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ORIGINAL PAPER

Did Corporate Social Responsibility Vaccinate Corporations Against COVID-19?

Ehsan Poursoleyman[1] · Gholamreza Mansourfar[1] · Mohammad Kabir Hassan[2] · Saeid Homayoun[3]

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Abstract

Using an international setting consisting of 5410 corporations domiciled in 24 countries, we test the insurance-like effect of corporate social responsibility (CSR) performance in the era of the pandemic and confirm that CSR performance increases socially responsible companies' resilience against the adverse effects of the crisis. Comparing stakeholders' responses to CSR activities during the pandemic and normal periods, we observe that the link between CSR performance and firm value is stronger during the crisis period. We also realize that the social aspect of CSR performance is the main driver for the mentioned effects. Finally, comparing the resilience of highly committed socially responsible companies with those with moderate and very low CSR ratings, we observe that best-in-class companies enjoy the greatest buffering effects, implying that the insurance-like effect of CSR performance is non-linear against systematic crises. Findings are robust to ceremonial CSR activities, extreme values of market-based instruments, endogeneity concern, etc.

Keywords COVID-19 · CSR performance · Firm performance

JEL Classification M14 · G32

Introduction

Originating from so-called wet markets in China in December 2019, the novel coronavirus has become a planet-wide concern and touched every corner of the earth (Crane & Matten, 2021; He & Harris, 2020; Jain et al., 2022). Investigating the consequences of COVID-19 on firms from different countries, stock market studies such as Hu and Zhang (2021), Donthu and Gustafsson (2020), Goodell (2020), Shen et al. (2020), and Zhang et al. (2020) unanimously confirm the negative influence of the crisis on corporate financial performance. However, despite being a global economic crisis, little effort at an international level has been made to investigate empirically how companies could have mitigated the adverse impacts of COVID-19.

Building on the concept of CSR-as-insurance of Godfrey (2005), we, in this study, argue that CSR is likely to safeguard firms from the negative effects of the pandemic. According to the literature, CSR investments are conducted based on the concept that "I will be good to you because I believe you will be good to me at some point in the future" (Lins et al., 2017, p. 1787). We, therefore, contend that socially responsible companies pay insurance premiums in the form of CSR activities and expect to reap the benefits when they confront crises, implying that these companies' resilience against such a crisis is probably high. Employing an international setting consisting of 5410 firms headquartered in 24 countries, we test the mentioned claim using a period from 2010 to 2021, covering the periods of pre- and post-pandemic along with the era of the pandemic. To capture the impact of COVID-19 on firm value, we use

✉ Gholamreza Mansourfar
G.Mansourfar@urmia.ac.ir

Ehsan Poursoleyman
E.Poursoleyman@urmia.ac.ir

Mohammad Kabir Hassan
MHassan@uno.edu

Saeid Homayoun
Saeid.Homayoun@hig.se

[1] Department of Accounting and Finance, Urmia University, Urmia, Iran

[2] Department of Economics and Finance, University of New Orleans, New Orleans, USA

[3] Department of Business and Economic Studies, University of Gävle, Gävle, Sweden

market-based instruments and rely on ASSET4 to measure CSR performance. Our results suggest that CSR performance acts a buffering role against the adverse impacts of COVID-19 on firm value, lending credence to the hypothesis that CSR investments pay off when socially responsible companies face an unpredictable exogenous shock.

Our findings, thus, contribute to the risk management literature. To the best of our knowledge, our study is among the first international investigations that analyze directly the moderating role of CSR performance in the negative connection between COVID-19 and corporate financial performance using the period covering the years preceding, during, and succeeding the pandemic. However, the existing literature focuses predominantly on a specific country or even a particular industry (Koutoupis et al., 2021) and mostly does not include the post-pandemic period. For instance, Albuquerque et al. (2020) use the sample consisting of American firms for the period up to the first quarter of 2020, Bae et al. (2021) also employ American companies but with an expanded period, García-Sánchez and García-Sánchez (2020) use the sample including Spanish firms, Arora et al. (2022) focus on Indian companies, Huang et al. (2020) and Shen et al. (2020) analyze their hypotheses on Chinese firms, and Qiu et al. (2021) focus merely on the hospitality industry in China. Our paper is also different from international studies in this vein. Poursoleyman et al. (2022) investigate the buffering roles of prior CSR reporting and assurance using an international sample; however, our main focus is on the role of CSR performance. Since literature differentiates between CSR reporting initiatives and CSR performance and believes that they contain different information (Derchi et al., 2021; Nazari et al., 2017; Thorne et al., 2017) and suggests two opposing signs for the link between these two (see, Brooks & Oikonomou, 2018; Clarkson et al., 2008), our study differs from Poursoleyman et al. (2022). Aside from the sample size and period, our paper contributes to this line in other ways. The existing literature ignores the superiority of the social dimension of CSR performance, while we observe that this dimension is the main driver of the buffering effect, advocating the shift from the business-centric to society-centric CSR (see, Wickert, 2021). Further, they develop their hypotheses by assuming that the link between CSR and firm performance is linear, but our findings suggest a non-linear buffering effect. We observe that very high levels of CSR performance create the strongest buffering impacts, followed by moderate and very low levels.

The rest of the paper is structured in the following way: In "Theoretical Background and Literature Review" section, we elaborate on the related literature and explain how CSR performance creates a buffering effect against the negative impact of the pandemic. In "Sample and Methodology" section, after introducing the sample, we provide information regarding the measurements of the variables and the models. "Results" section is a synthesis of the descriptive statistics, regressions results, robustness checks, and further analyses to confirm the predictions, provide further evidence for the predictions, and control several concerns. Finally, "Conclusion and Discussion" section concludes what we have obtained and provides implications for the business world and academia.

Theoretical Background and Literature Review

Having its roots in the strategic management literature (see, Abrams, 1951), stakeholder theory, which has been conceptualized by Freeman (1984), points to the concept that non-shareholding stakeholders along with shareholders have considerable influence on an organization's long-term strategic aims. Thus, they are in a position to dictate their demands to corporations. As a result, corporations need to observe their expectations by implementing some programs to consider these types of stakeholders' claims and attempt to meet their expectations. These programs, which are called CSR efforts, create a positive nexus between socially responsible firms and their stakeholders, which in turn leads to a better financial situation and business success because satisfied stakeholders will benefit socially responsible corporations through a reciprocal and multilateral process (M. E. Clarkson, 1995; Cornell & Shapiro, 1987; Donaldson & Preston, 1995; Freeman, 1984). According to this theory, the enhanced relationships between stakeholders and socially responsible firms are likely to develop into valuable assets, which are the outcomes of the aforementioned processes: information, knowledge, know-hows, expertise exchange and collaborations, reputation, etc. (W. Huang et al., 2020). A growing number of studies confirm that engaging in socially responsible activities can ultimately lead to better financial performance through the mentioned ways. Meta-analyses synthesize these studies and conclude that CSR implementation is positively related to CFP (see, Helmig et al., 2016; Vishwanathan et al., 2020; Voegtlin & Greenwood, 2016; Wang et al., 2016). However, this literature tests the mentioned association by assuming that there is no negative exogenous event.

On the other hand, in a different stream, researchers believe that this reciprocal process not only helps firms improve their financial performance but it also increases their resilience when they face adverse events. According to Godfrey (2005) and Godfrey et al. (2009), when stakeholders deem socially responsible firms' initiatives socially or morally desirable, these firms can accrue positive attributions or moral capital. This moral capital subsequently acts a buffering role when they confront unanticipated or partially anticipated negative events. In supporting this, Peloza

(2006) documents that CSR engagement acts as insurance for financial performance in the context of recessionary periods or unanticipated adverse events. They believe that CSR activities can be seen as insurance premiums paid by socially responsible firms to protect their CFPs when they face adverse events. Extending Peloza (2006) and Godfrey (2005), Minor and Morgan (2011) maintain that socially responsible firms pay a premium to protect themselves against negative events and believe that the way CSR engagement buffers a firm's reputation risk is similar to the insurance contract.

Building on the above studies and the concept of CSR-as-insurance, the literature tests the risk management benefits of CSR performance in the absence and presence of negative events. Investigating the direct link between CSR and firm risk in the absence of an adverse event, Bouslah et al. (2013) use a sample of American companies over the years from 1991 to 2007 and argue that CSR performance is negatively related to idiosyncratic and systematic risks. In the same line, Benlemlih and Girerd-Potin (2017) employ an international setting and substantiate this negative association. In supporting these studies, Rehman et al. (2020) and Ayton et al. (2022) also show that CSR performance lower market- and firm-specific risks, respectively. Using an innovative method to test the insurance-like mechanism of CSR performance for mitigating firm risk, Kim et al. (2021) argue that CSR performance is negatively associated with implied volatility which is deemed a direct measure of firm risk and captures financial markets expectations of the firm future risks. Therefore, the empirical studies confirm the direct risk management benefits of CSR performance when there is no negative event.

As mentioned, in another vein, researchers test the risk management benefits of CSR performance when the firm confronts adverse events. For instance, Shiu and Yang (2017) argue that CSR performance measured using KLD for American companies over the years from 2000 to 2008 exerts an insurance-like effect on the stock and bond prices succeeding occurrences of 1,745 adverse events determined using the *Wall Street Journal*, e.g., controversy, dispute, etc. In the same line, Jia et al. (2020) corroborate this mechanism against stock price effects due to negative events. They even reveal that managers intentionally rely on CSR activities to create resilience. Using a sample of Chinese corporations over the years from 2011 to 2017, Gong et al. (2021) contend that CSR performance acts a buffering role against punishments on the cost of debt. More recently, analyzing the buffering role of CSR performance against firm-specific adverse events using an international setting, Thanetsunthorn (2022) reveal that CSR performance mitigates the eroding effect of corruption on social trust. Thus, these studies confirm that CSR investments are likely to mitigate market loss that is a result of crises. But, this line predominantly focuses on firm-specific adverse events, as a result, one might assume that since societal and global crises like the pandemic are not comparable with firm-specific negative events CSR-as-insurance mechanism might not work in the face of the pandemic. There is, however, support for the hypothesis that CSR performance pays off even when firms confront market crises. Testing the insurance mechanism of CSR performance during the 2008–2009 financial crisis, Lins et al. (2017) argue that when a market faces a crisis, companies with high CSR performance outperformed companies with low CSR performance. In the same vein, Bouslah et al. (2018) confirm the importance of CSR performance in the face of the financial crisis and contend that the negative link between CSR performance and firm-specific risk during the financial crisis is stronger than that in normal periods. They, also, show that CSR performance significantly reduces volatility during the 2008–2009 financial crisis. Therefore, the investigations into market crises reveal that the favorable image of socially responsible companies turns out to be useful even when they face market crises, suggesting the high resilience of socially responsible companies in the face of the pandemic.

Taking together the risk management literature and the concept of CSR-as-insurance, we predict that CSR investments as insurance premiums are likely to pay off in the era of the pandemic, enhancing the company's resilience. Our prediction can also be reinforced by the hypothesis of the importance of social trust during crises. Following Sacconi and Antoni (2011) suggestion that CSR performance is a good proxy for social capital and trust, Lins et al. (2017) use CSR performance to measure trust and reveal that high CSR companies that enjoy high social capital outperformed low CSR counterparts during the 2008–2009 financial crisis because when the overall trust in the market declines, socially responsible companies attract more attention. Drawing on this hypothesis, we think that since in the era of the pandemic trust becomes valuable,[1] socially responsible firms are likely to attract more investors, increasing their resilience. Providing support for this claim, Mazumder (2020) argue that, during the pandemic, companies domiciled in US states with high social trust outperform those in low social trust states. Using an international setting, Engelhardt et al. (2021) confirm that stock market volatility in countries with high societal trust is considerably low. Thus, both risk management literature that builds on the concept

[1] Financial Trust Index (http://financialtrustindex.org) that is developed by Sapienza and Zingales shows a decline of public trust in financial markets. The latest set of results, conducted in December 2020, indicates a decrease of trust in banks, mutual funds, stock market, and large corporations. They show that the decline of trust in large corporations is the main driver of the overall decline. This decline is also confirmed by the 2021 Edelman Trust Barometer.

of CSR-as-insurance and the hypothesis of social trust suggest that socially responsible companies' resilience against the pandemic is high. Based on the above discussion, we propose our hypothesis:

Hypothesis: *Ceteris paribus*, CSR performance mitigates the negative impact of the exogenous shock created by COVID-19 on CFP.

