieve them. In this study, an improvement in firms' environmental, social and governance indicators has been observed during the pandemic. In the cases in which these improvements are the result of companies' voluntary initiatives and not the reduced activity provoked by the pandemic (as could be the case with some environmental parameters), it would be a good idea to analyse the efforts made and the consequences of these efforts. Some actions provoked by this extraordinary situation may have had a positive net effect on the organisation. They could have, for example, improved productivity, increased employees' motivation, captured and retained talented workers, increased customer loyalty and improved the company's reputation or guaranteed greater control of the firm by its owners. When these actions and interests are identified, measures can be adopted to transform these efforts from a response to an extraordinary situation into habitual practices that continually benefit the firm and society.

Despite the above, some limitations of this study should be recognised and considered in future research. The Refinitiv Eikon database uses a firms' headquarters as the localisation criterion instead of the country where it principally does business and most of its employees are located. In addition, the dependent variables of the environmental, social and governance indicators are measures that include various items. Therefore, it would be interesting to separate them since the COVID-19 pandemic may not have affected them all equally. The study period could also be lengthened in the future to observe whether the changes reflected in this study have been maintained after the pandemic or whether any other transformation has occurred. A longer study period would allow the use of a panel data methodology. Another limitation is that the sample comprises large companies; a study of small or medium-sized firms could have different results. Finally, a univariate analysis of subsample comparisons was carried out to test the first hypothesis. Thus, it was not possible to consider other factors that could affect and increase CSR.

Beyond the limitations, there are other areas of future research that could be interesting to explore. For example, some of the sectors most affected by the pandemic (like the automotive, hospitality and transport sectors) could be individually studied to see whether the results differ from those obtained in this work. In addition, in line with Ahmad *et al.* (2021), the average impact of global ESG and the individual dimensions of ESG on corporate financial performance could be estimated. Finally, the ESG variables could be considered mediating variables in the relationship between COVID-19 and firm performance.

6. REFERENCES

Abed, S. S. (2022). A literature review exploring the role of technology in business survival during the Covid-19 lockdowns. *International Journal of Organizational Analysis*, *30*(5), 1045-1062.

Adams-Prassl, A., Boneva, T., Golin, M., & Rauh, C. (2020). Inequality in the impact of the coronavirus shock: evidence from real time surveys. *Journal of Public Economics*, *189*, 104245.

Akrofi, M. M., & Antwi, S. H. (2020). Covid-19 energy sector responses in Africa: a review of preliminary government interventions. *Energy Research & Social Science*, *68*, 101681.

Afonso, P., Fonseca, M., & Teodoro, T. (2022). Evaluation of anxiety, depression and sleep quality in full-time teleworkers. *Journal of Public Health*, *44*(4), 797-804.

Aguinis, H., Villamor, I., & Gabriel, K. P. (2020). Understanding employee responses to Covid-19: a behavioral corporate social responsibility perspective. *Management Research*, *18*(4), 421-438.

Ahmad, N., Mobarek, A., & Roni, N. N. (2021). Revisiting the impact of ESG on financial performance of FTSE350 UK firms: static and dynamic panel data analysis. *Cogent Business & Management*, *8*(1), 1900500.

Ajeigbe, K. B., & Ganda, F. (2023). The implications of the pandemic for the corporate governance, remuneration and sustainability performance of South African listed companies. *International Journal of Innovative Research and Scientific Studies*, *6*(1), 174-184.

Albuquerque, R., Koskinen, Y., & Zhang, C. (2019). Corporate social responsibility and firm risk: theory and empirical evidence. *Management Science*, *65*(10), 4451-469.

Amoah, J., Jibril, A. B., Owusu, V. K., Odei, M. A., & Naatu, F. (2021). Covid-19 pandemic and future business prospects: a conceptual study. *In Resilience and Economic Intelligence Through Digitalization and Big Data Analytics*.

Amorelli, M. F., & García-Sánchez, I. M. (2023). Leadership in heels: women on boards and sustainability in times of Covid-19. *Corporate Social Responsibility and Environmental Management*, *30*(4), 1987-2010.

Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The Review of Economic Studies*, *58*(2), 277-297.

