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CSR and firm value: is CSR valuable during the COVID 19 crisis in the French market?

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Abstract
This study examines the impact of the COVID-19 outbreak on the French stock market and investigates whether companies with a commitment to corporate social responsibility (CSR) were less affected. Examining a sample consisting of 464 French firms, we separate firms that have implemented CSR activities around the event period (considered as active CSR adopters) from CSR-adopters (firms that did not indulge in CSR activities around that period) and non-CSR adopters. The empirical results indicate that active CSR adopters were less affected as some positive returns have been observed around the event date, indicating that their stock prices were relatively resistant to the crisis. The multivariate analysis shows that the French market reacted significantly to CSR strategy and that active CSR adopters are the least affected.

Keywords Corporate social responsibility · Firm value · Stock returns · COVID-19 · Event study

JEL Classification M20 · G10 · G14 · G32

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1 Introduction

The COVID-19 crisis, as opposed to previous crises, is the great health challenge of this century. The other crises have rather economic consequences. However, COVID-19 has economic consequences whose causes are different but also have important social effects (disruption of employment, mass unemployment, and reduction of working hours in the labor market) (Kolnhofer Derecskei & Nagy, 2020). In these circumstances, the concept of CSR takes on its full meaning, as social expectations of the company increase (García-Sánchez & García-Sánchez, 2020). According to Morgan Stanley Institute for Sustainable Investing, 79% of investors were interested in CSR investment during the pandemic, emphasizing the importance of such investment during this turbulent period. In this case, firms address CSR issues to align with their mandate to shareholders (Calvin & Street, 2020).

Alongside, much research has been carried out and shown that such investment is valuable and protects firm value. For example, investors, especially those with a long-term vision, rewarded firms with responsible strategies on climate change during the COVID-19 shock (Garel & Petit-Romec, 2020). Moreover, CSR investment affected stock returns during this turbulent period (Qiu et al., 2021). Similarly, investors' sensitivity is greater during the crisis period, and their perception of companies that invest in CSR activities during this crisis will positively affect their valuation (Palma-Riuz et al., 2020). Thus, because the global widespread of the pandemic is more pronounced, the urgent implementation of more strategic CSR is required for at least two reasons (He & Harris, 2020). *First*, CSR may give insurance value by safeguarding firm shareholders' wealth (Zhai et al., 2022). Firms that participated in CSR actions reduced company risks (Ziogas & Metaxas, 2021). As a result, CSR may be a strong instrument in helping a firm to respond to the crisis. *Second*, socially responsible (SR) firms are more resilient during the pandemic (Khanchel & Lassoued, 2022b); therefore, this may counterbalance the negative effects of this crisis and are likely to be less affected by COVID-19 (Huang et al., 2020; Zhao, 2021).

However, firms could only mitigate the effects of the crisis if they had embraced CSR before the crisis (CSR adopters). In addition, firms may increase CSR investment during COVID-19 (considered as active CSR adopters) for a variety of reasons such as the short-term results (instrumental utilitarianism), stakeholders' pressure (relational), and/or the good of society (deontological).

In this regard, few studies have investigated CSR as a response to uncertainty and the health crisis, as well as the impact of business commitment to CSR on firm returns (Albuquerque et al., 2020; Qiu et al., 2021; Zhai et al., 2022). However, no studies have investigated the link between CSR and market reaction during the pandemic by considering CSR strategy (CSR adopters, active CSR adopters, non-CSR adopters).

Focusing on the COVID-19 pandemic, this study intends to give important empirical evidence by determining whether the stock prices of SR firms (CSR adopters and active CSR adopters) are relatively resistant to shocks during this turbulent period. Using the event study method, we examine 464 French firms and consider January 24, 2020, as the event date (the date when the first COVID-19 case was

discovered in France). The sample period of CSR activities spans from January 24, 2020, to February 29, 2020, to include enough data on possible CSR activities that could affect the market.

To our knowledge, this study is the first to examine cross-sectional stock price responses to COVID-19, shedding light on how markets react to different CSR strategies. Previous studies have tested other aspects of market reaction to the COVID-19 crisis, such as the interaction of changes in growth expectations and uncertainty (Alfaro et al., 2020; Gormsen & Koijen, 2020; Landier & Thesmar, 2020), the impact of firm financial decisions and policies (Acharya & Steffen, 2020; Gormsen & Koijen, 2020; Landier & Thesmar, 2020), industry effect and social distancing (Pagano et al., 2021), firm resilience (Albuquerque et al., 2020), the role of news and tweets about COVID-19 (Croce et al., 2020), and the role of corporate governance (Ding et al., 2020).

Our study attempts to contribute to the CSR literature during crises in different ways. *First*, and to the best of our knowledge, our study is the only one to distinguish between CSR adopter firms and active CSR adopter firms to examine the differences in market performance between the two groups. *Second*, our study examines the resilience of SR firms using stock market reactions during the COVID-19 pandemic. *Third*, this study is among the first to assess the impact of CSR on abnormal returns in France. Indeed, few recent studies have examined the consequences of CSR in this context (e.g., Garel & Petit-Romec, 2021).

The results of the univariate analysis show that active CSR adopters (firms engaged in SR activities around the date of the first outbreak in France) had significantly less impact on stock prices than CSR adopters (firms with a CSR implementation strategy that did not indulge in CSR activities around that period). We also found that the outbreak announcement was not significant for non-CSR adopters before the date of the announcement but significant after. Our results hold when we further examine different event windows. Moreover, the multivariate analysis shows that active CSR adopters are the least affected, then CSR adopters, and finally non-CSR adopters. Thus, our findings add to the debate on whether firms should invest in CSR during tough times. Although investing in CSR may appear costly in times of a health crisis, stock market gains should justify the expenditure because capital markets are equally crucial for firms' capacity to endure the crisis.

The rest of the paper is structured as follows; the following section presents the background of the study. The third section presents our theoretical framework and develops the research hypotheses. The fourth section describes the data, defines the variables, and presents the research design. The fifth section discusses the results, and the last section concludes the paper.

2 Background: CSR and Covid crisis in France

Compared to other countries, especially the United States and the United Kingdom, France took the lead in the field of CSR between the mid-1970s and mid-1980s, scoring improvements through law. France was a pioneer in enforcing corporate social reporting, enacting laws requiring the "Bilan social" (Law on Social

Reporting, 1977, Article L. 438-1) in 1977. This reporting included 134 items and indicators including employment, income, safety and health, training, workplace conditions, and labor relations. This law on mandatory social reporting was a first step towards shaping CSR reports, laws and practices in France.

In 2001, the Law on New Economic Regulations (NER law) was enacted by the French legislator, which expanded the scope of reporting and changed its reading to upgrade the 1977 law on the "Bilan social." This law addresses not just labor issues, but also the influence of business on the environment, which had been considered (but not implemented) in France as early as the late 1970s. According to this law, listed firms have to be more responsible toward citizens and provide them with social and environmental consequences of their activities in annual reports. This requirement is consistent with the triple bottom line notion created by Anglo-Saxon scholars and France is in the lead when adopted this law.