Sample and Methodology

Sample

As the adverse impact of COVID-19 is not restricted to a specific region, we employ an international setting. Our initial sample consists of all the global companies listed on the ASSET4 database, consisting of 9894 corporations from 71 countries. While after excluding firms lacking the firm-level data and those countries without necessary data, 6315 corporations remain. In the next step, we exclude corporations with information regarding CSR performance for only one year. The reasons we do not include these corporations are (I) according to many previous empirical papers and theories, the benefits of CSR activities manifest in a long-term period (Cahan et al., 2016), so a short-run cannot accurately reflect a firm's CSR performance level, and (II) when CSR activities are reported for the first time or their level is assessed by another organization for the first time this phenomenon can have a significant impact on firm value (Cahan et al., 2016), because of attracting substantial attention. Thus, we contemplate that these observations are likely to lead to misleading outcomes. Finally, 5410 corporations from 24 countries remain to verify the hypothesis. Table 1 reports the sample breakdown by country and sector. The USA leads the way and has the highest number of clusters and observations with 2825 (52.22% of 5410) and 16,808 (49.87% of 33,703), respectively. Standing at the second place, Japan has the second-highest figures in both columns of clusters and observations, constituting 6.99% (378/5410) of all the clusters and 9.26% (3120/33703) of all the observations. However, Israel and Egypt stand at the bottom. Other countries have relatively similar figures. Moreover, Panel B shows that Industrials and Consumer Discretionary with 974 (6355) and 913 (5776) firms (observations), respectively, are the leaders of this table. On the other hand, Utilities and Telecommunications have the lowest numbers of firms and observations with 201 (1432) and 150 (968) firms, respectively. However, other sectors have relatively similar figures.

Variable Measurement

Dependent Variable: CFP

We rely on market-based instruments to measure CFP. Following previous empirical studies, we choose *Tobin's Q*, which is a commonly used measure of value-added in literature. The frequency of its employment is not the main motivation for us. We introduce several reasons why when a paper investigates the impact of CSR performance on CFP during an exogenous shock, *Tobin's Q* has priority over other measures — accounting-based instruments. The first reason stems from how these two different types of CFP proxies are measured. *Tobin's Q* is determined by the market participants and based on their assessment according to the past, present, and future stock returns, while the accounting-based instruments measure internal effectiveness (Barauskaite & Streimikiene, 2021; Van Beurden & Gössling, 2008). Therefore, as *Tobin's Q* represents a firm's long-term expected value, it is more appropriate when a paper's goal is to analyze the association between CSR and CFP because CSR activities and initiatives' impact on a firm is more likely to be reflected in the long-run (Cahan et al., 2016). Thus, *Tobin's Q* is more likely to capture the influence of CSR activities. The second reason is related to the speed of reflecting changes. Accounting ratios are historic; therefore, they cannot represent systematic changes in the short run. When it comes to *Tobin's Q*, it can expeditiously reflect such systematic changes; thus, it is more likely to be suitable for the context of this exogenous shock. The third reason also comes from the risks these two can reflect. *Tobin's Q* contains mostly systematic risks, while accounting-based instruments contain predominantly unsystematic risks. Although they can capture systematic risks as well, they are unable to do so within the short-term period.

Independent Variable: CSR Performance

According to Beck et al. (2018), some empirical studies use CSR disclosure to measure CSR performance. But Beck et al. (2018) contend that due to the self-referential nature of CSR disclosures considering it as an indicator of CSR performance is controversial (Al-Tuwaijri et al., 2004). We, therefore, rely on an independent organization assessment on corporations' CSR activities because of this concern. Collecting data from a wide range of resource, namely annual reports, CSR reports, NGO websites, company websites, stock exchange filings, and news sources, the ASSET4 provides objective, relevant, and systematic environmental, social, and governance information (Chatterji et al., 2016; Semenova & Hassel, 2015). As a result, this databank is more likely to be suitable for our study because in the existing literature some studies like

Table 1 Distribution of the sample by country and sector

Country	# clusters	% clusters	# observations	% observations
Panel A. Sample breakdown by country				
Australia	275	5.08	1801	5.34
Brazil	113	2.09	864	2.56
Canada	255	4.71	1692	5.02
Chile	31	0.57	173	0.51
Egypt, Arab Rep	6	0.11	55	0.16
Hong Kong SAR, China	245	4.53	1744	5.17
India	147	2.72	722	2.14
Israel	17	0.31	97	0.29
Italy	93	1.72	544	1.61
Japan	378	6.99	3120	9.26
Korea, Rep	149	2.75	1166	3.46
Malaysia	46	0.85	380	1.13
Mexico	45	0.83	322	0.96
Netherlands	26	0.48	111	0.33
New Zealand	39	0.72	163	0.48
Norway	68	1.26	228	0.68
Peru	27	0.50	132	0.39
Philippines	20	0.37	168	0.50
Singapore	69	1.28	397	1.18
South Africa	95	1.76	779	2.31
Switzerland	156	2.88	836	2.48
Thailand	99	1.83	390	1.16
United Kingdom	186	3.44	1011	3.00
United States	2825	52.22	16,808	49.87
Total	5410	100	33,703	100
Sector	# clusters	% clusters	# observations	% observations
Panel B. Sample breakdown by sector				
Basic Materials	400	7.39	2813	8.35
Consumer Discretionary	913	16.88	5776	17.14
Consumer Staples	352	6.51	2353	6.98
Energy	337	6.23	2197	6.52
Financials	454	8.39	2904	8.62
Health Care	706	13.05	3311	9.82
Industrials	974	18.00	6355	18.86
Real Estate	437	8.08	2755	8.17
Technology	486	8.98	2839	8.42
Telecommunications	150	2.77	968	2.87
Utilities	201	3.72	1432	4.25
Total	5410	100	33,703	100

Albuquerque et al. (2020) and Huang and Ye (2021) use only environmental and social aspects to measure CSR performance and ignore the governance pillar while others like Arora et al. (2021) and Broadstock et al. (2021) use all these three pillars. We, therefore, disaggregate total CSR performance into its main pillars and sub-pillars to corroborate our claims. This databank's proxies range from zero to 100, but as the value of other variables is relatively small as compared to these, this can result in facing considerably small coefficients for CSR-related variables. We, thus, convert the range of CSR-related variables into zero to 100%.

Independent Variable: COVID-19

Since the outbreak, a growing number of papers in different fields highlight the significance of COVID-19 influences. The papers unanimously confirm that the COVID-19 shock adversely affects CFP, see, e.g., Albuquerque et al. (2020), Donthu and Gustafsson (2020), Fernandes (2020), Shen et al. (2020), and Qiu et al. (2021). Following Lins et al. (2017) and the mentioned studies, we use a dummy variable to capture the influence of COVID-19 on firms' value. *Health_Crisis* gets one for the year 2020, and zero otherwise. We predict that it has a significant and negative coefficient in the regression where CFP is its dependent variable.

Control Variables: Firm Characteristics

As we use an international setting, we control for both firm and country characteristics. The former includes *Assets*, *Leverage*, *Age*, *R&D*, *SGA_Exp*, and *Cap_Exp.* We capture the influence of a firm's size for two reasons. First, empirical papers widely accept that firm size is among the main determinants of CFP (Lee, 2009; Ramli et al., 2019). Gala and Julio (2016) prove that smaller firms grow faster than large firms. Thus, they are more likely to have high levels of *Tobin's Q*. We, therefore, predict that *Assets* is likely to be negatively related to *Tobin's Q*. The second reason lies in CSR literature. According to the literature, as larger firms possess greater amounts of internal resources and have access to external resources, they are more likely to engage in CSR programs (Baumann-Pauly et al., 2013). The important role of firm size in CSR activities is widely investigated by previous literature. For instance, D'Amato and Falivena (2020) confirm that firm size matters when the aim is to investigate the relationship between CSR and firm value. As a result, size makes a difference in the argument of CSR performance and its engagement. According to previous studies, the size of a firm can be captured by the volume of capital (Yusof et al., 2020). Following Awaysheh et al. (2020), we use the natural logarithm of total assets to measure the firm size.

Financial leverage is also widely considered one of the determinants of CFP (Ramli et al., 2019). Previous literature proves that financial leverage is negatively related to firm performance through increasing financial constraints and decreasing future investment (Poursoleyman et al., 2020, 2022). Thus, we expect financial leverage to have a negative correlation with CFP. In the same way, Huang et al. (2020) also find that financial leverage is positively related to closing price declines, implying that a greater level of financial leverage is associated with a higher level of price declines. To measure it (*Leverage*), we use total debt deflated by total assets.

We also control the age of the firm because older firms are likely to benefit from their greater business experience, established contacts with customers, and easier access to resources (Coad et al., 2013).[2] We, therefore, control the effect of firm age because a significant number of CSR activities are related to customers, thus possessing established contacts with customers is related to the concept of loyalty and reputation mechanisms of CSR activities that we discussed in the above sections. Following the previous literature, to control the effect of a firm's age, we rely on the natural logarithm of the number of years the firms have operated since their establishment (see, Danso et al., 2020; Huang et al., 2020). Huang et al. (2020) find that firm age is negatively related to a drop in closing prices, indicating that experienced firms are less likely to experience huge drops in closing prices when an exogenous event occurs. Thus, we expect the age (*Age*) to be positively associated with CFP.

We also control the effect of research and development intensity because McWilliams and Siegel (2000) argue that Waddock and Graves (1997)'s model suffers from an omitted variable problem. They believe that due to ignoring the impact of research and development's intensity, Waddock and Graves (1997)'s outcomes have downsides. They document that as research and development intensity is highly correlated with CSR, the intervention of it to the Waddock and Graves (1997)'s model could result in the positive association between CSR and CFP disappearing. In supporting this argument, Bocquet et al. (2017) contend that innovation acts an even more decisive role in the link between CSR and firm performance. They reveal that innovation mediates the mentioned association. Taking these two arguments together, we include research and development intensity in our model to mitigate the mentioned concern and control the effect of innovation. Hirschey (1985)'s study, which is among the first of a long string of investigations exploring the impact of research and development, regards research and development as an indication of "intangible capital" that improves sustained future cash flows and subsequently increases firms' market value. Drawing on this study and the above line, we expect research and development intensity to be positively related to *Tobin's Q*. To measure research and development intensity (*R&D*), we use the ratio of research and development expenses to total revenues.

Concerning other types of expenditures, following Awaysheh et al. (2020), we control the effect of selling, administrative, and general expenditures because, according to previous literature, firms use advertising to send signals about their CSR programs (Carter, 2006; Deephouse & Heugens, 2009). To this end, we rely on selling, administrative, and general expenses scaled by total revenues or sales to measure

[2] Coad et al. (2013) attribute the age of firms to the age of "wine."

this variable (*SGA_Exp*). Aside from non-capital expenditures, we also control the effect of capital expenditure not only because implementing socially responsible activities requires huge amounts of expenditures or devoting resources (Aguinis et al., 2020), but also because these types of expenditures are required for generating revenue for firms. We, therefore, use the ratio of capital expenditures to total revenues or sales to measure capital expenditures (*Cap_Exp*).

Control Variables: Country Characteristics

Most investigations in the literature merely use dummy variables to control the diversity of countries; however, we use gross domestic products (*GDPGrowth*), inflation rate (*Inf_Rate*), lending rate (*Lend_Rate*), anti-director rights index (ADRI), labor regulation (*LaborRegulation*), human rights (*HumanRights*), and COVID-19 stringency index (*COVIDStringency*) as well.

From the perspective of pecking order theory, there are sufficient internal financial resources for firms during macroeconomic growth. Therefore, firms have a window of opportunity to channel these resources to the operating activities and enhance CFP. Hence, a positive correlation between economic growth and CFP is predictable (Claude, 2016; Ramli et al., 2019). Aside from the positive association between the affluence of a country and CFP, a country's wealth is significantly related to CSR-related issues. According to the literature, affluent nations are more prone to care about sustainability (Liang & Renneboog, 2017). We can see the evidence of this claim when perusing the reports concerning the assessment of countries' progress towards achieving the Sustainable Development Goals (see Sachs et al., 2020). To measure this variable (*GDPGrowth*), we rely on the rate of annual change in the gross domestic product per capita.

Controlling the effect of the inflation rate at the country level is of paramount importance because "corporations will be less likely to act in socially responsible ways when they are experiencing relatively weak financial performance or are operating in an economic climate where the possibility for near-term profitability is limited" (Campbell, 2007, p. 952, 2018, p. 549). As a result, amid a situation where the economic climate is not healthy, firms' propensity towards socially responsible activity will decrease. One of these unhealthy circumstances is a high inflation rate (Chih et al., 2010). Therefore, we control the effect of the inflation rate (*Inf_Rate*). The lending rate, which measures the lending or interest rate of commercial banks, is included as a control variable because previous literature shows that the lending rate significantly affects firms' capital structure and, subsequently, their financial performance (Ramli et al., 2019).