Arias, D., Barriola, X., & Loza Adaui, C. R. (2024). Corporate purpose and early disaster response: providing evidence of dynamic materiality? *Business Strategy and the Environment*, 1–15.

Arora, P., & Dharwadkar, R. (2011). Corporate governance and corporate social responsibility (CSR): the moderating roles of attainment discrepancy and organization slack. *Corporate Governance: An International Review*, *19*(2), 136-152.

Baek, E. M., Kim, W. Y., & Kwon, Y. J. (2021). The impact of Covid-19 pandemic on workplace accidents in Korea. *International Journal of Environmental Research and Public Health*, *18*(16).

Ballesteros, B. C., Rubio, R. G., & Ferrero, J. M. (2015). Efecto de la composición del consejo de administración en las prácticas de responsabilidad social corporativa. *Revista de Contabilidad*, *18*(1), 20-31.

Barko, T., Cremers, M., & Renneboog, L. (2022). Shareholder engagement on environmental, social, and governance performance. *Journal of Business Ethics*, *180*(2), 777-812.

Barmparis, G. D., & Tsironis, G. P. (2020). Estimating the infection horizon of Covid-19 in eight countries with a data-driven approach. *Chaos, Solitons & Fractals*, *135*, 109842.

Barrachina, M., & Barrachina, L. (2021). Mitigation of Covid Strategies Comparison Between United States and Europe. In N. Baporikar (Ed.), *Handbook of Research on Strategies and Interventions to Mitigate Covid-19 Impact on SMEs* (pp. 359-382). IGI Global.

Beji, R., Yousfi, O., Loukil, N., & Omri, A. (2021). Board diversity and corporate social responsibility: empirical evidence from France. *Journal of Business Ethics*, *173*(1), 133-155.

Ben Saad, S., & Belkacem, L. (2022). How does corporate social responsibility influence firm financial performance? *Corporate Governance*, *22*(1), 1-22.

Bishara, A. J., & Hittner, J. B. (2014). Reducing bias and error in the correlation coefficient due to nonnormality. *Educational and Psychological Measurement*, *75*(5), 785-804.

Boubaker, S., Liu, Z., & Zhan, Y. (2022). Customer relationships, corporate social responsibility, and stock price reaction: lessons from China during health crisis times. *Finance Research Letters*, *47*, 102699.

Broadstock, D. C., Chan, K., Cheng, L. T. W., & Wang, X. (2021). The role of ESG performance during times of financial crisis: evidence from Covid-19 in China. *Finance Research Letters*, *38*, 101716.

Buallay, A. (2019). Is sustainability reporting (ESG) associated with performance? Evidence from the European banking sector. *Management of Environmental Quality: An International Journal*, *30*(1), 98-115.

Cabeza-García, L., Fernández-Gago, R., & Nieto, M. (2018). Do board gender diversity and director typology impact CSR reporting? *European Management Review*, *15*(4), 559-575.

Campo, A. M. D. V., Avolio, B., & Carlier, S. I. (2021). The relationship between telework, job performance, work-life balance and family supportive supervisor behaviours in the context of Covid-19. *Global Business Review*. Working Paper.

Carracedo, P., Puertas, R., & Marti, L. (2021). Research lines on the impact of the Covid-19 pandemic on business. A text mining analysis. *Journal of Business Research*, *132*, 586-593.

Carroll, A. B. (2021). Corporate social responsibility (CSR) and the Covid-19 pandemic: organizational and managerial implications. *Journal of Strategy and Management*, *14*(3), 315-330.

Cera, G., Belas, J., Marousek, J., & Cera, E. (2020). Do size and age of small and medium-sized enterprises matter in corporate social responsability? *Economics & Sociology*, *13*(2), 86-99.

Cincalova, S., & Hedija, V. (2020). Firm characteristics and corporate social responsibility: the case of czech transportation and storage industry. *Sustainability, 12*(5), 1992.

Colli, F. (2020). The end of "business as usual"? Covid-19 and the European Green Deal. *Egmont European Policy Brief No. 60.*

Costa, A.J., Curi, D., Bandeira, A.M., Ferreira, A., Tomé, B., Joaquim, C., Santos, C., Góis, C., Meira, D., Azevedo, G., Inácio, H., Jesus, M., Goreti, M., Monteiro, P., Duarte, R., & Marques, R. P. (2022). Literature review and theoretical framework of the evolution and interconnectedness of corporate sustainability constructs. *Sustainability*, *14*(8), 4413.