Later, several regulations have been passed to encourage corporate philanthropy (1987, 1999, 2002); yet their influence is usually seen as rather minimal (Halba, 2003; Morel, 2003). The 1987 legislation explicitly emphasized the State's primary role in providing for the general interests of society by noting that the statute's purpose is to "engage the firm rather than disengage the State" (Halba, 2003). The social modernization law (Law on Social Modernization, 2002) seeks to broaden the practice of "philanthropy of competence." This law is intended to encourage firms to look beyond credentials and degrees and formally acknowledge the skills, knowledge, and experience that individuals gain through working in a variety of settings, including volunteer social work.

A few years later, the idea of CSR, which combines environmental, social, and economic dimensions, has gained an increased attention in the European continent, particularly in France. Thus, France has adopted many significant CSR rules and charters. In 2005, France put at the top of the hierarchy of standards a national environmental charter focused on the protection and preservation of the environment through economic development and social progress. With this charter, France showed its commitment to the environmental issue. Moreover, by bringing together all the stakeholders, the meetings and debates organized in France since 2007 have led to the Grenelle 1 and 2 laws, adopted respectively in 2009 and 2010, and to the law on energy transition for green growth in 2015. On March 27, 2017, the Corporate Duty of Vigilance Law went into effect aiming to prevent serious abuses of human rights. The legislation applies to a small number of French-based firms as well as a small number of multinational firms situated outside of France with significant French subsidiaries. Moreover, in the same year, France implemented the EU Non-Financial Reporting Directive (the "NFRD") according to which companies with a management report that exceeds certain size criteria must include a statement on non-financial performance. Until a few years ago, the state still plays a vital role by enacting new legislative laws that have broadened the scope of CSR. For example, in September 2018, France approved a gender pay equity law to close the wage gap between male and female employees. In April 2019, The French Parliament passed the PACTE Law (the Action Plan for Business Growth and Transformation). The PACTE Law, among others, revised the French Civil and Commercial Codes

to specifically consider social and environmental concerns in the management of French firms.

Pandemic-wise, France was one of the most hit countries. The first COVID-19 case in both Europe and France was discovered in Bordeaux on January 24, 2020. It has so far afflicted over 7 million people and resulted in over 120 000 deaths. The International Monetary Fund (IMF) shows that the French GDP has decreased by almost 10% (as of October 2020). COVID-19 has had a greater economic impact than previous endogenous and severe disasters in France (Malliet et al., 2020). France's GDP contraction is the country's first recession since World War II. Travel restrictions, for example, reduced France's travel and tourism sector's contribution to the French economy by 48.8%. As a result, 193,000 jobs were lost in that industry alone. Nationally, the impact of COVID-19 on poverty in France may be seen in a rise in the country's unemployment rate reaching 9.1% in the third quarter of 2020, a 2-year high. However, in the first quarter of 2021, the unemployment rate fell to 8.1%. Online sales, on the other hand, have been on a roll since April 2020. For the tourism sector, news are not good. Because of the series of lockdowns in 2020, the hotel industry's occupancy rate has dropped to 14.6% in April 2020. The pandemic's acceleration, and eventually the containment measures and limits put in place to curb its spread, caused substantial and severe disruptions in the European financial markets. As the coronavirus spreads throughout Europe and the world, its influence on the Paris stock exchange, particularly the CAC 40 index, is significant. The CAC 40 index fell around 300 points from January 24, 2020, upon the discovery of the first case in France. Moreover, the CAC 40 index was at 6,600.66 points as of June 11, 2021. On March 12, 2020, the Paris stock market had its largest decline in history.

3 Theoretical framework: why market reactions following CSR practices are different during the COVID-19 crisis?

COVID-19 may be linked to the Black Swan event as it is an extraordinary shock of an unexpected magnitude that has a dramatic effect on destabilizing the economic, social, and health dynamics of our society (Yarovaya et al., 2021). Associating COVID-19 with the Black Swan can help understand why the financial market reacts to new CSR investments, previously not so sensitive to such investments. COVID-19 is assimilated to the Black Swan event as the three properties of such events apply in this crisis which are rarity, extreme impact, and retrospective predictability (Taleb, 2007). These properties push firms to take any investment that is useful to overcome the crisis and avoid negative reactions from the market (Akhtaruzzaman et al., 2022). For many reasons, CSR investments are the solution.

Thus, we draw insight into the specific features of this crisis, CSR strategies, and the pitfalls of valuation during this turbulent period to explain these reasons and to develop our theoretical framework.

First, several distinct features of this crisis are worth mentioning. The pandemic has a multi-faceted nature with health, economic and social dimensions that has affected almost all countries, and more than half have experienced a

lockdown with severe measures (Lassoued & Khanchel, 2021). Consequently, the global economy is threatened by what seems to be the most serious economic crisis of this century (OECD, 2020). Moreover, there are several challenges specific to the COVID crisis. *First*, this crisis needed an urgent and immediate response as countries have taken several control measures to limit the spread of the virus. *Second*, this crisis is unpredictable and has generated social problems with important social consequences. An accurate assessment of these consequences is not possible and depends on several factors (micro, macro, and global factors). *Third*, vulnerability of stakeholders and inequalities have increased. Thus, the challenges of this crisis are different from those of previous crises and include the protection of vulnerable people and fighting inequality. Therefore, CSR activities aim to contribute to addressing these challenges. In addition, the COVID-19 outbreak turns the Black Swan into a global challenge and opportunity. Accordingly, the COVID-19 crisis has a bright side not identified during previous crises and offers many opportunities. The resilience of firms has increased (Khanchel & Lassoued, 2022b). Resilient firms are those able to perceive, avoid, absorb, adapt to and recover from environmental conditions that could threaten their survival. The decline in stock prices of firms with more active CSR activities is smaller than that of other firms during the COVID-19 crisis (Ding et al., 2021). In this sense, previous studies highlight that higher ESG awareness is strongly associated with better creditworthiness (Borgi et al., 2022) and more crisis-resilient economies (Boubaker et al., 2020).