Reviewing CSR literature, we notice that the link between CSR and CFP depends heavily on the extent to which a country is oriented toward their stakeholders or shareholders. Dhaliwal et al. (2014), Benlemlih and Girerd-Potin (2017), El Ghoul et al. (2017), and Liang and Renneboog (2017) show that stakeholder and shareholder orientation significantly influence the mentioned association. According to these studies, in stakeholder-oriented countries, stakeholders give a greater price to CSR activities. However, in shareholder-oriented countries, CSR engagement is probably seen as a waste of financial resources. Thus, these two different groups seem to respond differently to CSR activities. To capture the effect of the orientation toward shareholders, we use the anti-director index (*ADRI*) of Spamann (2010), and to control the effect of the orientation toward stakeholders we use both labor regulation (*LaborRegulation*) and human rights (*HumanRights*). Drawing on Botero et al. (2004), we use *LaborRegulation* which is the average of the following indices: employment laws, social security laws, and collective relations laws. Following La Porta et al. (2004), we use human rights laws which is the index of human rights protection. Finally, as the magnitude of the effects of COVID-19 is different among countries, we employ the Oxford Coronavirus Government Response Tracker to capture this effect. To this end, we draw on Hale et al. (2021) and use the COVID-19 stringency index (*COVIDStringency*)[3] which captures the strictness of government policies on COVID-19 and is a composite measure based on nine response indicators: (I) school closures, (II) workplace closures, (III) cancelation of public events, (IV) restrictions on public gatherings, (V) closures of public transport, (VI) stay-at-home requirements, (VII) public information campaigns, (VIII) restrictions on internal movements, and (IX) international travel controls.

Model Specification

The model we use to test the impact of CSR performance, COVID-19, and the interaction between these two on CFP is as follows:

$$\begin{aligned} Tobin'sQ_{i,t} = {} & \beta_0 + \beta_1 CSR\_ESG_{i,t-1} + \beta_2 Health_{Crisis} \\ & + \beta_3 CSG_{ESG\,i,t-1} \times Health_{Crisis} \\ & + \beta_4 Assets_{i,t-1} + \beta_5 Leverage_{i,t-1} \\ & + \beta_6 Age_{i,t-1} + \beta_7 R\&D_{i,t-1} + \beta_8 SGA_{Exp\,i,t-1} \\ & + \beta_9 Cap_{Exp_{i,t-1}} + \beta_{10} GDPGrowth_{i,t-1} + \beta_{11} Inf_{Rate\,i,t-1} \\ & + \beta_{12} Lend_{Rate\,i,t-1} + \beta_{13} ADRI_{i,t-1} + \beta_{14} LaborRegulation_{i,t-1} \\ & + \beta_{15} HumanRights_{i,t-1} + \beta_{16} COVIDStringency_{i,t} \\ & + Country_{Dummies} + Industry_{Dummies} + Year_{Dummies} + \varepsilon_{it}, \end{aligned} \tag{1}$$

[3] We thank an anonymous reviewer for recommending this relevant variable.

where *Tobin's Q* represents CFP, *CSR_ESG* denotes the total performance of CSR activities, and *Health_Crisis* is a dummy variable set to one for the year 2020 and represents COVID-19's shock. *Assets*, *Leverage*, *Age*, *R&D*, *SGA_Exp*, and *Cap_Exp* represent those variables we include to control firm characteristics. On the other hand, *GDPGrowth*, *Inf_Rate*, *Lend_Rate*, *ADRI*, *LaborRegulation*, *HumanRights*, and *COVIDStringency* capture macro-level characteristics. To reconfirm the previous studies, we expect β_1 to be positive and meaningful, showing that CSR performance improves CFP. Also, as mentioned several times, previous papers prove that COVID-19 has a negative impact on firms' performance, so we expect β_2 to be negative and significant. The hypothesis points out that the negative impact of COVID-19 on CFP should be attenuated by the buffering influence of CSR performance. In other words, CSR performance is expected to mitigate the negative impact of COVID-19 on CFP. To this end, β_3 should be significantly positive and β_2 should be meaningfully negative (the coefficient of *Health_Crisis*); however, we run the slope test for a more accurate interpretation (see, Baron & Kenny, 1986).

According to the discussion provided in the measurement section, we expect firms' assets to be negatively related to CFP, thus β_4 should be negative. As we predict that financial leverage is more likely to be negatively related to CFP, β_5 is expected to be negative. Regarding the firm age, it is anticipated that experienced firms are more likely to improve their CFP ($\beta_6 > 0$). When it comes to research and development intensity, the expectation is a positive coefficient for this variable ($\beta_7 > 0$). Regarding other firm characteristics, sales, general, and administrative costs are predicted to be adversely related to CFP, and capital expenditures are also anticipated to be significantly related to CFP. Finally, country characteristics are predicted to have a significant correlation with CFP. Regarding the GDP growth, we predict that the more affluent a country is, the better CFP is predicted to be; thus, β_{10} should be significant and positive. With regards to the inflation rate, it is anticipated that in an unhealthy economic climate, a lower CFP is not unlikely; thus β_{11} is predicted to be negative. The lending rate is also predicted to have a meaningful relationship with CFP. In the same way, we expect the other country-level variable to be significantly related to CFP.

To corroborate our findings, we also estimate Model (1) without considering the effect of COVID-19 and use the subperiod technique and draw on the Paternoster test to compare the effect of CSR performance on firm performance during the pandemic with pre- and post-crisis periods (Paternoster et al., 1998).

Table 2 Descriptive statistics

Variable	Mean	Median	Maximum	Minimum	SD
Tobin's Q	1.717	0.916	13.855	0.040	2.326
CSR_ESG	0.407	0.383	0.836	0.073	0.201
Assets	16.141	15.728	22.853	9.414	2.801
Leverage	0.264	0.248	0.787	0.000	0.201
Age	9.206	9.289	10.884	5.903	1.001
R&D	0.041	0.000	0.565	0.000	0.110
SGA_Exp	0.373	0.197	5.161	0.018	0.761
Cap_Exp	0.135	0.041	1.653	0.000	0.279
GDPGrowth	0.007	0.015	0.101	-0.058	0.025
Inf_Rate	0.018	0.017	0.083	-0.007	0.015
Lend_Rate	0.045	0.035	0.201	0.005	0.032
ADRI	3.228	3.000	6.000	2.000	1.327
LaborRegulation	0.428	0.374	0.720	0.372	0.074
HumanRights	0.813	0.900	0.980	0.210	0.183
COVIDStringency	0.071	0.000	0.682	0.000	0.195

See Appendix 1 for the definitions of the variables

Results

Descriptive Statistics

Table 2 reports descriptive statistics for continuous variables, including mean, median, maximum, minimum, and standard deviation. *Tobin's Q* has a mean of 1.717 and a median of 0.916 (mean > median), indicating that the distribution of *Tobin's Q* is positively skewed; therefore, the frequency of the observations with values greater than the mean is fewer than the observations with *Tobin's Q* smaller than the mean. This result is consistent with Awaysheh et al. (2020). They show that their *Tobin's Q* has a long right tail and report a mean (median) of 1.774 (1.400). Regarding our independent variable, *CSR_ESG* has a maximum value of 0.836 and a minimum value of 0.073, which is in line with the argument discussed in the variable measurement section of this variable—ASSET4 provides CSR-related data ranging from zero to 1. The mean and median for this variable are comparable; thus, the distribution for this variable is relatively normal, not to mention that it has a partially right-skewed distribution. Moving onto control variables capturing firm characteristics, both *Assets* and *Leverage* have a relatively normal distribution. The latter has a mean of 0.264, indicating on average, corporations rely more on equity rather than debt when it comes to capital structure. Regarding other control variables, normal distributions are also observable. The last set of continuous variables in this table are those control variables capturing the effect of countries and macro-economies. *GDPGrowth* has a mean of 0.007, indicating that, on average, the countries experience economic growths across the period. *Inf_Rate* and

Table 3 Correlation matrix

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1)	*Tobin's Q*	1.000	0.018	− 0.107	− 0.102	− 0.381	**− 0.008**	− 0.292	0.319	0.328	− 0.018	**− 0.001**	0.026	− 0.229	0.135	− 0.192	0.061
(2)	*Health_Crisis*	0.081	1.000	**0.002**	− 0.064	− 0.099	− 0.016	0.017	0.016	0.050	0.068	0.057	0.332	− 0.113	− 0.011	− 0.068	− 0.133
(3)	*CSR_ESG*	− 0.134	**0.001**	1.000	0.298	0.415	0.041	0.097	0.025	− 0.128	− 0.050	− 0.024	− 0.065	0.112	− 0.067	0.101	0.025
(4)	*Age*	− 0.133	− 0.059	0.293	1.000	0.291	− 0.055	− 0.043	0.046	− 0.083	**− 0.007**	− 0.098	− 0.202	0.168	− 0.064	0.116	− 0.072
(5)	*Assets*	− 0.323	− 0.100	0.386	0.276	1.000	0.056	0.160	− 0.058	− 0.286	0.113	− 0.054	− 0.113	0.490	− 0.575	0.364	− 0.107
(6)	*Cap_Exp*	− 0.032	**− 0.004**	− 0.097	− 0.146	− 0.116	1.000	0.185	− 0.037	− 0.134	0.039	0.028	0.031	0.061	**− 0.007**	0.053	− 0.051
(7)	*Leverage*	− 0.211	0.024	0.054	− 0.074	0.098	0.106	1.000	− 0.177	− 0.227	0.024	0.010	0.046	− 0.069	− 0.045	− 0.070	0.030
(8)	*R&D*	0.351	0.062	− 0.140	− 0.149	− 0.283	0.065	− 0.158	1.000	0.370	0.031	− 0.145	− 0.136	− 0.074	− 0.037	− 0.071	0.044
(9)	*SGA_Exp*	0.257	0.057	− 0.183	− 0.161	− 0.316	0.217	− 0.143	0.443	1.000	− 0.052	− 0.063	− 0.023	− 0.192	0.134	− 0.113	0.090
(10)	*GDPGrowth*	− 0.022	0.082	− 0.045	0.015	0.119	0.016	**− 0.004**	− 0.044	− 0.046	1.000	0.205	0.151	− 0.023	− 0.171	− 0.121	− 0.528
(11)	*Inf_Rate*	**0.003**	0.015	**0.002**	− 0.073	− 0.021	0.022	0.021	− 0.066	− 0.024	0.193	1.000	0.541	0.044	− 0.158	0.032	− 0.236
(12)	*Lend_Rate*	**0.002**	0.144	0.024	− 0.073	− 0.026	0.012	0.059	− 0.055	− 0.010	0.038	0.642	1.000	− 0.072	− 0.331	− 0.014	0.026
(13)	*ADRI*	− 0.176	− 0.111	0.106	0.152	0.554	− 0.014	− 0.091	− 0.202	− 0.146	0.060	0.128	0.153	1.000	− 0.363	0.717	− 0.152
(14)	*HumanRights*	0.082	− 0.010	− 0.047	0.043	− 0.421	0.051	0.011	0.121	0.110	− 0.063	− 0.361	− 0.342	− 0.456	1.000	− 0.144	− 0.026
(15)	*LaborRegulation*	− 0.143	− 0.032	0.114	0.087	0.386	− 0.020	− 0.061	− 0.146	− 0.081	− 0.027	0.035	0.149	0.670	− 0.300	1.000	− 0.116
(16)	*COVIDStringency*	0.080	− 0.133	0.024	− 0.070	− 0.107	− 0.026	0.039	0.103	0.089	− 0.706	− 0.121	**− 0.002**	− 0.149	− 0.010	− 0.070	1.000

Left and right triangles report the Pearson and Spearman matrices, respectively.

Bold values are not significant, while values with regular style are significant at most at 10%

Lend_Rate's indices are comparable to international studies (Poursoleyman et al., 2021; Ramli et al., 2019) and the other country-level control variables that capture the extent to which the country is oriented toward shareholders (*ADRI*) or stakeholders (*LaborRegulation* and *HumanRights*) are consistent with the previous studies.

Table 3 provides both Pearson and Spearman matrices for the variables. According to the information provided, the highest correlation is seen between the two pairs of *GDP-Growth* and *COVIDStringency* as well as *ADRI* and *Labor-Regulation.* The correlation between the first pair is negative (Pearson: − 0.706; Spearman: − 0.528), showing that those nations that have experienced greater GDP growths are less likely to implement stricter policies on COVID-19. The positive correlation between the second pair with the values of 0.670 and 0.717 in Pearson and Spearman matrices, respectively, is consistent with the previous empirical studies. Finally, the third greatest correlation among the pairs is seen between *Inf_Rate* and *Lend_Rate* with a positive direction, showing that a higher level of inflation in the country is associated with a higher level of lending or interest rate. Furthermore, among firm-level variables, the highest correlation is between *CSR_ESG* and *Assets* with the values of 0.386 and 0.415 in Pearson and Spearman matrices, representing that higher levels of CSR performance are associated with higher levels of firm size which is congruent with previous studies that big corporations enjoy higher financial resources and are more prone to sustainability (Baumann-Pauly et al., 2013). As the highest correlations reported are not that strong, the problem of collinearity seems to create no problem. Aside from the linear correlation between the pairs, we also test whether two or more predictors are correlated using the VIFs test. The untabulated results of this test confirm that the value of VIFs is lower than the critical thresholds, so the problem of multicollinearity seems not to exist in this study.