D'Amato, A., & Falivena, C. (2020). Corporate social responsibility and firm value: do firm size and age matter? Empirical evidence from European listed companies. *Corporate Social Responsibility and Environmental Management*, *27*(2), 909-924.

Delgado-Ceballos, J., Ortiz-De-Mandojana, N., Antolín-López, R., & Montiel, I. (2023). Connecting the Sustainable Development Goals to firm-level sustainability and ESG factors: the need for double materiality. *BRQ Business Research Quarterly*, *26*(1), 2-10.

DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, *48*, 147-160.

Ding, W., Levine, R., Lin, C., & Xie, W. (2021). Corporate immunity to the Covid-19 pandemic. *Journal of Financial Economics*, *141*(2), 802-830.

Eurostat. (2023). Data Browser. https://ec.europa.eu/eurostat/databrowser/view/DEMO_GIND__custom_6661929/default/table?lang=en.

Fana, M., Milasi, S., Napierala, J., Fernández-Macías, E., & Vázquez, I. G. (2020). Telework, work organisation and job quality during the Covid-19 crisis: a qualitative study. *JRC Working Papers Series on Labour, Education and Technology. (No. 2020/11).*

Fernández-Gago, R., Cabeza-García, L., & Nieto, M. (2016). Corporate social responsibility, board of directors, and firm performance: an analysis of their relationships. *Review of Managerial Science*, *10*(1), 85-104.

Ferrell, O. C. (2021). Addressing socio-ecological issues in marketing: environmental, social and governance (ESG). *AMS Review*, *11*(1), 140-144.

Ferrón-Vílchez, V., & Leyva-de la Hiz, D. I. (2023). Calm after the storm? The role of social and environmental practices on small and medium enterprises resilience throughout Covid-19 crisis. *Business Ethics, the Environment & Responsibility, 32*, 179-195.

Freeman, R. E. (1984). *Strategic management: A stakeholder approach*. Pitman.

García-Sánchez, I. M., & García-Sánchez, A. (2020). Corporate social responsibility during Covid-19 pandemic. *Journal of Open Innovation: Technology, Market, and Complexity*, *6*(4), 126.

Godos-Díez, J. L.; Cabeza-García, L., Fernández-Gago, R., & Nieto, M. (2020). "Does CEO media exposure affect corporate social responsibility?" *Corporate Social Responsibility and Environmental Management*, *27*(2), 825-840.

He, H., & Harris, L. (2020). The impact of Covid-19 pandemic on corporate social responsibility and marketing philosophy. *Journal of Business Research*, *116*, 176-182.

Islam, M. S., Rahman, M. N., Ritu, N. S., Rahman, M. S., & Sarker, M. N. I. (2024). Impact of COVID-19 on urban environment in developing countries: case study and environmental sustainability strategy in Bangladesh. *Green Technologies and Sustainability*, *2*(2), 100074

Katsabian, T. (2020). The telework virus: how the Covid-19 pandemic has affected telework and exposed its implications for privacy and equality. *Social Science Research Network*. Working Paper.

Kaur, M., Malik, K., & Sharma, S. (2021). A note on boardroom challenge, board effectiveness and corporate stewardship during Covid-19. *Vision*, *25*(2), 131-135.

Khan, M., Serafeim, G., & Yoon, A. (2016). Corporate sustainability: first evidence on materiality. *The Accounting Review*, *91*(6), 1697-1724.

Khanchel, I., Lassoued, N., & Gargoury, R. (2023). CSR and firm value: is CSR valuable during the Covid-19 crisis in the french market? *Journal of Management and Governance*, *27*(2), 575-601.

Kleinbaum, D. G., Kupper, L. L., & Muller, K. E. (1988). *Applied regression analysis and other multivariable methods* (2nd ed.). PWS Publishing Co.

Kludacz-Alessandri, M., & Cygańska, M. (2021). Corporate social responsibility and financial performance among energy sector companies. *Energies*, *14*(19), 6068.