Second, the role of CSR, as a determinant of market reaction, may have changed more fundamentally with COVID-19. The perceived value of CSR investment has changed at least in the short term. CSR has different objectives during the health crisis than in previous crises. One of the objectives is to strengthen the social pillar and focus largely on the well-being of stakeholders and especially the community (through an increase in donations, charity, and disaster relief initiatives….) (He & Harris, 2020), employees (by avoiding layoffs, offering flexible working hours, providing paid sick leave, increasing health and workplace safety compensation….), and customers (increasing the prevention of virus transmission among customers, enhancing the supply of basic commodities during the lockdown….) (Boubaker et al., 2022). These measures strengthened the resilience of companies, which gained investor confidence and achieved fewer negative returns during this crisis (Qiu et al., 2021). During the COVID-19 crisis, CSR has also "an insurance function that mitigates the negative impact" (Khanchel & Lassoued, 2022b; Qiu et al., 2021). Companies that are engaged in CSR even before this crisis will suffer fewer losses, be more resilient, and take less time to recover from the pandemic, in contrast to companies that had little or no CSR activities (Huang et al., 2020). Moreover, CSR during the pandemic has brought many benefits to the firm such as enhancement of reputation, profits, increased employee satisfaction, and opportunities to redefine trust between companies and society (Liu et al., 2021; Qiu et al., 2021). In addition, homophile links are strong in SR firms during this crisis leading investors to exchange information which affects their valuation in the capital market. However, an alternative hypothesis can be developed. In times of crisis, CSR investments for stakeholders are cut (Flammer & Ioannou, 2021). Thus, because of their high cost,

CSR investments during the COVID-19 crisis are limited (Qiu et al., 2021). Therefore, investors accept decisions that harm stakeholders but are necessary for the survival of the company. Investors tolerate this even if the firm's long-term success is threatened. According to this hypothesis, companies that are less committed to CSR during the health crisis may have fewer negative returns. However, still it needs to be looked at in the long run because of the benefits of CSR during the pandemic period (Krajewski et al., 2021).

Third, during COVID-19 there are many pitfalls of pricing in the stock market. The first pitfall *is* fear of the unknown. COVID-19 has been initially denoted as an unknown crisis leading to unseen trouble in investors' behavior. Unknown risks appeal more to investors' attention than regular events do. With time, this fear fades away because the sense of threat decreases. The second pitfall is the neglect of competing risks and especially financial risk. COVID-19 has become an overwhelming risk. Investors are more focused on threat and neglect many salient risks and factors (SR or not) that can affect their valuation. Saving lives is the priority and all else can wait. Thus, prominent threats deflect investor attention from other risks and from implementing CSR actions. The third pitfall is that no clear feedback is provided. Investing in stocks requires reliable follow-up. However, during this crisis scrutinizing is rapidly fluctuating and updates are unstable. COVID-19 is unsettling because its effect is not uniform, and its consequence needs a protracted wait. These features are the antithesis of market efficiency. Investors, even those interested in stocks of SR firms, should urge caution against acting on daily epidemic reports because random volatility might be mistaken for a real trend. An additional pitfall is that a status quo bias abounds. During the health crisis, most of the investors are reluctant to change and aim to maintain the status quo. They favor recouping losses rather than investing in stocks leading to high outcomes (especially those of SR firms). An additional pitfall is hindsight bias. COVID-19 will eventually subside. At that point, hindsight bias will lead investors to castigate SR firms that have over-reacted or under-reacted leading to less or overvaluation. The bandwagon effect is another pitfall. Investors' behavior is heavily influenced by what other investors are doing, regardless of their own beliefs. To mitigate risk, investors follow the majority and buy stocks of SR firms which lead to a panic buying behavior. The normalcy bias is the final pitfall. The behavioral impact of CSR investment depends on the quantity and quality of engagement. On the one hand, CSR can decrease risk perception during the pandemic and encourage protective behaviors mostly through social actions. Better engagement exacerbates the normalcy bias of investors, i.e. the optimistic underestimation of risk perception. On the other hand, it can also have the opposite effect by inundating investors with an over-abundance of information that makes it difficult to separate substantive engagement from symbolic one. This can cause a cognitive overload that exacerbates the normalcy bias. Thus, if investors can identify symbolic CSR engagement during this crisis, they may take excessive or misguided protective measures in the stock market. Thus, awareness of pricing pitfalls might help to make things little easier.

Overall, these arguments imply that firms cater to diverse groups of stakeholders during the health crisis through CSR and might account for market reaction. Therefore, we argue that, in such adverse economic, social, and health conditions, CSR

engagement would not affect the return of all stocks equally. More specifically, our study examines whether firm valuation differs across CSR adopter firms, non-CSR adopters, and active CSR adopters during the COVID-19 crisis. Then, the following hypothesis is formulated:

H1 *There are differences in firm valuation between non-CSR-adopters, CSR-adopters, and Active CSR-adopters.*

Under this hypothesis, firm value will not be the same across the three different groups. Specifically, we expect to find high (low) firm valuation for firms with CSR strategies and those actively engaged in CSR activities around the pandemic period compared to non-CSR adopters.

4 Sample selection and variables measurement

4.1 Sample

In this paper, we seek to determine the effect of CSR adoption and changes in the stock market during the COVID-19 crisis, the intensity as well as the direction of the potential impact. To do so, we use historical stock price data for listed companies on the French market, for which we divide the sample of firms into three groups, CSR-Adopters, Active CSR-Adopters, and Non-CSR Adopters.

The sample consists of 464 French-listed firms. Financial firms are excluded.[1] Then, the sample is divided into two main groups, non-CSR adopters and CSR adopters, consisting of 389 and 75 firms respectively. We base the selection into these groups on their ESG scores extracted from the Thomson Reuters Datastream dataset. Companies with ESG scores in 2020 (a non-zero score) are included in the CSR adopters group, and companies without ESG scores (or with a zero score) are included in the non-CSR adopters group.

The definition of these two groups is based on the role of ESG and is not biased because ESG is important nowadays (Dabbebi et al., 2022; Khanchel & Lassoued, 2022a). Firms are moving to ESG to remain competitive as pressures from stakeholders are growing significantly (Lassoued & Khanchel, 2022). The role of ESG information has transformed and changed firms as they have become more aware that ESG disclosure is critical to portray their good reputation and thus meet stakeholders' expectations regarding the three CSR pillars. Currently, ESG information is largely valued by firms and investors and represents a good source to remain competitive (Khanchel et al., 2022; Khanchel & Lassoued, 2022a). Therefore, firms with low ESG scores are rather less engaged in CSR activities (not because of poor coverage or communication).

We used ESG scores provided by the Asset4 database of the Thomson Reuters Datastream for many reasons. *First*, as one of the providers of an aggregated score

[1] Financial firms are excluded because they are subject to more government regulations and requirements.

of ESG, it provides comprehensive coverage and is a trusted database that is commonly used by previous studies (Gallego-Álvarez & Quina-Custodio, 2017; Garcia et al., 2017). *Second*, it is designed to measure a company's transparency and objectivity towards ESG performance (Thomson Reuters, 2017). *Third*, this database is selected because of its objectivity, transparency, and reliability (Eccles et al., 2014; Garcia et al., 2017; Velte, 2017). *Fourth*, this database proceeds to an update each 2nd week which indicates the high quality of figures that can be retrieved. *Finally*, the choice of gathering secondary data from only one source added both reliability and validity (Cheng & Phillips, 2014).