Regression Results

Table 4 reports the regressions estimated based on Model (1). As can be seen, the r-squared of column (4), which includes CSR performance, COVID-19, and their interaction simultaneously, is greater than those of columns 1–3, showing that the interaction effect makes a difference to the model. The positive coefficient of *CSR_ESG* in the first column shows that increasing CSR performance by one standard deviation (0.201) is associated with an 8.7 (0.201 × 0.434) percentage point increase in *Tobin's Q*, confirming that CSR performance is positively related to CFP, which in turn reconfirms previous studies (see, Helmig et al, 2016; Poursoleyman et al., 2022; Vishwanathan et al., 2020; Voegtlin & Greenwood, 2016; Wang et al., 2016). Columns (3) and (4) also show a positive coefficient for *CSR_ESG*, while a bit less strong than column (1) due to the inclusion of COVID-19 and their interaction effects, respectively. Turning next to the impact of COVID-19, the dummy variable (*Health*_Crisis) has a negative coefficient in column (2), showing that COVID-19 is adversely associated with CFP. This negative association is observable in columns (3) and (4). This finding confirms Albuquerque et al. (2020), Donthu and Gustafsson (2020), Fernandes (2020), Shen et al. (2020), and Qiu et al. (2021). Finally, the interaction effect loads positively and significantly, thus, as it has an inverse direction as compared to *Health_Crisis,* we can conclude that CSR performance is likely to mitigate the negative impact of COVID-19 on CFP. As a result, the hypothesis is confirmed, showing that CSR performance acts as an insurance-like mechanism when socially responsible firms face adverse events. This finding, in turn, substantiates Peloza (2006), Minor and Morgan (2011), Shiu and Yang (2017), Jia et al. (2020), Gong et al. (2021), and Thanetsunthorn (2022). Regarding other untabulated tests, we ran the slope tests to corroborate the interpretations of this moderating model (see Aiken et al., 1991) and reach the same interpretation.

Turning next to control variables, *Assets* loads negatively and significantly, representing that the higher levels of firms size are associated with lower CFP or firm value, which is consistent with the previous studies (Gala & Julio, 2016). *Leverage* also shows that it is negatively related to *Tobin's Q* which is congruent with Huang et al. (2020) and Poursoleyman et al. (2020, 2022) who reveal that a higher level of financial leverage leads to lower levels of CFP. Regarding *Age*, we can see a positive coefficient for this variable which endorses Huang et al. (2020), who provide statistical evidence that firm age is inversely related to declines in closing prices. When it comes to research and development intensity, the table shows that relying on higher amounts of research and development expenditures can generate firm value in the future. This result is in line with a huge number of previous studies elaborating on the role of research and development as well as innovation, such as Hirschey (1985) and Bocquet et al. (2017). Regarding other types of costs, *SGA_Exp* and *Cap_Exp* load negatively in the estimations.

Moving onto the variables capturing countries' characteristics, *GDPGrowth* has a positive and meaningful coefficient in column (1), confirming previous studies that macroeconomic growth can enhance firm value (Claude, 2016; Ramli et al., 2019). But in columns 2–4, it loads negatively. We can see the same behavior from *COVIDStringency* as it loads negatively in the first column that does not include *Health_Crisis* but loads positively in the columns containing *Health_Crisis*. As Table 2 shows that there is a relatively strong correlation between these two and their directions change after the inclusion of *Health_Crisis*, we conjecture that one might assume that if these two were eliminated from the model, the results would change. While in our

Table 4 Regression of CFP on CSR performance and COVID-19

CSR =	(1) *CSR_ESG*	(2)	(3) *CSR_ESG*	(4) *CSR_ESG*	(5) *CSR_E*	(6) *CSR_S*	(7) *CSR_G*
CSR	0.434***		0.411***	0.289***	0.138***	0.274***	0.045*
	(8.96)		(11.603)	(8.243)	(4.471)	(6.591)	(1.649)
Health_Crisis		− 0.377***	− 0.4***	− 0.924***	− 0.671***	− 0.651***	− 0.673***
		(− 8.36)	(− 9.582)	(− 10.111)	(− 10.542)	(− 9.438)	(− 8.547)
CSR × *Health_Crisis*				1.245***	0.985***	1.436***	0.609***
				(8.106)	(10.291)	(7.469)	(5.166)
Assets	− 0.142***	− 0.132***	− 0.128***	− 0.13***	− 0.109***	− 0.145***	− 0.084***
	(− 15.419)	(− 19.839)	(− 18.205)	(− 18.478)	(− 12.669)	(− 16.109)	(-14.277)
Leverage	-0.15***	-0.145***	-0.103**	-0.105**	-0.182***	-0.158***	-0.092**
	(-2.696)	(-2.683)	(-2.372)	(-2.425)	(-3.621)	(-2.886)	(-2.105)
Age	0.041***	0.054***	0.026***	0.025***	0.008	0.04***	0.014*
	(4.46)	(6.326)	(3.237)	(3.208)	(0.961)	(4.607)	(1.932)
R&D	1.008***	0.491**	0.783***	0.802***	1.135***	0.952***	0.977***
	(4.127)	(2.508)	(3.383)	(3.476)	(4.763)	(3.956)	(4.298)
SGA_Exp	− 0.164***	0.003	− 0.113***	− 0.108***	− 0.124***	− 0.163***	− 0.076**
	(− 4.746)	(0.098)	(− 3.372)	(− 3.238)	(− 3.645)	(− 4.805)	(− 2.299)
Cap_Exp	− 0.104**	− 0.19***	− 0.122***	− 0.129***	− 0.145***	− 0.118***	− 0.158***
	(− 2.489)	(− 5.053)	(− 3.068)	(− 3.256)	(− 4.086)	(− 3.203)	(− 4.756)
GDPGrowth	1.811***	− 1.035***	− 1.733***	− 1.582***	− 1.896***	0.355	− 2.574***
	(4.586)	(− 2.858)	(− 4.723)	(− 4.323)	(− 5.773)	(0.711)	(− 8.346)
Inf_Rate	2.568***	4.675***	1.847***	2.099***	3.428***	2.325***	1.686***
	(3.92)	(7.619)	(3.126)	(3.569)	(5.993)	(3.698)	(2.988)
Lend_Rate	2.127**	0.988	− 2.168**	− 2.435***	0.046	− 1.724*	0.322
	(2.091)	(1.012)	(− 2.494)	(− 2.809)	(0.05)	(− 1.728)	(0.426)
ADRI	− 0.316***	− 0.033	− 0.148**	− 0.119	0.172*	0.018	0.066
	(− 3.17)	(− 0.364)	(− 2.057)	(− 1.615)	(1.929)	(0.176)	(0.927)
LaborRegulation	− 2.426**	− 2.819***	− 0.917	− 0.93	− 2.528***	− 1.088	− 1.38**
	(− 2.442)	(− 3.062)	(− 1.259)	(− 1.242)	(− 2.932)	(− 1.111)	(− 1.986)
HumanRights	0.859**	0.955***	− 0.669**	− 0.624**	0.568*	− 0.496	0.365
	(2.336)	(2.734)	(− 2.183)	(− 2.003)	(1.694)	(− 1.317)	(1.165)
COVIDStringency	− 0.114***	0.282***	0.212***	0.209***	0.203***	0.097**	0.28***
	(− 2.801)	(5.207)	(4.261)	(4.211)	(4.373)	(2.009)	(6.527)
Constant	3.929***	2.782***	3.678***	3.637***	2.075***	3.155***	1.531***
	(7.05)	(6.115)	(9.318)	(9.01)	(6.459)	(9.127)	(5.774)
R^2	69.54%	63.60%	71.98%	72.09%	73.97%	69.87%	74.94%
Adjusted R^2	69.49%	63.56%	71.93%	72.05%	73.92%	69.82%	74.90%
Differences in R^2			(3) – (1) = 2.44%	(4) – (1) = 2.55%			
			(3) – (2) = 8.38%	(4) – (2) = 8.49%			
				(4) – (3) = 0.11%			
F	1442.38***	1671.468***	1597.195***	1577.608***	1586.897***	1516.658***	1931.15***
DW	1.592	1.774	1.590	1.591	1.773	1.606	1.843
N clusters	5410	5410	5410	5410	5410	5410	5410
N	33,703	33,703	33,703	33,703	33,705	33,703	33,706

*p value < 10%, **p value < 5%, and ***p value < 1%. Country, sector, and year dummies are included in the regressions. Firm-clustered, heteroskedasticity-robust t-statistics are reported in parentheses. See Appendix 1 for the variables definitions

untabulated tests, we re-estimate Model (1) without including *GDPGrowth* and *COVIDStringency* and observe the same results. Regarding other country-level control variables, we can see that *Inf_Rate* and *Lend_Rate* have positive and negative coefficients, respectively. Concerning the variables capturing the orientation of the country, it is shown that their coefficients' directions are comparable to previous literature (Dhaliwal et al., 2014; La Porta et al., 2004; Liang & Renneboog, 2017; Spamann, 2010).

In this table, we also report regressions estimated based on Model (1) using the main pillars of CSR performance to confirm that the results remain unchanged when we use the alternative measures of CSR performance. As can be seen from columns 5–7, CSR performance still loads positively though *CSR_S* seems to have a stronger and more meaningful coefficient as compared to the other two. Moreover, *Health_Crisis* and the interaction effect load negatively and positively, respectively, showing that the hypothesis is valid when we use the main pillars of CSR performance. In our untabulated tests, we also employ the sub-pillars of CSR performance as an alternative measure of CSR performance. While our untabulated analyses show that the components are highly correlated with each other; we, therefore, estimate Model (1) separately for each of the sub-pillars to avoid multicollinearity. Our estimations show that the results remain qualitatively unchanged.

Next, to corroborate the findings, we compare the influence of CSR performance on CFP during the pandemic with normal periods. Table 5 summarizes the regressions estimated based on Model (1) using different sub-periods. We first estimate the model using the period from 2010 to 2019 and compare it with the estimation over the period from 2010 to 2020. Moreover, as we give *COVIDStringency* zero values for the years preceding the pandemic, so in our first comparison when we estimate the model with the period of 2010–2019, we need to remove this control variable because of the multicollinearity problem. Thus, we remove the same control variable from the estimation for 2010–2020 because the Paternoster test recommends using the same variables in the estimations. In the following of this comparison, as another robust test, we compare the sub-period of 2010–2019 with the full period. In another comparison, we estimate Model (2) using the period from 2010 to 2021 excluding 2020, and compare it with the estimation over the year 2020 and the full period.

Paternoster test shows that the coefficient of *CSR_ESG* in columns (2) and (3) are meaningfully stronger than that in column (1) while this coefficient in column (4) of this table and column (1) of Table 4 is not meaningfully stronger than that in column (1), showing that the positive association between CSR performance and CFP becomes stronger when socially responsible firms face adverse events. Finally, the coefficient of column (6) and column (1) of Table 4 is stronger than that of column (5), providing further evidence for the stronger link between CSR and CFP during the pandemic as opposed to normal periods. This, in turn, supports our hypothesis and also advocates Jiang and Wen (2020) argument that socially responsible initiatives in the interests of customers and employees during the pandemic receive a great deal of attention from the public and potential investors. We also re-estimate the mentioned regression using the main pillars of CSR performance. Our results remain qualitatively unchanged. Interestingly, the Wald test shows that the impact of the social aspect of CSR performance on CFP is significantly stronger than that of the other two pillars. Also, the Paternoster test shows that the main driver of CSR performance is the social aspect as the other pillars seem to have the same impacts on CFP in both the absence and the presence of COVID-19. This finding is congruent with Mitchell et al. (1997)'s salience theory. According to this theory, firms prioritize the claims of stakeholders based on their legitimacy, urgency, and power. Thus, those stakeholders who possess all these attributes should receive more attention. As these stakeholders that are called primary stakeholders have higher power, urgency, and legitimacy, their reciprocation is more likely to affect the firm as compared to secondary stakeholders. Our finding extends this theory by showing that primary stakeholders respond more positively as compared to secondary stakeholders when the overall trust in a market is lower. Thus, this finding shows that the importance of primary stakeholders becomes more salient in the context of COVID-19. Take customers and employees as the primary stakeholders.[4] In the era of COVID-19, providing safety and well-being for customers and employees is of paramount importance that firms need to classify it as one of the salient CSR strategies[5] (Jiang & Wen, 2020; Qiu et al., 2021; Wen et al., 2020). In response,

[4] We draw on Benlemlih and Bitar (2018) to consider these groups and their related proxies as primary stakeholders.