Kocmanova, A., Nemecek, P., & Docekalova, M. (2012). Environmental, social and governance (ESG) key performance indicators for sustainable reporting. *In the 7th International Scientific Conference*.

Kumar, R. (2021). Impact of Covid-19 pandemic on environment and society. *International Journal for Research in Applied Science and Engineering Technology*, *9*(2), 114-118.

Kumar, S., & Rao, P. (2021). Challenges are thrown in corporate governance during Covid-19. *Fortune Institute of International Business.* Working paper.

La Porta, R., Lopez de Silanes, F., Shleifer, A., & Vishny, R. W. (1998). Law and finance. *Journal of Political Economy*, *106*(6), 1113-1155.

Li, Y., & Mei, H. (2021). An analysis of enterprise growth from the perspective of environmental, social and governance (ESG): an empirical study based on A-Share listed companies. In *Proceedings of the Fifteenth International Conference on Management Science and Engineering Management*, 2(15), 184-197. Springer International Publishing.

Lins, K. V., Servaes, H., & Tamayo, A. (2019). Social capital, trust, and corporate performance: how CSR helped companies during the financial crisis (and why it can keep helping them). *Journal of Applied Corporate Finance*, *31*, 59-71.

Lin, W., Shao, Y., Li, G., Guo, Y., & Zhan, X. (2021). The psychological implications of Covid-19 on employee job insecurity and its consequences: the mitigating role of organization adaptive practices. *Journal of Applied Psychology*, *106*(3), 317-329.

Liu, B., Cifuentes-Faura, J., Ding, C. J., & Liu, X. (2023). Toward carbon neutrality: how will environmental regulatory policies affect corporate green innovation? *Economic Analysis and Policy*, *80(C)*, 1006-1020.

Liu, L., Wan, W., & Fan, Q. (2021). How and when telework improves job performance during Covid-19? Job crafting as mediator and performance goal orientation as moderator. *Psychology Research and Behavior Management*, *14*, 2181-2195.

Liu, X., Cifuentes-Faura, J., Zhao, S., & Wang, L. (2024). The impact of government environmental attention on firms' ESG performance: evidence from China. *Research in International Business and Finance*, *67*, 102124.

Luo, L., Lan, Y. C., & Tang, Q. (2012). Corporate incentives to disclose carbon information: evidence from the CDP global 500 report. *Journal of International Financial Management & Accounting*, *23*(2), 93-120.

Malik, F., Wang, F., Naseem, M. A., Ikram, A., & Ali, S. (2020). Determinants of corporate social responsibility related to CEO attributes: an empirical study. *Sage Open, 10*(1), 1-12.

Massimo, F. S. (2020). Impact of the Covid-19 confinement measures on telework in France-A qualitative survey. *JRC Working Papers Series on Labour, Education and Technology. (No. 2020/09).*

Meyer, B. H., Prescott, B., & Sheng, X. S. (2022). The impact of the Covid-19 pandemic on business expectations. *International Journal of Forecasting*, *38*(2), 529-544.

Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: formal structure as myth and ceremony. *American Journal of Sociology*, *83*(2), 340-36.

Mezulis, A. H., Abramson, L. Y., Hyde, J. S., & Hankin, B. L. (2004). Is there a universal positivity bias in attributions? A meta-analytic review of individual, developmental, and cultural differences in the self-serving attributional bias. *Psychological Bulletin*, *130*(5), 711-747.

Ministerio de Asuntos Exteriores, Unión Europea y Cooperación. (2023). Brexit. https://www.exteriores.gob.es/es/PoliticaExterior/Paginas/Brexit.aspx.

Moens, E., Lippens, L., Sterkens, P., Weytjens, J., & Baert, S. (2020). The Covid-19 crisis and telework: a research survey on experiences, expectations and hopes. *The European Journal of Health Economics*, *23*, 729-753.

Nahar, H. S., & Mohamad, M. (2023). Academic research responses to Covid-19: the corporate social responsibility perspective. *Studies in Business and Economics*, *18*(1), 171–197.