For the CSR adopters group, we extracted 39 companies with CSR activities during the event period and studied this specific group. The sample period of CSR activities spans from January 24, 2020, the day the French government admitted human-to-human transmission of the virus, to February 29, 2020, to include enough data on the possible CSR activities that could have affected the market. CSR activities are hand collected from CSR active companies' official websites, media coverage, press releases and conference pages.

The sample distribution across the industry for the three sub-samples (Non-CSR Adopters, CSR Adopters, Active CSR Adopters) is presented in Table 1.

4.2 Cumulative abnormal return calculation

The variables under study are return variables, CSR variables, and control variables. To avoid outlier problems, we winsorize all variables at the 1st and 99th percentiles.

We use two variables: average abnormal return (AAR)[2] and cumulative average abnormal return (CAAR).

To estimate ARs, we use the market model written as follows:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \tag{1}$$

With Rit: Return of stock i on date t, R_{mt}: Market return on date t, ε_{it}: Random variable expressing a residual return that indicates the characteristics of stock i specific to date t and α_i and β_i: Parameters to be estimated.

Abnormal returns (AR) were determined by deducting the anticipated return from stock return, during the event window as follows:

$$AR_{it} = R_{it} - (\widehat{\alpha}_i + \widehat{\beta}_i R_{it}) \tag{2}$$

We then proceed to calculate the average abnormal returns for our target firms by calculating the arithmetic mean for all target firms' abnormal returns as follows (Barber & Lyon, 1997):

$$AAR_t = \frac{1}{N} \sum_{t=1}^{T} AR_{it} \tag{3}$$

[2] For more details, see Boubaker et al. (2014, 2015).

Table 1 Sample distribution

Sector	Sample	Non-CSR adopters	CSR adopters	Active CSR adopters
Aerospace and Defense	15	10	5	4
Alternative Energy	9	9	–	–
Automobiles and Parts	10	6	4	4
Beverages	9	7	2	1
Chemicals	11	9	2	2
Construction and Materials	12	9	3	3
Electricity	9	7	2	1
Electronic and Electrical Equipment	5	5	–	–
Fixed Line Telecommunications	4	3	1	1
Food and Drug Retailers	7	5	2	2
Food Producers	15	13	2	1
Forestry and Paper	4	4	–	–
Gas, Water and Multiutilities	4	2	2	2
General Industrials	7	7	–	–
General Retailers	23	20	3	2
Health Care Equipment and Services	28	22	6	–
Household Goods and Home Construction	11	10	1	1
Industrial Engineering	11	11	–	–
Industrial Metals and Mining	4	1	3	2
Industrial Transportation	11	8	3	3
Leisure Goods	10	9	1	–
Media	35	32	3	1
Mining	8	8	–	–
Oil and Gas Producers	5	4	1	1
Oil Equipment and Services	4	3	1	–
Personal Goods	17	15	2	–
Pharmaceuticals and Biotechnology	40	30	10	2
Software and Computer Services	78	72	6	4
Support Services	15	13	2	–
Technology Hardware and Equipment	25	22	3	–
Travel and Leisure	18	13	5	2
Total	464	389	75	39

Following previous studies (Boubaker et al., 2014, 2015; Krüger, 2015; Loipersberger, 2018), we adopt an event study method to calculate the cumulative average abnormal return (CAAR) of stocks on January 24, 2020, as the event date (t = 0). We focus on stock price reaction to the virus transmission announcement. Although one may argue that stock prices generally reacted negatively before January 24, 2020, we contend that the virus transmission announcement confirmed that COVID-19 had officially become a serious public health crisis. More specifically,

we consider an estimation period of 162 days ending 6 days before the event date. The estimation period spans from 4 June 2019 to 15 January 2020.[3]

For the different event windows, we consider windows of 5 days before and after the event as the higher one. CAAR for a 5-day window is the sum of average abnormal returns from $t = -5, \ldots, 0, \ldots, 5$. Two main reasons explain the choice of the windows span. *First*, the more days are included in the event window, the lower becomes the power of the methodology (Brown & Warner, 1980). *Second*, we restrict the estimation to up to 5 trading days before and after the event date to reduce the confounding effect of other subsequent events (COVID-19 is declared as a pandemic). Thus, operationally, we focus on the different event windows around $(-5, +5)$ in our analysis. We consider two event windows of 10 and 11 days around the event date ([− 5, +4]), [− 5, +5]) and five event windows immediately around the announcement of the transmission of the virus ([− 1, +1], [− 1, +2], [− 1, +3], [− 1, +4], [− 1, +5]).

Moving to the cumulative average abnormal return, it is calculated for every stock in each day of our event window to incorporate stock price reaction before and after the event day, because they may have an impact on the abnormal stock return and not only the day "0" itself:

$$CAAR_{(t1,t2)} = \sum_{t1}^{t2} AAR_t, \tag{4}$$

where $CAAR_{(t1,t2)}$: The Cumulative Average Abnormal Return for between dates t1 and t2. AAR_t: The Average Abnormal Return on date t.

4.3 Empirical design

Our empirical methodology consists of two stages aimed at checking the above hypothesis. In the first stage, we compare the daily AAR and CAAR for different event windows of non-CSR adopters/CSR adopters and CSR adopters/active CSR adopters to check if there are significant differences between groups and determine which firms reacted more (or less) to the COVID-19 announcement.

In the second stage, we estimate the regression model of stock returns during the COVID-19 crisis period as a function of firms' CSR group and several control variables. We take into account firms' CSR groups by including dummies for CSR adopters and active CSR adopters (the intercept captures the effect of non-CSR adopters). This approach allows us to assess whether the effect of CSR actions on abnormal returns is more pronounced for firms that implemented CSR actions during the crisis or for other SR firms but with no actions during this crisis.

We estimate the following cross-sectional regression:

$$\mathrm{AAR}_i = \beta_0 + \beta_1 CSRGROUP_i + \sum \beta_i \mathrm{CONTROLS}_i + \sum IND_DUM + \varepsilon_i \tag{5}$$

[3] Achieved returns of an individual stock is regressed on the returns of the market index in the pre-event period, the so-called estimation period.

Table 2 Summary statistics

	Mean	Std.dev	1st quartile	3rd quartile	Minimum	Maximum
AAR	− .0193	.0201	− .0031	0.00009	− 0.0414	0.090
SIZE	8.879	4.345	6.112	11.544	5.011	17.234
DEBT	0.202	3.997	0.078	0.312	0	0.876
LIQ	0.245	2.782	0.114	0.376	0	0.654
PROF	0.0706	5.234	0.0345	0.0976	− 0.0432	0.143
BTOM	0.685	0.787	0.293	0.961	0.122	2.031

This table reports the descriptive statistics for 88,160 firm-day observations from 4 June 2019 to 15 January 2020. Average abnormal return (AAR) is the average of the difference between the actual return and the normal return. SIZE is the natural logarithm of total assets. DEBT is the leverage ratio defined as the ratio of total debt to total assets. LIQ is the liquidity ratio: cash and short-term investment to total assets. PROF is the profitability ratio defined as the ratio of net income to total assets. BTOM is the book value of equity scaled by market value of equity. All variables are winsorized at the 1st and 99th percentiles

With AAR_i refers to the average abnormal returns of firm i over the event study window $[-5, +5]$; CSR group indicates ADOPT and ACTIV variables defined as follows: ADOPT: a dummy variable that takes 1 if the firm belongs to the CSR adopters group and 0 otherwise. ACTIV: a dummy variable that takes 1 if the firm belongs to the active CSR adopters group and 0 otherwise.