[5] There is also certain factual evidence for the importance of primary stakeholders in the era of COVID-19. In the wake of COVID-19, Amazon took steps to engage in CSR activities and decided to expand its online grocery delivery in an effort to render services for people afflicted by the pandemic (Amazon, 2020). While due to the demand for full capacity and providing services efficiently and smoothly, they confronted a lack of organizational commitment from laborers because they were not satisfied with the working condition as they did not have adequate protective equipment at the workplace and had to work among infected individuals. This situation resulted in the employees going on strike (Weise & Conger, 2020). Bezos' donation made the situation worse and created a further backlash. Employees and media immediately showed their opposition to Bezos' action and considered it hypocritical. They pointed out that this donation was an endeavor to distract the attention from the unsanitary and unsafe working conditions and high-risk situations that the workforce had to tolerate (Aguinis et al., 2020). This factual evidence highlights the significance and the need for prioritizing the claims of primary stakeholders during the pandemic.

Table 5 Regression of CFP on CSR performance: in the presence and absence of the pandemic (using sub-period technique)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Period	2010–2019	2010–2020	2010–2020	2010–2021	2010–2021 excluding 2020	2020	2010–2019	2010–2020	2010–2020	2010–2021	2010–2021	2010–2021 excluding2020	2020
CSR_ESG	0.343***	0.475***	0.467***	0.425***	0.312***	1.313***							
	(7.688)	(9.58)	(9.433)	(8.802)	(4.711)	(5.208)							
CSR_E							0.096**	0.129**	0.119**	0.103*	0.099*	0.106**	0.333*
							(2.463)	(2.176)	(2.065)	(1.778)	(1.7)	(2.099)	(1.667)
CSR_S							0.241***	0.503***	0.46***	0.445***	0.427***	0.214***	1.636***
							(4.484)	(6.603)	(5.636)	(5.304)	(4.903)	(4.085)	(5.188)
CSR_G							0.053*	0.101**	0.089*	0.088*	0.093*	0.088**	0.605***
							(1.658)	(2.078)	(1.829)	(1.786)	(1.919)	(2.104)	(2.735)
Assets	− 0.125***	− 0.17***	− 0.169***	− 0.141***	− 1.842***	− 0.428***	− 0.138***	− 1.61***	− 1.596***	− 1.619***	− 1.598***	− 1.506***	− 0.466***
	(− 13.482)	(− 17.245)	(− 17.225)	(− 15.298)	(− 28.745)	(− 12.139)	(− 17.675)	(− 30.971)	(− 23.429)	(− 24.02)	(− 23.746)	(− 20.413)	(− 12.5)
Leverage	− 0.146***	− 0.116**	− 0.119**	− 0.154***	0.308**	− 1.677***	− 0.132***	− 1.307***	− 1.28***	0.296**	− 1.254***	0.074	− 1.738***
	(− 2.798)	(− 2.185)	(− 2.23)	(− 2.76)	(2.059)	(− 6.997)	(− 2.84)	(− 8.484)	(− 7.765)	(2.301)	(− 7.662)	(0.472)	(− 7.166)
Age	0.024***	0.022**	0.022**	0.041***	− 0.325*	− 0.206***	0.023***	− 0.097	− 0.033	− 0.125	− 0.016	− 0.428**	− 0.189***
	(2.882)	(2.451)	(2.483)	(4.52)	(− 1.922)	(− 4.855)	(2.976)	(− 0.65)	(− 0.191)	(− 0.749)	(− 0.097)	(− 1.976)	(− 4.376)
R&D	1.014***	1.082***	1.08***	1.006***	0.735	7.046***	1.06***	0.891	0.755	0.749	0.647	0.769	6.77***
	(3.717)	(4.208)	(4.205)	(4.114)	(0.869)	(8.748)	(3.962)	(1.113)	(0.836)	(0.81)	(0.724)	(0.755)	(8.273)
SGA_Exp	− 0.16***	− 0.046	− 0.046	− 0.165***	− 0.047	− 0.301***	− 0.161***	0.007	− 0.073	0.01	− 0.074	0.036	− 0.356***
	(− 4.167)	(− 1.25)	(− 1.259)	(− 4.754)	(− 0.718)	(− 2.728)	(− 4.123)	(0.097)	(− 1.365)	(0.133)	(− 1.397)	(0.474)	(− 3.199)
Cap_Exp	− 0.118***	− 0.183***	− 0.183***	− 0.103**	0.106	− 0.03	− 0.121***	0.128**	0.07	0.131*	0.073	0.118*	0.057
	(− 2.845)	(− 4.311)	(− 4.305)	(− 2.478)	(1.606)	(− 0.178)	(− 2.976)	(2.103)	(1.03)	(1.954)	(1.086)	(1.831)	(0.34)
GDP-Growth	− 0.652*	− 1.67***	− 1.835***	2.125***	− 0.646*	23.994**	− 2.764***	− 2.442***	− 1.661***	− 2.478***	− 2.069***	− 2.015***	50.235***
	(− 1.84)	(− 4.565)	(− 4.882)	(5.392)	(− 1.78)	(1.996)	(− 10.298)	(− 12.731)	(− 5.26)	(− 12.288)	(− 5.951)	(− 4.681)	(2.662)
Inf_Rate	0.806	0.874	1.264**	2.8***	2.106***	12.245	0.88	− 0.892*	1.7***	1.092**	2.15***	1.049**	17.931
	(1.34)	(1.344)	(1.987)	(4.205)	(4.644)	(1.178)	(1.346)	(− 1.856)	(3.934)	(2.345)	(4.968)	(2.314)	(1.2)
Lend_Rate	− 3.507***	0.604	− 0.384	1.708*	− 6.997***	− 5.769*	− 1.26	0.715	− 4.347***	− 0.715	− 3.097***	− 9.992***	− 0.994
	(− 3.406)	(0.545)	(− 0.351)	(1.649)	(− 8.235)	(− 1.81)	(− 1.235)	(0.783)	(− 4.444)	(− 0.722)	(− 3.153)	(− 10.767)	(− 0.269)
ADRI	− 0.206	− 0.422***	− 0.375***	− 0.3***	− 6.366***	0.017	− 0.235*	− 5.783***	1.62	− 6.297***	1.677	− 12.056***	− 0.326
	(− 1.57)	(− 3.503)	(− 3.146)	(− 2.99)	(− 5.338)	(0.1)	(− 1.73)	(− 3.453)	(1.106)	(− 3.113)	(1.084)	(− 5.483)	(− 1.341)
LaborRegulation	0.714	− 1.249	− 0.953	− 2.218**	25.768**	− 0.825	− 0.889	13.293	− 45.906**	25.448	− 48.587**	38.854**	5.655
	(0.793)	(− 1.263)	(− 0.96)	(− 2.236)	(2.129)	(− 0.253)	(− 1.196)	(0.785)	(− 2.075)	(1.066)	(− 2.03)	(2.119)	(1.173)
Human-Rights	− 1.384***	− 0.34	− 0.581	0.785**	− 17.352***	− 2.668***	− 0.796**	− 12.913***	0.302	− 14.816**	0.852	− 20.612***	− 3.923***
	(− 3.766)	(− 0.874)	(− 1.486)	(2.123)	(− 4.382)	(− 4.079)	(− 2.132)	(− 2.649)	(0.082)	(− 2.201)	(0.214)	(− 3.642)	(− 4.905)
COVID-Stringency			0.169***		0.347***	7.975			0.323***		0.313***	3.094***	− 0.278

Table 5 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Period	2010–2019	2010–2020	2010–2020	2010–2021	2010–2021 excluding 2020	2020	2010–2019	2010–2020	2010–2020	2010–2021	2010–2021	2010–2021 excluding2020	2020
			(3.035)		(7.553)	(1.547)			(7.033)		(6.738)	(10.895)	(– 0.037)
Constant	3.8***	5.363***	5.204***	3.743***	61.163***	7.813***	4.304***	55.643***	48.182***	53.616***	46.526***	71.502***	11.852***
	(5.861)	(8.538)	(8.332)	(6.565)	(7.962)	(3.244)	(7.119)	(6.007)	(3.359)	(4.49)	(3.02)	(6.414)	(3.551)
R^2	73.46%	69.76%	69.77%	69.53%	75.39%	28.75%	73.04%	79.22%	79.48%	79.36%	79.58%	79.99%	29.20%
Adjusted R^2	73.41%	69.71%	69.72%	69.49%	75.35%	28.23%	72.98%	79.18%	79.44%	79.32%	79.55%	79.95%	28.62%
F	1363.312***	1428.345***	1402.229***	1469.67***	1900.396***	55.045***	1265.058***	1970.583***	2066.871***	1909.084***	2115.313***	1868.622***	50.245***
DW	1.618	1.596	1.596	1.590	1.710		1.610	1.604	1.610	1.649	1.645	1.509	
N Clusters	4575	5037	5037	5410	5357	3986	4575	5037	5037	5410	5410	5357	3986
N	25,792	29,778	29,778	33,703	29,717	3986	25,792	29,778	29,778	33,703	33,703	29,717	3986
Wald test							*t*-stat	*t*-stat	*t*-stat	*t*-stat	*t*-stat	*t*-stat	*t*-stat
CSR_E = *CSR_S*							1.669*	3.911***	3.362***	3.27***	2.952***	1.828*	4.321***
CSR_E = *CSR_G*							0.836	0.344	0.374	0.187	0.071	0.272	1.302
CSR_S = *CSR_G*							2.585***	4.524***	4.162***	3.949***	3.48***	1.987**	2.37***
Paternoster test													
	(1) vs. (2)	(1) vs. (3)	(1) vs. (4)	(1) vs. (1) of Table 4	(5) vs. (1) of Table 4	(5) vs. (6)	(7) vs. (8)	(7) vs. (9)	(7) vs. (10)	(7) vs. (11)	(11) vs. (12)	(12) vs. (13)	
CSR_ESG	1.751*	1.65*	1.014	1.167	1.692*	6.829***							
CSR_E							0.106	0.07	0.019	0.008	0.004	1.668*	
CSR_S							2.181**	1.667*	1.472	1.335	1.881*	3.717***	
CSR_G							0.126	0.086	0.083	0.097	0.041	1.772*	

*p value < 10%, **p value < 5%, and ***p value < 1%. Country, sector, and year dummies are included in the regressions. Firm-clustered, heteroskedasticity-robust t-statistics are reported in parentheses. See Appendix 1 for variables definitions

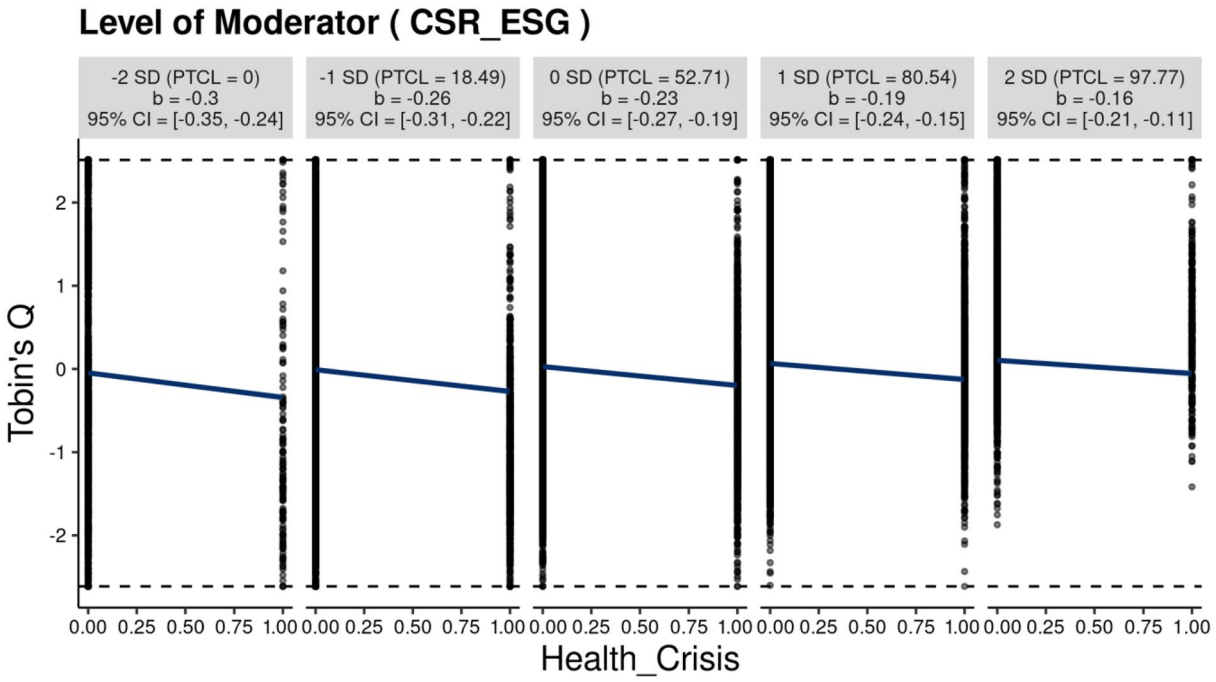

Fig. 1 The visual display of the interaction between CSR and the health crisis on Tobin's *Q* where the health crisis is the moderator. Continuous variables are centered

these stakeholders reciprocate more positively as compared to secondary stakeholders.