Navickas, V., Kontautiene, R., Stravinskienė, J., & Bilan, Y. (2021). Paradigm shift in the concept of corporate social responsibility: Covid-19. *Green Finance, 3*(2), 138-152.

Nhamo, G., Dube, K., & Chikodzi, D. (2020). Preparedness and responses to COVID-19: a comparison from selected countries. In G. Nhamo, K. Dube, & D. Chikodzi (Eds.), *Counting the Cost of Covid-19 on the Global Tourism Industry* (pp. 53-86). Springer International Publishing.

Nguyen, C., & Nguyen L. (2021). The relationship between corporate social responsibility and financial performance: empirical evidence from Vietnam. *The Journal of Asian Finance, Economics and Business*, *8*(8), 75-83.

Nguyen, P., & Nguyen, A. (2015). The effect of corporate social responsibility on firm risk. *Social Responsibility Journal*, *11*(2), 324-339.

Nieto, M. A., & Fernández Gago, R. (2004). Responsabilidad social corporativa: la última innovación en management. *Universia Business Review*, *1*(1), 28-39.

Orlitzky, M., & Benjamin, J. D. (2001). Corporate social performance and firm risk: a meta-analytic review. *Business & Society*, *40*(4), 369-396.

Orlitzky, M., Schmidt, F. L., & Rynes, S. L. (2003). Corporate social and financial performance: a meta-analysis. *Organization Studies*, *24*(3), 403-441.

Paolone, F., Bifulco, G. M., & Perona Alfageme, M. (2024). Creating value through diversity: analysis of the strategic management of BoD diversity in favor of sustainable performance. *Strategic Change*, *33*(3), 169-186.

Park, J. G., Park, K., Noh, H., & Kim, Y. G. (2023). Characterization of CSR, ESG, and corporate citizenship through a text mining-based review of literature. *Sustainability*, *15*(5), 3892.

Patel, D. C. S., & Patel, N. K. (2020). *Covid-19 and corporate governance (India): practical issues, implications and new relief measures*. Working Paper.

Pham, A. V., Adrian, C., Garg, M., Phang, S. Y., & Truong, C. (2021). State-level Covid-19 outbreak and stock returns. *Finance Research Letters*, *43*, 102002.

Pindado, J., & Requejo, I. (2015). Panel data: a methodology for model specification and testing. In C. Cooper, & K. Paudyal (Eds.), Wiley Encyclopedia of Management (3rd ed.). John Wiley & Sons. (Chap. 4).

Phugat, N., & Chitranshi, J. (2021). The effect of Covid-19 over employees' mental health- a review. *Journal of Pharmaceutical Research International*, *33*(37B), 104-110.

Pourmansouri, R., Mehdiabadi, A., Shahabi, V., Spulbar, C., & Birau, R. (2022). An investigation of the link between major shareholders' behavior and corporate governance performance before and after the Covid-19 pandemic: a case study of the companies listed on the Iranian stock market. *Journal of Risk and Financial Management*, *15*(5), 208.

Poursoleyman, E., Mansourfar, G., Hassan, M.K., & Homayoun, S. (2024). Did corporate social responsibility vaccinate corporations against COVID-19? *Journal of Business Ethics*, *189*(3), 525-551.

Purwanto, A., Fahlevi, M., Zuniawan, A., Dimas, R., Kusuma, P., Supriatna, H., & Maryani, E. (2020). The Covid-19 pandemic impact on industries performance: an explorative study of Indonesian companies. *Journal of Critical Reviews*, *7*(15), 1965-1970.

Qiu, S. C., Jiang, J., Liu, X., Chen, M. H., & Yuan, X. (2021). Can corporate social responsibility protect firm value during the Covid-19 pandemic? *International Journal of Hospitality Management*, *93*, 102759.

Raimo, N., Rella, A., Vitolla, F., Sánchez-Vicente, M. I., & García-Sánchez, I. M. (2021). Corporate social responsibility in the Covid-19 pandemic period: a traditional way to address new social issues. *Sustainability*, *13*(12), 6561.

Ranjbari, M., Shams Esfandabadi, Z., Zanetti, M. C., Scagnelli, S. D., Siebers, P.-O., Aghbashlo, M., Peng, W., Quatraro, F., & Tabatabaei, M. (2021). Three pillars of sustainability in the wake of Covid-19: a systematic review and future research agenda for sustainable development. *Journal of Cleaner Production*, *297*, 126660.