We control for five firm characteristics chosen from the literature (Kolaric & Schiereck, 2016; Krüger, 2015; Lassoued & Elmir, 2012) and affect the abnormal return. The accounting data are extracted from the financial statement published on 31 December 2019.

Firm size (SIZE) is measured by the logarithm of total assets; Firm debts (DEBT) are measured by total debt/total assets; Liquidity (LIQ) has as proxy cash and short-term investment/total assets; Profitability (PROF) is measured by net income/total assets; Book to market ratio (BTOM) is the book value of equity scaled by the market value of equity. A detailed presentation of variables is displayed in the Appendix.

5 Empirical results

5.1 Descriptive statistics

We present the summary statistics of our main variables and the Pearson and Spearman correlation matrix in Tables 2 and 3 respectively. CSR group variables are highly correlated therefore the regression model is used separately for the two variables (ADOPT, and ACTIV).

Although some variables were significantly correlated, we check the multicollinearity effects of the variables used in the model by examining the variance inflation factor (VIF). VIFs (reported in Table 3) indicate no evidence of multicollinearity because no VIF was higher than 10 in all models (Anderson et al., 1993; Ben Rejeb et al., 2013; Kleinbaum et al., 1998).

Table 3 Pearson and Spearman correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	VIF
(1) ADOPT	1	0.598*	0.335*	− 0.036	0.191*	0.016	− 0.032	2.53
		(0.000)	(0.000)	(0.488)	(0.000)	(0.750)	(0.540)	
(2) ACTIV	0.698*	1	0.343*	− 0.050	0.317*	0.020	− 0.078	2.87
	(0.000)		(0.000)	(0.327)	(0.000)	(0.693)	(0.131)	
(3) SIZE	0.389	0.316	1	0.016	0.193*	0.003	0.025	1.70
	(0.000)	(0.000)		(0.914)	(0.000)	(0.948)	(0.627)	
(4) DEBT	− 0.0581	− 0.0625	0.0380	1	0.214*	− 0.052	0.497*	1.46
	(0.259)	(0.224)	(0.460)		(0.000)	(0.310)	(0.000)	
(5) LIQ	0.197*	0.372*	0.209*	0.386*	1	0.018	0.087*	2.29
	(0.000)	(0.000)	(0.000)	(0.000)		(0.729)	(0.041)	
(6) PROF	0.024	0.015	0.011	− 0.029	0.024	1	0.113	1.01
	(0.631)	(0.765)	(0.830)	(0.566)	(0.632)		(0.227)	
(7) BTOM	− 0.076	− 0.145	0.111	0.481*	0.346*	0.159	1	1.35
	(0.136)	(0.054)	(0.129)	(0.000)	(0.000)	(0.758)		

This table shows the Pearson and Spearman correlation matrix. Spearman (Pearson) correlation coefficients are reported below (above) the diagonal. ADOPT is a dummy variable that takes 1 if the firm belongs to the group of CSR adopters and 0 otherwise, ACTIV is a dummy variable that takes 1 if the firm belongs to the group of active CSR adopters and 0 otherwise. SIZE is the natural logarithm of total assets. DEBT is defined as the ratio of total debt to total assets. LIQ is the liquidity ratio: cash and short-term investment to total assets. PROF is the profitability ratio defined as the ratio of net income to total assets. BTOM is the book value of equity scaled by market value of equity. All variables are winsorized at the 1st and 99th percentiles

*$p < 0.05$

5.2 Univariate analysis

5.2.1 Stock market reaction to COVID-19 outbreak: AAR analysis

To understand the impact of COVID-19 on the stock market, this study investigates the daily AARs of firms 5 days before and after the outbreak. Table 4 presents the results.

The results on the impact of the announcement of the transmission of the virus by the French government on each group are interesting. *First*, the AARs of non-CSR adopters and CSR adopters are negative. For active CSR adopters, the stock market does not show a uniform reaction. For the effect of the event on each group of firms, the effect on CSR adopters is the most important. By attributing a rank to the effect of the event on the AAR of each group, the CSR adopters group is the most affected and takes the lead, next is the active CSR adopters group. Meanwhile, the announcement of the transmission of the virus by the French government had an influence on the AAR of non-CSR adopters only the announcement day after and the days that follow.

Table 4 Daily average abnormal returns of companies and mean differences tests

Event dates	Panel A: daily average abnormal returns					
	Non-CSR adopters (I)		CSR adopters (II)		Active CSR adopters (III)	
	AAR	*t* Statistics	AAR	*t* Statistics	AAR	*t* Statistics
– 5	– 0.0011	– 0.211	**– 0.0079****	– 2.182	**– 0.007****	– 2.271
– 4	0.0008	0.145	– 0.0019	– 0.519	– 0.0031	– 0.871
– 3	– 0.0037	– 0.694	– 0.0039	– 1.088	– 0.0049	– 1.404
– 2	– 0.0066	– 0.733	**– 0.0067***	– 1.858	**– 0.0066***	– 1.868
– 1	– 0.0114	– 1.251	**– 0.0102*****	– 3.159	**0.0067*****	2.901
0	– 0.0182	– 0.946	**– 0.0139*****	– 5.027	**0.0051*****	3.955
1	**– 0.0123*****	– 2.007	**– 0.0088*****	– 3.405	**0****	2.495
2	**– 0.0154****	– 2.263	**– 0.0121*****	– 4.255	**– 0.0014*****	– 3.453
3	**– 0.0152****	– 2.418	**– 0.0126*****	– 4.207	**0.0022*****	3.598
4	**– 0.0192*****	– 2.875	**– 0.015*****	– 5.294	**– 0.0031*****	– 4.272
5	**– 0.0148*****	– 2.618	**– 0.009*****	– 4.074	**0.0033****	2.355