Robustness Checks and Additional Analyses

The Visual Display of Interactions

Building on McCabe et al. (2018), we use visual displays to illustrate visually the moderating effects. McCabe et al. (2018) developed a data visualization application that displays all quantities of interest, uncertainty in the displayed estimates, and the data underlying an interaction. The application, called interActive, exhibits interaction effects across a range of values of the moderator. Testing the usefulness of interActive, Murphy and Aguinis (2022) recommend it for enhancing the illustration of interaction effects. We, as a result, use interActive to clarify the findings obtained earlier. Regressing *Tobin's Q* on CSR performance, the dummy for the healthy crisis, their interaction term, and the control variables using interActive, we present separate graphs for the estimations with the moderators of CSR performance and the health crisis. Figure 1 plots the slope of the line with the x-axis of *Health_Crisis* and the y-axis of *Tobins' Q* when *CSR_ESG* is two standard deviations below the mean, one standard deviation below the mean, at the mean, one standard deviation above the mean, and two standard deviations above the mean. Information about the precise percentile of the values and the relative size of errors in prediction is also included in the figure. It is observable that the greatest absolute value of the negative slope is for the line when *CSR_ESG* is two standard deviations below the mean; however, the least value is for the line when *CSR_ESG* is two standard deviations above the mean, showing that the negative connection between *Tobin's Q* and *Health_Crisis* is less strong for firms with high levels of *CSR_ESG*. Taking together these two lines and the lines for other ranges of CSR, we observe that as *CSR_ESG* increases the absolute value of the slope decreases, suggesting that *CSR_ESG* mitigates the negative connection between *Tobin's Q* and *Health_Crisis*.

InterActive also allows us to visualize the interaction effect if the moderator is a categorical or binary variable. In the second set of visual plots, we assign *Health_Crisis* as the moderator and present the slope of the line with the x-axis of *CSR_ESG* and the y-axis of *Tobin's Q* when *Health_Crisis* gets 1 and 0. Figure 2 shows that when the binary variable is 1, the positive slope is stronger than that when it is 0, suggesting that during the pandemic the positive connection between *CSR_ESG* is stronger than that during the normal periods.

Controlling Extreme Values

According to Henderson et al. (2012), Awaysheh et al. (2020), and Certo et al. (2020), when financial ratios are being investigated, researchers need to take some care.

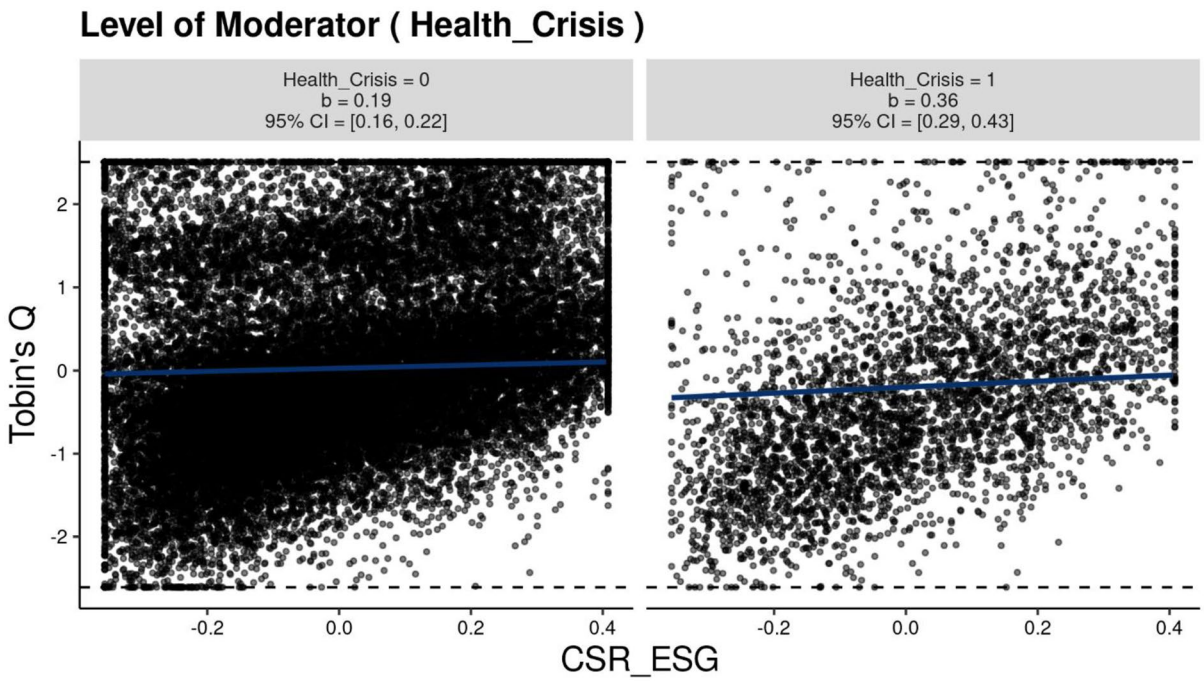

Fig. 2 The visual display of the interaction between CSR and the health crisis on Tobin's *Q* where the health crisis is the moderator. Continuous variables are centered.

One of these concerns is related to the presence of extreme values. As for measuring CFP, we rely on *Tobin's Q* ratio, which is the ratio of the market value of equity scaled by lagged total assets; therefore, when the divisors are small, the likelihood of extreme values becomes high. What concerns us regarding the divisors is the discussion we mention in the variable measurement section regarding firm size, specifically that smaller firms are more likely to have high ratios of *Tobin's Q* than larger firms because they grow faster (Gala & Julio, 2016). In supporting this, in the regression results section, we confirm that the firm size is negatively related to *Tobin's Q*. Thus, it would not be incorrect to claim that smaller firms enjoy higher levels of *Tobin's Q*. While the point is that as the divisor of *Tobin's Q* in small firms are small and their market value is high, the risk of encountering extreme values when small firms are included becomes greater. Thus, we need to control the effect of extreme values in this paper. To this end, first, we follow Awaysheh et al. (2020) and Lins et al. (2017) to exclude small firms. Pursuing Awaysheh et al. (2020), we exclude firms with total book assets smaller than $100 million and total sales smaller than $50 million at any time during our time frame. Following Lins et al. (2017), we also exclude corporations with a market value lower than $250 million in another sample. Our untabulated results show that the findings remain qualitatively unchanged after excluding the mentioned observations.

Comparing Different Levels of CSR Performance

Ye and Zhang (2011), Bae et al. (2018), Awaysheh et al. (2020), Franco et al. (2020), and Rouine et al. (2022) believe that the association between CSR and CFP is non-linear, implying that the high level of CSR may have a different impact on CFP as compared to low levels of CSR. In order to mitigate this concern and compare the impact of different levels of CSR performance on CFP and their buffering impact, we create two dummy variables. *CSR_HighInClass* contains observations with CSR scores higher than the median in each country-industry-year grouping, and *CSR_LowInClass* includes observations with CSR scores lower than the median in each country-industry-year grouping. Finally, after excluding those groupings lacking at least 2 observations, 5271 clusters with 33,139 observations remain for testing. To compare their impact on CFP and their interaction with COVID-19, we propose the following model:

$$\begin{aligned} Tobin'sQ_{i,t} = {} & \beta_0 + \beta_1 CSR\_HighInClass_{i,t-1} + \beta_2 Health\_Crisis \\ & + \beta_4 CSR\_HighInClass_{i,t-1} \times Health\_Crisis \\ & + Firm\_Characteristics + Country\_Characteristics \\ & + Country\_Dummies + Industry\_Dummies \\ & + Year\_Dummies + \varepsilon_{it} \end{aligned} \tag{2}$$

The control variables of this model are the same as Model (1). In this model, *CSR_LowInClass* represents the base

Table 6 Regression of CFP on the different levels of CSR performance, COVID-19, and their interaction

	(1)		(2)		(3)	
CSR_HighInClass (50–100%)	0.052***	(2.977)				
CSR_BestInClass (90–100%)			0.109***	(4.826)	0.106***	(2.788)
CSR_MidInClass (neither 90–100% nor 0–10%)					− 0.007	(− 0.191)
Health_Crisis	− 0.817***	(− 11.035)	− 0.481***	(− 9.942)	− 0.746***	(− 5.284)
CSR_HighIn-Class × *Health_Crisis*	0.653***	(9.128)				
CSR_BestIn-Class × *Health_Crisis*			0.46***	(8.975)	0.721***	(5.063)
CSR_MidInClass × *Health_Crisis*					0.311**	(2.189)
Assets	− 0.128***	(− 15.418)	− 0.123***	(− 14.898)	− 0.121***	(− 15.085)
Leverage	− 0.153***	(− 2.824)	− 0.154***	(− 2.827)	− 0.118**	(− 2.231)
Age	0.043***	(4.879)	0.047***	(5.251)	0.038***	(4.491)
R&D	0.897***	(3.701)	0.913***	(3.743)	1.167***	(5.14)
SGA_Exp	− 0.115***	(− 3.286)	− 0.127***	(− 3.593)	− 0.158***	(− 4.918)
Cap_Exp	− 0.135***	(− 3.39)	− 0.13***	(− 3.241)	− 0.113***	(− 2.741)
GDPGrowth	− 1.308***	(− 3.684)	− 1.61***	(− 4.513)	− 1.603***	(− 4.504)
Inf_Rate	3.752***	(5.762)	3.264***	(5.008)	3.342***	(5.11)
Lend_Rate	− 1.466	(− 1.48)	− 0.946	(− 0.951)	− 0.912	(− 0.937)
ADRI	− 0.123	(− 1.251)	− 0.124	(− 1.26)	− 0.043	(− 0.612)
LaborRegulation	− 2.037**	(− 2.184)	− 1.941**	(− 1.968)	− 1.987**	(− 2.081)
HumanRights	0.14	(0.392)	0.23	(0.64)	0.279	(0.785)
COVIDStringency	0.132***	(2.578)	0.141***	(2.767)	0.142***	(2.8)
Constant	3.578***	(6.714)	3.324***	(6.159)	3.011***	(6.784)
R^2 (Adjusted R^2)	70.52% (70.47%)		70.35% (70.30%)		71.26% (71.21%)	
F (DW)	1451.603*** (1.618)		1439.876*** (1.613)		1436.218*** (1.656)	
N clusters (*N*)		5271 (33,139)		4813 (29,475)		4813 (29,475)
Wald test						*t*-stat
CSR_BestInClass = *CSR_MidInClass*						5.104***
CSR_BestInClass × COVID19 = *CSR_MidInClass* × *COVID19*						8.013***

*p value < 10%, **p value < 5%, and ***p value < 1%. Country, sector, and year dummies are included in the regressions. Firm-clustered, heteroskedasticity-robust *t*-statistics are reported in parentheses. See Appendix 1 for the definitions of the variables

model, allowing us to compare two different levels of CSR performance: high and low. But, for further analyses, we then compare the levels of CSR performance at three different levels: very high, moderate, and very low. To this end, we consider three dummy variables including *CSR_BestInClass*, *CSR_MidInClass*, and *CSR_WorstInClass*. We follow Awaysheh et al. (2020) to attribute the scores or observations to each of these variables. We consider the top 10% scores of each industry of a country in a given year as very high CSR performance, the bottom 10% in each industry of a country in a given year as very low CSR performance, and the rest of the scores as moderate levels of CSR performance. After excluding the groupings lacking at least 10 observations, 4813 clusters with 29,475 observations remain for testing. To compare these levels' impacts, we use the following model:

$$\begin{aligned} Tobin'sQ_{i,t} = {} & \beta_0 + \beta_1 CSR\_BestInClass_{i,t-1} + \beta_2 CSR\_MidInClass_{i,t-1} \\ & + \beta_3 Health\_Crisis + \beta_4 CSR\_BestInClass_{i,t-1} \\ & \times Health\_Crisis + \beta_5 CSR\_MidInClass_{i,t-1} \\ & \times Health\_Crisis + Firm\_Characteristics \\ & + Country\_Characteristics + Country\_Dummies \\ & + Industry\_Dummies + Year\_Dummies + \varepsilon_{it} \end{aligned} \quad (3)$$

This model also uses all the control variables included in Model (1). In this model, *CSR_WorstInClass* represents the base model (Awaysheh et al., 2020).