Rashed, M. N., Hussein, A. A. R. M., Ismail, A. M. I., & Galal, I. (2020). Impact of Covid-19 pandemic on the world environment. *Aswan University Journal of Environmental Studies*, *1*(1), 3-12.

Rassanjani, S., Risky, N., Maz, D., Alqarni, W., & Tharis, M. A. (2021). Impact of Covid-19 on economic activities and poverty threats in the Asia-Pacific region. *Policy & Governance Review*, *5*(1), 82-96.

Raza, A., Ilyas, M. I., Rauf, R., & Qamar, R. (2012). Relationship between corporate social responsibility (CSR) and corporate financial performance (CFP): literature review approach. *Elixir Financial Management*, *46*(9), 8404-8409.

Refinitiv. (2023). Environmental, Social and Governance (ESG) Scores from Refinitiv. https://www.refinitiv.com/en.

Reverte, C., Gómez-Melero, E., & Cegarra-Navarro, J. G. (2016). The influence of corporate social responsibility practices on organizational performance: evidence from Eco-Responsible Spanish firms. *Journal of Cleaner Production*, *112*, 2870-2884.

Riggs, W. (2020). Telework and sustainable travel during the Covid-19 era working paper. *University of San Francisco.* Working paper.

Rita, E., Chizoo, E., & Cyril, U. S. (2021). Sustaining Covid-19 pandemic lockdown era air pollution impact through utilization of more renewable energy resources. *Heliyon*, *7*(7).

Rosati, F., & Faria, L. G. D. (2019). Addressing the SDGs in sustainability reports: the relationship with institutional factors. *Journal of Cleaner Production*, *215*, 1312-1326.

Rumman, J. B. A., & Rumman, S. B. A. (2024). The status of the environmental management system, its improvement aspects under Covid-19 crisis, and its impact on sustainable environmental development in Jordan (an applied study on mining industries sector). *International Journal of Professional Business Review*, *9*(2), 04364.

Sheikh, S. (2019). Corporate social responsibility and firm leverage: the impact of market competition. *Research in International Business and Finance*, *48*, 496-510.

Shen, H., Fu, M., Pan, H., Yu, Z., & Chen, Y. (2020). The impact of the Covid-19 pandemic on firm performance. *Emerging Markets Finance and Trade*, *56*(10), 2213-2230.

Swandari, F., & Sadikin, A. (2016). The effect of ownership structure, profitability, leverage, and firm size on corporate social responsibility (CSR). *Binus Business Review*, *7*(3), 315-320.

Waheed, A., Shehzad, F., Arif, F., Abbas, A. A., Mehmood, Z., & Usman, M. (2022). Role of CSR in achieving customers' satisfaction and retention during Covid-19 and post-pandemic period: empirical evidence from emerging nations. *Human Systems Management*, *41*(6), 731-743.

Wang, H., Yan, J., & Yan, X. (2023). Spearman rank correlation screening for ultrahigh-dimensional censored data. *Proceedings of the AAAI Conference on Artificial Intelligence*, *37*(8), 10104-10112.

Wang, Z., Chu, E., & Hao, Y. (2024). Towards sustainable development: how does ESG performance promotes corporate green transformation. *International Review of Financial Analysis*, *91*, 102982.

World Health Organization (2023). WHO Coronavirus (COVID-19) Dashboard. World Health Organization. https://covid19.who.int/.

Wong, W. C., Batten, J. A., Ahmad, A. H., Mohamed-Arshad, S. B., Nordin, S., & Adzis, A. A. (2021). Does ESG certification add firm value? *Finance Research Letters*, *39* (C), 101593.

Woodcraft, S. (2012). Social sustainability and new communities: moving from concept to practice in the UK. *Procedia - Social and Behavioral Sciences*, *68*, 29-42.

Yan, B., Zhang, X., Wu, L., Zhu, H., & Chen, B. (2020). Why do countries respond differently to Covid-19? A comparative study of Sweden, China, France and Japan. *The American Review of Public Administration*, *50*(6-7), 762-769.