Event dates	Panel B: means differences			
	CSR adopters/non-CSR adopters (II–I)		Active CSR adopters/CSR adopters (III–II)	
	Difference	*Z* Wilcoxon	Difference	ZWilcoxon
– 5	– 0.0068	(0.486)	0.0009	(– 1.199)
– 4	– 0.0027	(– 0.628)	– 0.0012	(1.203)
– 3	– 0.0002	(0.353)	– 0.001	(0.961)
– 2	0.0001	(– 0.230)	0.0001	(– 0.305)
– 1	0.0012	(– 0.892)	0.0169	(– 0.055)
0	0.0043	(– 1.296)	**0.019****	(– 2.440)
1	0.0035	(– 1.002)	**0.0088*****	(– 3.363)
2	**0.0033****	(– 2.461)	**0.0107*****	(– 3.671)
3	**0.0026****	(– 1.321)	**0.0148*****	(– 4.002)
4	**0.0042*****	(– 3.011)	**0.0119*****	(– 3.699)
5	**0.0058*****	(– 3.187)	**0.0123*****	(– 4.946)

This table reports the daily average abnormal return for 5 days before the event and 5 days after. In Panel A, AARs are reported for each group of firms (non-CSR adopters, CSR adopters, and active CSR adopters). Panel B provides also the results of the mean differences tests (Z-Wilcoxon tests). The daily cumulative average abnormal return is winsorized at the 1st and 99th percentiles

***, **, and * indicate that the parameter estimate is significantly different from zero at the 1%, 5%, and 10% levels, respectively

The bold caracter indicates significant coefficients

As shown in Panel A of Table 4, for non-CSR adopters, the results show that the AARs were not significant until the announcement day. Thus, the day of the COVID-19 announcement did not significantly affect those firms. This means that

these companies managed to resist the impact of the outbreak on their stock performance and eventually financial performance.

For CSR adopters, the results of Table 4 (Panel A) show also that the AARs were significantly negative on the 5th day before the day of the outbreak, then two days before the event date until 5 days after the negative effect was maintained. Moreover, on the 5th day after the event date, the downward trend in share prices started to slow down.

For active CSR adopters, the results are interesting. AARs are negative on the 5th and 2nd day before the announcement of the virus transmission. Then, the trend becomes positive 1 day before the event and continues the day of the event. More interestingly, the day after the COVID-19 announcement, the AARs of these companies are zero. In the days following the announcement, the AARs do not follow a clear trend and oscillate between positive and negative.

Thus, we conclude that the COVID-19 outbreak significantly affected the French stock market prices for CSR adopters. The impact was smaller for companies with CSR activities during the outbreak period. Therefore, by adopting CSR activities, firms managed to reduce and relatively resist the impact of a crisis on their stock prices. Moreover, investors had more confidence in these SR firms during the stock market downturn and their share prices relatively resisted more stock price decreases than SR firms that did not implement CSR activities during this turbulent period.

The mean difference tests are reported in Panel B of Table 4. The difference in AAR between CSR adopters and non-CSR adopters is insignificant until 1 day after the event. However, from the 2nd day after the announcement of the virus transmission, the AARs of CSR adopters are significantly different from those of CSR non-adopters. This difference increases in the following days. Our results are meaningful when we compare the AAR of CSR adopters, either active or not, around the event date. From the announcement day until 5 days after, the AARs of the two groups are significantly different. This finding is not surprising because active CSR adopters have a more important insurance-like function leading to mitigating the negative impact of the event in the days following the announcement of the virus transmission.

5.2.2 Stock market reaction: CAAR event windows

To examine the impact of COVID-19 on stock returns over a short term, we chose event windows of 3–7 days, including 1 day before the event (as follows: [− 1,+1], [− 1,+2], [− 1+3], [− 1,+4] and [− 1,+5]) and two event windows of 10 and 11 days around the event date ([− 5,+4]), [− 5,+5]).

As shown in Table 5 (Panel A), the results of the five event windows immediately around the announcement of the transmission of the virus ([− 1,+1], [− 1,+2], [− 1,+3], [− 1,+4], [− 1,+5]) display significant CAAR for the three sub-samples. The results for the sub-sample of non-CSR adopters show significant negative CAAR in the event windows of [− 1,+2] and [− 1,+4].

For the event window of 10 days around the event date [− 5,+4], we found that the lowest CAAR is for CSR adopters and CSR non adopters.

For the event window of 11 days around the event date ([− 5, + 5]), the reaction of active CSR adopters is the most important, then CSR adopters and finally non-CSR adopters. An interesting result is that non-CSR adopters register significant negative results for these two event windows ([− 5, + 4] and [− 5, + 5]), even though some of them did not show significant results for the windows immediately around the announcement of the transmission of the virus. For CSR adopters, we found significant negative CAAR but lower than those reported for event windows immediately around the announcement of the transmission of the virus ([− 1, + 1], [− 1, + 2], [− 1, + 3], [− 1, + 4], [− 1, + 5]). For active CSR adopters, the negative CAARs 10 and 11 days around the event date are lower than those around 6 and 7 days ([− 1, + 4], [− 1, + 5]).

Since this study aims to compare the impact of COVID-19 on non-CSR adopters and CSR adopters and the latter and active CSR adopters, mean comparison tests are also carried out between the three-formed groups about the impact of their degree of CSR engagement on CAAR around the event.

Mean comparison tests are reported in Panel B of Table 5. The results indicate statistically significant differences between the three groups in their CAAR. On the one hand, our results show statistically significant differences between non-CSR adopters and CSR adopters in their CAAR in three event windows ([− 1, + 4], [− 1, + 5], [− 5, + 5]), leading us to conclude that 4 days after the event, CSR investment is valuable for investors as it gives insurance value in this turbulent period. On the other hand, our results indicate that CSR adopters and active CSR adopters are different in their CAAR in three event windows ([− 1, + 5], [− 5, + 4]), [− 5, + 5]).

Our result is interesting and puts in evidence the pitfall of valuation during the COVID-19 crisis. More specifically, during the four 1st days after the French government's announcement of the transmission of the virus, the fear of the unknown is important as this crisis is unprecedented. Moreover, no clear feedback is provided during the 1st days. Investors require reliable follow-up and avoid scrutinizing rapidly fluctuating and unstable returns. In addition, a status quo bias is important during the 1st days of this crisis leading investors to resist change, and therefore they are indifferent about investing in CSR adopters and non-CSR adopters or CSR adopters and active CSR adopters. The hindsight bias is also important when the COVID-19 crisis had been announced. Dynamic and contradictory data during the 1st announcement days, however, make it difficult for investors to follow a clear strategy about the possible new CSR actions to be taken at that time, and the way previous CSR strategies could be useful. In addition, a few days after the announcement, our results confirm that the bandwagon effect and normalcy bias are observable. Investors' decisions are more explained by what other investors do; investing more in SR firms. Good and active CSR engagement increases the optimistic underestimation of risk perception.