Table 6 summarizes the regressions estimated based on Models (2) and (3). In column (1), *CSR_HighInClass* loads positively and significantly, representing that the positive impact of those firms with higher than the median level of CSR performance on CFP is greater than those with the low levels of CSR performance. Moreover, *CSR_HighInClass* × *Health_Crisis* loads positively, indicating that the buffering impact of those firms with higher than the median level of CSR performance on the negative connection between COVID-19 and CFP is stronger than those with lower levels of CSR performance, implying that the impact of different levels of CSR performance on CFP is meaningfully different.

Column (2) shows that both *CSR_BestInClass* and its interaction with *Health_Crisis* load positively and significantly, representing that firms with very high levels of CSR performance enjoy a stronger buffering effect against adverse events as compared to those with moderate and very low levels of CSR performance. In column (2) the base model is both *CSR_MidInClass* and *CSR_WorstInClass*. On the other hand, column (3) reports Model (3) when the base model is *CSR_WorstInClass*. As can be seen, the Wald test shows that the coefficient of *CSR_BestInClass* is stronger than that of *CSR_MidInClass* and the coefficient of *CSR_BestInClass* × *Health_Crisis* is stronger than that of *CSR_MidInClass* × *Health_Crisis*, representing that: (I) the buffering role of CSR performance in the negative connection between COVID-19 and CFP for observations with significantly high levels is greater than those with moderate and very low levels, and (II) the buffering role of CSR performance in the negative connection between COVID-19 and CFP for observations with moderate levels is greater than those with very low levels.

Providing further evidence to our hypothesis and confirming the non-linear association between CSR and CFP, the findings extend Ye and Zhang (2011), Bae et al. (2018), Awaysheh et al. (2020), Franco et al. (2020), and Rouine et al. (2022) by revealing that not only the link between CSR performance and CFP depends on the level of CSR performance but also the mitigating effect of CSR performance against adverse events depends upon the level of CSR performance. This, in turn, contributes to the hypothesis of the insurance-like effect of CSR performance and the risk mitigation theory by showing, for the first time, that the buffering effect of CSR performance against systematic shocks is non-linear, suggesting that highly committed socially responsible companies enjoy the greatest buffering effects.

Controlling Firms Misleading Policies Relating to CSR Activities

Firms sometimes receive criticisms for conveying a positive image to the market and stakeholders through programs of donations regardless of changing operations internally, which is considered material changes (see, Marquis & Qian, 2014; Wickert et al., 2016). Such initiatives can come from firms' incentives for drawing the attention of stakeholders from firms' mistakes. Previous studies argue that firms may rely on such programs in order to obfuscate their misconduct or to create goodwill after being accused of misconduct. According to Du (2015), these programs are employed as misconduct dressing. As a result, they are classified as symbolic or ceremonial activities to gain reputation (Delmas & Burbano, 2011; Suchman, 1995) or social capital. These strategies are also called greenwashing activities in stark contrast to substantive CSR actions (Li et al., 2019). Aside from the unsystematic risks mentioned, the likelihood of greenwashing activities during an exogenous shock is very likely because of limited resources and financial pressures, leading corporations to pursue short-term gains, sometimes even through fraud and misconduct (He & Harris, 2020). Thus, there is a risk of corporations having changed their CSR policies to benefit from the short-term gains. To mitigate this risk, we rely on Lins et al. (2017)'s approach to deal with such phenomena. We use two lags for our CSR-related variables to ensure that CSR scores have not been affected by ceremonial initiatives. Our untabulated estimations show that the findings remain unchanged even if the proxies of CSR performance are measured using $t-2$.

Alternative Model: Difference-In-Difference Method

In this section, we provide robust evidence for the claim that the positive impact of CSR performance on CFP during the pandemic is stronger. To this end, we estimate a difference-in-difference model, which is as follows:

$$\begin{aligned} Tobin'sQ_{i,t} = {} & \beta_0 + \beta_1 CSR_{i,t-1} \times Health\_Crisis + \beta_2 CSR_{i,t-1} \\ & \times NormalTimes + Firm\_Characteristics \\ & + Country\_Characteristics + Country\_Dummies \\ & + Industry\_Dummies + \varepsilon_{it} \end{aligned} \tag{4}$$

In this model, *Health_Crisis* and *NormalTimes* are dummy variables; the former takes the value of one for the year 2020, while the latter takes one for the years from 2010 to 2019 plus 2021. Table 7 shows that in column (1), the coefficient of *CSR_ESG* × *HealthCrisis* is significantly stronger than that of *CSR_ESG* × *NormalTimes*. Moreover, in column (2) of this table, we disaggregate *NormalTimes* into two dummies including *PriorHealth_Crisis* and *PostHealth_Crisis*. The former takes 1 for the years preceding the pandemic and the latter takes 1 for the years succeeding the pandemic. Column (2) also shows the same results and confirms that the coefficient of *CSR_ESG* × *HealthCrisis* is stronger than that of those two. Thus, these reconfirm our

Table 7 Regression of CFP on CSR performance and COVID-19: robust to difference-in-difference model

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CSR =	*CSR_ESG*	*CSR_ESG*	*CSR_E*	*CSR_E*	*CSR_S*	*CSR_S*	*CSR_G*	*CSR_G*
Health_Crisis × *CSR*	0.818***	0.709***	0.438***	0.422***	0.863***	0.669***	0.365***	0.264***
	(10.112)	(6.777)	(6.514)	(5.571)	(10.834)	(7.114)	(7.245)	(4.24)
NormalTimes × *CSR*	0.421***		0.329***		0.34***		0.073**	
	(9.313)		(9.654)		(8.419)		(2.469)	
PostHealth_Crisis × *CSR*		0.248**		0.338***		0.075		0.041
		(2.51)		(6.051)		(0.863)		(1.493)
PriorHealth_Crisis × *CSR*		0.279***		0.262***		0.296***		0.13***
		(9.586)		(9.873)		(8.466)		(4.931)
Assets	− 0.148***	− 0.127***	− 0.151***	− 0.13***	− 0.147***	− 0.122***	− 0.105***	− 0.085***
	(− 16.684)	(− 16.08)	(− 16.416)	(− 16.066)	(− 16.783)	(− 15.916)	(− 15.368)	(− 12.792)
Leverage	− 0.138**	− 0.01	− 0.131**	− 0.015	− 0.137**	− 0.017	− 0.021	− 0.039
	(− 2.571)	(− 0.206)	(− 2.404)	(− 0.312)	(− 2.528)	(− 0.362)	(− 0.441)	(− 0.848)
Age	0.035***	0.022***	0.038***	0.021***	0.042***	0.025***	0.03***	0.021***
	(3.975)	(2.713)	(4.24)	(2.682)	(4.653)	(3.223)	(3.794)	(2.739)
R&D	1.075***	0.995***	1.078***	1.007***	1.065***	0.999***	1.05***	1.097***
	(4.525)	(4.487)	(4.456)	(4.544)	(4.419)	(4.518)	(4.753)	(4.879)
SGA_Exp	− 0.153***	− 0.091***	− 0.155***	− 0.092***	− 0.157***	− 0.095***	− 0.088***	− 0.082**
	(− 4.542)	(− 2.823)	(− 4.55)	(− 2.848)	(− 4.649)	(− 2.972)	(− 2.747)	(− 2.56)
Cap_Exp	− 0.105***	− 0.134***	− 0.105***	− 0.133***	− 0.105***	− 0.131***	− 0.145***	− 0.169***
	(− 2.71)	(− 3.956)	(− 2.681)	(− 3.923)	(− 2.685)	(− 3.879)	(− 4.31)	(− 5)
GDPGrowth	2.484***	− 0.958***	2.471***	0.383	2.136***	− 1.543***	− 0.951***	− 0.698**
	(8.671)	(− 2.994)	(8.492)	(1.038)	(7.395)	(− 5.013)	(− 2.932)	(− 2.146)
Inf_Rate	1.903***	2.709***	2.439***	2.901***	2.396***	2.827***	2.726***	2.789***
	(3.54)	(5.224)	(4.513)	(5.611)	(4.407)	(5.459)	(5.265)	(5.637)
Lend_Rate	− 5.408***	− 6.811***	− 6.043***	− 6.237***	− 7.313***	− 7.19***	− 7.281***	− 6.728***
	(− 8.957)	(− 11.474)	(− 8.372)	(− 10.44)	(− 10.572)	(− 12.095)	(− 12.317)	(− 12.093)
ADRI	− 0.218**	0.076	− 0.075	0.076	− 0.098	0.056	0.146**	0.096
	(− 2.032)	(1.01)	(− 0.705)	(1.009)	(− 0.91)	(0.742)	(2.172)	(1.439)
LaborRegulation	1.694**	0.07	0.165	− 0.214	1.115	0.45	0.329	0.387
	(2.226)	(0.077)	(0.161)	(− 0.235)	(1.117)	(0.504)	(0.367)	(0.451)
HumanRights	− 1.975***	− 1.94***	− 1.783***	− 1.692***	− 2.338***	− 2.145***	− 1.829***	− 1.655***
	(− 7.243)	(− 6.883)	(− 5.916)	(− 5.964)	(− 7.964)	(− 7.745)	(− 6.729)	(− 6.07)
COVIDStringency	− 0.123***	− 0.119	0.005	0.066	− 0.168***	− 0.016	− 0.063	0.082
	(− 2.678)	(− 1.352)	(0.098)	(1.117)	(− 3.648)	(− 0.196)	(− 1.242)	(0.957)
Constant	4.01***	3.476***	4.178***	3.418***	4.157***	3.388***	2.586***	2.283***
	(7.206)	(6.872)	(6.929)	(7.252)	(6.935)	(7.274)	(6.072)	(5.537)
R2	68.69%	72.29%	68.68%	72.28%	68.74%	72.30%	72.21%	74.29%
Adjusted R2	68.65%	72.25%	68.64%	72.24%	68.70%	72.27%	72.17%	74.25%
F	1768.9***	1940.5***	1718.4***	1939.6***	1723.6***	1942.2***	1974.5***	1953.3***
DW	1.5868	1.6544	1.5709	1.6547	1.5753	1.6540	1.6557	1.7169
N Clusters	5410	5410	5410	5410	5410	5410	5410	5410
N	33,703	33,703	33,705	33,705	33,703	33,703	33,706	33,706
Wald test								
Health_Crisis vs. *NormalTimes*	6.14***		1.513		7.824***		3.805***	
Health_Crisis vs. *PostHealth_Crisis*		7.386***		1.327		8.706***		5.822***
Health_Crisis vs. *PriorHealth_Crisis*		4.216***		1.651*		4.041***		1.665*

*p value < 10%, **p value < 5%, and ***p value < 1%. Country and sector dummies are included in the regressions. Firm-clustered, heteroskedasticity-robust t-statistics are reported in parentheses. See Appendix 1 for variable definition

hypothesis. In this table, we also estimate these two equations using the main pillars of CSR performance. Their related columns show that the findings remain unchanged. Interestingly, we can observe that the social aspect of CSR performance seems to have the strongest effects during the pandemic as compared to the other two. *T* stats of the Wald test also provide evidence for this superiority.

Controlling Endogeneity Concern

In this section, we address the endogeneity concern stemming from the argument that an omitted variable that is not an exogenous firm characteristic and is correlated significantly with CSR performance and CFP can significantly impact the regressions' outcomes. To this end, we use the Two-Stage Least Squares (TSLS) instrumental variables approach. Following Benlemlih and Girerd-Potin (2017), we use the industry average of CSR performance in each year for each country (*CSR_Instrument*). Table 8 reports Model (1) using TSLS. Column (1) shows that the results remain qualitatively unchanged. At the bottom of this column, we can see that the Sargan's *J* is shown to be insignificant, confirming that the instrumental variable is valid. Cragg–Donald *F* with the value of 36,676.26 also confirms that the instrument is not weak. Finally, the difference of restricted and unrestricted J stats is shown to be significant, representing that there is an endogeneity problem.