Our results highlight three important conclusions about market reaction to CSR investment. *First*, holistic, ad hoc, and spot judgments of CSR efforts have to be weighed by subsequent outcomes. *Second*, a later valuation of early active CSR action attempts has to be conducted more cautiously as the pandemic is hard to predict and difficult to manage for a few days. *Third*, the collective point of view is that, regardless of CSR engagement, companies are all in this together and it was

Table 5 Cumulative average abnormal returns for the different event windows and mean differences tests

Panel A: cumulative average abnormal return (CAAR) by group of firms

Event windows	Non-CSR adopters (I)		CSR adopters (II)		Active CSR adopters (III)	
[− 1;+1]	− 0.0419	(− 1.283)	**− 0.0329*** **	(− 19.45)	**0.0118*** **	(20.498)
[− 1;+2]	**− 0.0573***	(− 1.727)	**− 0.045*** **	(− 32.46)	**0.0104*** **	(27.912)
[− 1;+3]	− 0.0602	(− 0.545)	**− 0.0576*** **	(− 47.38)	**0.0126*** **	(35.578)
[− 1;+4]	**− 0.0794** **	(− 2.287)	**− 0.0726*** **	(− 66.70)	**0.0095*** **	(44.410)
[− 1;+5]	− 0.0942	(− 0.199)	**− 0.0816*** **	(− 84.81)	**0.0128*** **	(50.269)
[− 5;+4]	**− 0.09***	(− 1.77)	**− 0.093*** **	(− 15.99)	**− 0.0121*** **	(− 11.219)
[− 5;+5]	**− 0.1048** **	(− 1.993)	**− 0.102*** **	(− 16.21)	**− 0.0088*** **	(− 12.693)

Panel B: means differences

	CSR adopters/Non-CSR adopters (II–I)		CSR adopters/active CSR adopters (III–II)	
	Difference	*Z* Wilcoxon	Difference	*Z* Wilcoxon
[− 1;+1]	0.009	0.486	0.0447	1.239
[− 1;+2]	0.0123	0.628	0.0554	− 1.354
[− 1;+3]	0.0026	− 0.165	0.0702	− 1.546
[− 1;+4]	**0.0068** **	− 2.456	0.0821	− 1.369
[− 1;+5]	**0.0126*** **	− 2.512	**0.0944*** **	− 3.066
[− 5;+4]	− 0.003	1.125	**0.0809*** **	4.361
[− 5;+5]	**0.0028*** **	− 3.635	**0.0932*** **	− 5.015

This table reports in Panel A the cumulative average abnormal return (CAAR) by group of firms (Non-CSR adopters, CSR adopters and active CSR adopters) in different Event widows ([− 1;+1, [− 1;+2], [− 1;+3], [− 1;+4], [− 1;+5], [− 5;+4], [− 5;+5]). Panel B reports the results of the mean differences tests (Z-Wilcoxon tests). CAAR is winsorized at the 1st and 99th percentiles. t Statistics are between parentheses in panel A; Panel B provides also the results of the mean differences tests (Z-Wilcoxon tests)

***, **, and * indicate that the parameter estimate is significantly different from zero at the 1%, 5%, and 10% levels, respectively

The bold caracter indicates significant coefficients

challenging for them during the 1st days of the announcement of the transmission of the virus and might prove equally difficult to sustain for a few days after this announcement.

5.3 Multivariate analysis

In the second stage, we test the effect of being CSR adopters (as well as active CSR adopters and non-CSR adopters) on average abnormal returns. The results are presented in Table 6.

Columns (1) and (2) of Table 6 present the results of the regression on only our main variables, ADOPT and ACTIV respectively. In columns (3) and (4), we add control variables in each estimated model.

Table 6 The impact of CSR strategy on average abnormal returns: regression results

	(1)	(2)	(3)	(4)
ADOPT	0.0013** (2.134)		0.0012** (2.221)	
ACTIV		0.0084*** (4.223)		0.0079*** (4.532)
SIZE			− 0.012* (− 1.871)	− 0.011** (− 1.99)
DEBT			0.0123 (0.776)	0.0102 (0.882)
LIQ			0.0345*** (3.05)	0.0321*** (2.98)
PROF			0.0014 (1.112)	0.0011 (0.864)
BTOM			− 0.032* (− 1.94)	− 0.054** (− 1.98)
Industry dummies	Yes	Yes	Yes	Yes
N	464	464	464	464
Adj. R^2	0.143	0.156	0.202	0.281
F-Fisher	3.123***	3.356***	10.965***	11.04***

This table presents an estimation of CSR groups and control variables on average abnormal returns AAR_i during the event study period. Abnormal return is the difference between the actual return and the normal return. ADOPT is a dummy variable that takes 1 if the firm belongs to the group of CSR adopters and 0 otherwise, ACTIV is a dummy variable that takes 1 if the firm belongs to the group of active CSR adopters and 0 otherwise. Control variables include SIZE, DEBT, LIQ, PROF. SIZE is the natural logarithm of total assets. DEBT is defined as the ratio of total debt to total assets. LIQ is the liquidity ratio: cash and short-term investment to total assets. PROF is the profitability ratio defined as the ratio of net income to total assets. BTOM is the book value of equity scaled by market value of equity. Industry dummies are defined at the two-digit SIC code level. Control variables and returns are winsorized at the 1st and 99th percentiles

***, **, and * indicate that the parameter estimate is significantly different from zero at the 1%, 5%, and 10% levels respectively

Our results show that CSR adopters have the largest crisis-period returns. The difference in average abnormal returns between active CSR adopters and non-adopters, as captured by the coefficient of ACTIV, is 0.84 percentage points when we omit firm characteristics and 0.79 percentage points when we include them. The difference is lower between CSR adopters and non-CSR adopters and equal to 0.13 percentage (and 0.12% when we add control variables). Thus, we conclude that the difference in average abnormal returns between active CSR adopters and adopters is almost 0.71%.

Therefore, our results confirm our hypothesis H1: there are differences in market valuation between non-CSR-adopters, CSR-adopters, and active CSR-adopters. Accordingly, we can conclude that the market reaction to CSR differs according to CSR investment strategy during the COVID-19 crisis.

Then, our results confirm that active CSR adopters are more likely to overcome crises. Therefore, during the COVID-19 crisis, two main conclusions can be

formulated. *First*, CSR acts as insurance-like protection and provides a reservoir of goodwill. *Second*, rapid and true CSR actions can lead to winning the trust of investors by decreasing fear, anxiety, and a lack of existential security. Moreover, our results are in line with those of Lins et al. (2017), leading us to conclude that social capital developed through CSR investments pays off even during a health crisis as it reduces the severe negative impact of this exogenous event on stock performance.

5.4 Robustness checks

To ensure the robustness of our primary findings, several robustness tests are conducted. *First*, we re-estimate the specifications of Table 6 using, as dependent variables, AAR based on Carhart's (1997) four-factor model. As shown in Table 7, the results are quite similar to those found in our basic regression (AAR calculated based on the market model).