Controlling Causality Concern

We contemplate that if CSR performance can create a buffer against the pandemic, it can also mitigate the negative impact of other exogenous crises. To ensure that the results we obtain are not casual, we analyze the mitigating role of CSR performance during other systematic crises as well. To this end, we direct our focus on another systematic global crisis in this century—the 2008–2009 financial crisis, "…period during which public trust in corporations, capital markets, and institutions declined unexpectedly." (Lins et al., 2017, p. 1786). Before the current health crisis, this crisis was widely considered the worst economic disaster since the Great Depression of 1929. Thus, this disaster can be considered as an alternative event to mitigate the concern of causality. To this end, we use Model (1) while this time we replace *Health_Crisis* with *Financial_Crisis* which is a dummy variable and takes the value of one for the years 2008 and 2009. We expand our previous time frame to include the crisis. Moreover, we also re-estimate this model using TSLS with the instrument of *CSR_Instrument*. Columns (2) and (3) of Table 8 report SLS and TSLS regressions of this model. The columns show that *Financial_Crisis* loads negatively while *CSR_ESG* and *CSR_ESG*×*Financial_Crisis* load positively,

Table 8 Regression of CFP on CSR performance, the 2008–2009 financial crisis, COVID-19: robust to TSLS

	(1)	(2)	(3)
CSR_ESG	0.185**	0.349***	0.352***
	(2.263)	(8.472)	(8.101)
Health_Crisis	− 0.566***		
	(− 2.871)		
Financial_Crisis		− 0.353***	− 0.487***
		(− 7.746)	(− 9.472)
CSR_ESG × *Health_Crisis*	1.138***		
	(3.356)		
CSR_ESG × *Financial_Crisis*		0.267***	0.194**
		(3.101)	(2.031)
Assets	− 0.053**	− 0.114***	− 0.087***
	(− 2.713)	(− 14.782)	(− 12.671)
Leverage	− 0.193**	− 0.003	− 0.167***
	(− 2.476)	(− 0.048)	(− 3.487)
Age	− 0.002	0.014*	0.012
	(− 0.153)	(1.728)	(1.487)
R&D	0.776***	1.509***	1.054***
	(3.328)	(6.246)	(4.533)
SGA_Exp	− 0.002	− 0.067**	− 0.103***
	(− 0.074)	(− 2.04)	(− 3.116)
Cap_Exp	− 0.167**	− 0.133***	− 0.125***
	(− 2.437)	(− 3.89)	(− 3.472)
GDPGrowth	2.139	− 3.25***	3.199***
	(1.602)	(− 11.11)	(6.372)
Inf_Rate	1.892	3.136***	8.789***
	(1.085)	(5.909)	(13.845)
Lend_Rate	− 1.247**	− 4.477***	− 4.35***
	(− 2.112)	(− 6.897)	(− 8.922)
ADRI	0.014	0.073	0.086***
	(0.651)	(0.943)	(3.855)
LaborRegulation	− 0.193	− 0.09	− 0.72***
	(− 0.57)	(− 0.096)	(− 4.675)
HumanRights	0.044	− 1.239***	0.223***
	(0.347)	(− 4.13)	(3.986)
COVIDStringency	0.291***	0.256***	0.072
	(3.294)	(6.062)	(1.61)
Constant	1.092***	2.672***	1.61***
	(3.008)	(5.608)	(10.873)
F		1937.277***	
R^2	73.71%	74.20%	72.99%
Adjusted R^2	73.67%	74.16%	72.95%
DW	1.642	1.588	1.759
N clusters	5353	5452	5391
N	33,439	37,315	37,017
Instruments validity test			
(unrestricted) *J*	3.1546		2.2979
Prob *J*	0.2065		0.1295
Endogeneity test			

Table 8 (continued)

	(1)	(2)	(3)
Restricted *J*	7.9170		6.6027
Difference in *J*s	4.7623**		4.3047**
Instruments weakness test			
Cragg–Donald *F*-stat	36,676.26		32,676.36

*p value < 10%, **p value < 5%, and ***p value < 1%. Country, sector, and year dummies are included in the regressions. Firm-clustered, heteroskedasticity-robust *t*-statistics are reported in parentheses. See Appendix 1 for variables definitions

denoting that CSR performance mitigates the negative association between the financial crisis and CFP. Thus, these findings lower the concern that the outcomes of this study are casual, confirming that the level of CSR can create a buffer against an exogenous shock—whether it be a health crisis or a financial crisis.

Conclusion and Discussion

Having affected almost every individual's life on earth, COVID-19 is regarded as the greatest shock of the recent century. Attempting to figure out what strategies could help companies to survive during the pandemic, we find that the insurance-like mechanism of CSR performance helps socially responsible companies to create a shield against the adverse effects of the pandemic. This finding shows that CSR activities are insurance premiums paid by socially responsible firms to protect them when they confront a global adverse event, representing that the insurance-like mechanism does not work only against firm-specific events, rather, it works even in the face of global events. Next, we observe that the social capital further pays off and generates greater benefits in such an unexpected period as compared to the environmental and governance pillars. This highlights the importance of the salience theory in the era of the pandemic and provides novel evidence to put the aspect of the "S" influences back into the CSR literature (see, Aguilera et al., 2007). It also highlights the challenges expressed by Wickert (2021). Wickert (2021) argues that COVID-19 has posed several challenges to CSR including reconsidering the role of employees and companies' activities in their interest (e.g., retaining employees) or at their expense (e.g., laying off employees). Our findings advocate these challenges by showing that the social aspect of CSR performance is the main driver of the buffering effect. Finally, we find that highly committed socially responsible firms with very high levels of CSR performance enjoy the greatest buffering effect and the strongest link between CSR and firm value as compared to those with moderate and very low levels, showing that stakeholders give the highest price only to CSR activities of highly committed firms. It implies that there are certain CSR performance thresholds to which companies should reach in order to maximize the benefits of their investments and these insurance premiums.

Our study is also subject to several limitations, while we contemplate that the following limitation is the most noticeable one. Literature believes that stakeholders from different countries might respond differently to CSR activities. Benlemlih and Girerd-Potin (2017) argue that the insurance-like mechanism of CSR performance in those countries that are oriented toward stakeholders works better as opposed to shareholder-oriented countries. Although we control this effect by including country-level control variables capturing the orientation of the country towards stakeholders and shareholders, future studies could compare the buffering effect of CSR performance against the pandemic between stakeholder and shareholder-oriented countries. Also, since Jia et al. (2020) confirm that managers intentionally invest in CSR activities to create resilience, we think that our findings will be of great interest to those managers who regularly engage in strategic behavior. Our findings, therefore, encourage them to consider CSR investments as an insurance premium that will pay off when they confront unexpected systematic shocks. Finally, though our study provides incentives for companies to give greater weight to primary stakeholders' interests to enhance the risk management benefits of CSR investments, we respond to the call of Du et al. (2022) for the concern about ethical implications of CSR research and suggest those companies that might be encouraged by the findings to become more oriented towards primary stakeholders that this enhanced risk management benefits might cause unintended negative effects to secondary stakeholders interests which is not investigated in the current study. Therefore, future studies should take into account the probable concern and investigate if channeling greater financial resources into activities in the interests of the primary stakeholders threatens secondary stakeholders' benefits.

Appendix 1: Variable definitions

Variable	Definition
Panel A. CSR-related continuous variables	
CSR_ESG	The overall CSR score based on the environmental, social, and corporate governance pillars performance. We collect it from the ASSET4 using the code TRESGS
CSR_G	The governance pillar of CSR performance. We collect it from the ASSET4 using the code CGSCORE
CSR_E	The environmental pillar of CSR performance. We collect it from the ASSET4 using the code ENSCORE
CSR_S	The social pillar of CSR performance. We collect it from the ASSET4 using the code SOSCORE
CSR_CGBD	Sub-pillar of *CSR_G* that represents a company's commitment and effectiveness towards following best practice corporate governance principles. We collect it from the ASSET4 using the code of TRESGCGBDS
CSR_CGSR	Sub-pillar of *CSR_G* that represents a company's effectiveness towards equal treatment of shareholders and the use of anti-takeover devices. We collect it from the ASSET4 using the code of TRESGCGSRS
CSR_CGVS	Sub-pillar of *CSR_G* that represents a company's practices to communicate that it integrates the economic (financial), social and environmental dimensions into its day-to-day decision-making processes. We collect it from the ASSET4 using the code of TRESGCGVSS
CSR_ENER	Sub-pillar of *CSR_E* that represents a company's commitment and effectiveness towards reducing environmental emission in the production and operational processes. We collect it from the ASSET4 using the code of TRESGENERS
CSR_ENPI	Sub-pillar of *CSR_E* that represents a company's capacity to reduce the environmental costs and burdens for its customers, and thereby creating new market opportunities through new environmental technologies and processes or eco-designed products. We collect it from the ASSET4 using the code of TRESGENPIS
CSR_ENRR	Sub-pillar of *CSR_E* that represents a company's performance and capacity to reduce the use of materials, energy, or water and to find more eco-efficient solutions by improving supply chain management. We collect it from the ASSET4 using the code of TRESGENRRS
CSR_SOCO	Sub-pillar of *CSR_S* that represents a company's commitment towards being a good citizen, protecting public health, and respecting business ethics. We collect it from the ASSET4 using the code of TRESGSOCOS
CSR_SOHR	Sub-pillar of *CSR_S* that represents a company's effectiveness towards respecting the fundamental human rights conventions. We collect it from the ASSET4 using the code of TRESGSOHRS
CSR_SOPR	Sub-pillar of *CSR_S* that represents a company's capacity to produce quality goods and services integrating the customer's health and safety, integrity, and data privacy. We collect it from the ASSET4 using the code of TRESGSOPRS
CSR_SOWO	Sub-pillar of *CSR_S* that represents a company's effectiveness towards job satisfaction, healthy and safe workplace, maintaining diversity and equal opportunities, and development opportunities for its workforce. We collect it from the ASSET4 using the code of TRESGSOWOS
CSR_Instrument	The industry average of CSR performance (*CSR_ESG*) in each year for a given country
Panel B. CSR-related dummy variables	
CSR_HighInClass	A dummy that takes one if *CSR_ESG* is higher than the median in each country-industry-year group
CSR_LowInClass	A dummy that takes one if *CSR_ESG* is lower than the median in each country-industry-year group
CSR_BestInClass	A dummy that takes one if *CSR_ESG* is the top 10% in each country-industry-year group
CSR_MidInClass	A dummy that takes one if *CSR_ESG* is neither the top 10% nor the bottom 10% in each country-industry-year group
CSR_WorstInClass	A dummy that takes one if *CSR_ESG* is the bottom 10% in each country-industry-year group
Panel C. Independent dummy variables	
Health_Crisis	A dummy that takes one for the year 2020 and zero otherwise
NormalTimes	A dummy that takes one for the years other than 2020 and zero for the year 2020
PostHealth_Crisis	A dummy that takes one for the year 2021 and zero otherwise
PriorHealth_Crisis	A dummy that takes one for the years preceding 2020 and zero otherwise
Financial_Crisis	A dummy that takes one for the years 2008 and 2009

Variable	Definition
Panel D. Dependent variable and the variables capturing firm characteristics	
Tobin's Q	The ratio of market value of equity (WC08001) to book value of assets (WC02999)
Assets	Natural logarithm of total assets (WC02999)
Leverage	The ratio of total debt (WC03255) to total assets (WC02999)
Age	Natural logarithm of firm age. We use WC18273 (incorporation date) if WC18272 (founding date) is not available
R&D	Research and development expenditures (WC01201) scaled by total sales (WC01001)
SGA_Exp	Selling, general, and administrative expenditures (WC01101) scaled by total sales (WC01001)
Cap_Exp	Capital expenditures (WC04601) divided by total sales (WC01001)
Panel E. The variables capturing country characteristics	
GDPGrowth	Annual growth in gross domestic product. We collect it from the World Bank
Inf_Rate	Inflation rate that is collected from the World Bank
Lend_Rate	Lending or interest rate that is collected from the World Bank
ADRI	Anti-director rights index is a measure of shareholder protection collected from Spamann (2010)
LaborRegulation	A measure of labor rights protection. This variable is the average of employment laws, social security laws, and collective relations laws. Employment laws is a measure of the protection of labor and employment based on (I) alternative employment contracts, (II) cost of increasing hours worked, (III) cost of firing workers, and (IV) dismissal procedures. Social security laws is a measure of social security benefits based on (I) old age, disability, and death benefits, (II) sickness and health benefits, and (II) unemployment benefits. Finally, collective relations laws is a measure of the protection of collective relations based on (I) labor union power and (II) collective disputes. We gather these indices from Botero et al. (2004)
HumanRights	An index for human rights protection which is a measure of 37 criteria based on the rights enumerated in the three major U.N. treaties: 1948 Universal Declaration of Human Rights, 1996 International Covenant on Civil and Political Rights, and International Covenant on Economics, Social, and Cultural Rights. We collect it from La Porta et al. (2004)
COVIDStringency	An index recording the strictness of government policies on COVID-19 is gauged based on: (I) school closures, (II) workplace closures, (III) cancelation of public events, (IV) restrictions on public gatherings, (V) closures of public transport, (VI) stay-at-home requirements, (VII) public information campaigns, (VIII) restrictions on internal movements, and (IX) international travel controls. We collect it from Hale et al. (2021)

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Declarations

Conflict of interest There is no conflict of interest to declare.

Ethical approval This article does not contain any studies with human participants or animals performed by any of the authors.

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