Second, we use cumulative abnormal return CAR_i (− 5, + 5) and CAR_i (− 1, + 1). We estimated Eq. 5 with CAR_i (− 5, + 5) and CAR_i (− 1, + 1) as dependent variables. Table 8 reports our results**.**

Estimations show a significant result for CAR (− 5, + 5). More specifically, CSR adopters and active CSR adopters have more significant abnormal returns than non-CSR adopters. However, for CAR (− 1, 1), the results are not significant. Thus, they confirm our previous conclusions; there are pitfalls of valuation during this crisis. The non-significant coefficients of CAR (− 1, 1) are mostly explained by some bias and feelings, such as the fear of the unknown, status quo bias, ….etc.

6 Conclusion

The relationship between CSR and the risk of stock price crashes remains under debate. The present study investigated this relationship through an event study method during the COVID-19 crisis by considering the CSR strategy of French firms.

To the best of our knowledge, this study is the first to examine the effect of the pandemic on French-listed firms that implement CSR and firms that do not. We further investigate this effect for firms that adopted CSR activities around the event period.

Using the event study approach, we found that the announcement date of the pandemic had significantly lower impact on stock prices of firms that engaged in SR activities around that date than of firms with a CSR strategy that did not indulge in CSR activities around that period. Some positive abnormal returns have been observed the day before the announcement, the day of the announcement, three and 5 days after.

We found also that the outbreak announcement was significant for non-CSR adopters only the day after the event day and the days that follow. However, for CSR-Adopters, the market reacted on the 5th day before the event date and 2 days before the same date, indicating that more and more of the behavior of CSR adopters

Table 7 The impact of CSR strategy on the average abnormal returns: robustness checks

	(1)	(2)	(3)	(4)
ADOPT	0.0012*** (3.551)		0.0014*** (3.365)	
ACTIV		0.0099*** (4.102)		0.0087*** (4.265)
SIZE			− 0.002 (− 1.271)	− 0.02 (− 1.031)
DEBT			0.0123** (2.058)	0.0131** (2.171)
LIQ			0.0221*** (2.95)	0.0304*** (2.77)
PROF			0.0001 (0.67)	0.0002 (0.74)
BTOM			− 0.032 (− 1.51)	− 0.054 (− 1.11)
Industry dummies	Yes	Yes	Yes	Yes
N	464	464	464	464
Adj. R^2	0.106	0.123	0.184	0.191
F-Fisher	5.644***	5.759***	19.869***	21.211***

This table presents an estimation of CSR groups and control variables on average abnormal returns AAR_i during the event study period. Abnormal return is the difference between the actual return and the normal return estimated using Carhart's (1997) four-factor model. ADOPT is a dummy variable that takes 1 if the firm belongs to the group of CSR adopters and 0 otherwise, ACTIV is a dummy variable that takes 1 if the firm belongs to the group of active CSR adopters and 0 otherwise. Control variables include SIZE, DEBT, LIQ, PROF. SIZE is the natural logarithm of total assets. DEBT is defined as the ratio of total debt to total assets. LIQ is the liquidity ratio: cash and short-term investment to total assets. PROF is the profitability ratio defined as the ratio of net income to total assets. BTOM is the book value of equity scaled by market value of equity. Industry dummies are defined at the two-digit SIC code Level. Control variables and returns are winsorized at the 1st and 99th percentiles

***, **, and * indicate that the parameter estimate is significantly different from zero at the 1%, 5%, and 10% levels respectively

is under the microscope of investors and that these latter had more confidence in CSR adopters than in non-CSR adopters. However, on the other hand, compared to CSR adopters, investors gave more attention and had more confidence in firms that applied and announced CSR activities during the event period. Thus, firms with active CSR activities managed to resist the impact of the event on their stock prices. When further examining this impact on different event windows, we found that indeed, all sub-sample were significantly affected by the pandemic, immediately around the announcement of the transmission of the virus or 10 and 11 days around the event date. Moreover, differences in returns are significant between non-CSR adopters and CSR adopters and between the latter and active CSR adopters. The multivariate analysis shows that the abnormal return reacts significantly to CSR strategy and that firms implementing CSR activities around the announcement date are the least affected. Our results lead us to conclude that during the pandemic, French listed companies are pushed to invest in CSR to preserve their stock market

Table 8 The impact of CSR strategy on cumulative abnormal returns: regression results

	CAR (− 1, 1)				CAR (− 5, 5)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ADOPT	− 0.0361 (− 1.164)		− 0.029 (− 1.22)		0.0005*** (3.901)		0.0004*** (3.23)	
ACTIV		− 0.0015 (− 1.455)		− 0.0017 (− 0.42)		0.001*** (3.76)		0.001*** (3.987)
SIZE			− 0.035*** (− 2.12)	− 0.038*** (− 2.45)			− 0.031* (− 1.85)	− 0.037* (− 1.88)
DEBT			0.0298 (1.33)	0.0356 (1.11)			0.245 (1.04)	0.183 (1.52)
LIQ			0.0421*** (2.74)	0.0505*** (2.97)			0.0456*** (3.12)	0.0488*** (4.25)
PROF			0.0518*** (3.05)	0.0678*** (3.12)			0.00432 (0.84)	0.0103 (1.31)
BTOM			− 0.0433** (− 1.97)	− 0.0521** (− 2.05)			− 0.0332** (− 1.99)	− 0.0134** (− 2.45)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	464	464	464	464	464	464	464	464
Adj. R^2	0.091	0.103	0.153	0.178	0.112	0.134	0.252	0.308
F-Fisher	3.029***	3.322***	11.687***	12.224***	3.924***	3.741***	15.632***	16.788***

This table presents an estimation of CSR strategy and control variables on cumulative abnormal returns (CAR_i). Abnormal return is the difference between the actual return and the normal return. CAR_i (− 1, 1) is cumulative abnormal returns for firm i from t = − 1, 0, 1. CAR_i (− 5, 5) is cumulative abnormal returns for firm i from t = − 5, …, 0, …, 5. ADOPT is a dummy variable that takes 1 if the firm belongs to the group of CSR adopters and 0 otherwise, ACTIV is a dummy variable that takes 1 if the firm belongs to the group of active CSR adopters and 0 otherwise. Control variables include SIZE, DEBT, LIQ, PROF. SIZE is the natural logarithm of total assets. DEBT is defined as the ratio of total debt to total assets. LIQ is the liquidity ratio: cash and short-term investment to total assets. PROF is the profitability ratio defined as the ratio of net income to total assets. BTOM is the book value ofequity scaled by marketvalue of equity. Industry dummies are defined at the two-digit SIC code Level. Control variables and returns are winsorized at the 1st and 99th percentiles

***, **, and * indicate that the parameter estimate is significantly different from zero at the 1%, 5%, and 10% levels respectively

value. Although the COVID-19 pandemic makes future profitability very uncertain, CSR actions highly feed investors' attention and appraisal.

Our findings have practical implications for firms, potential investors, shareholders, and policymakers. As returns become highly uncertain under the weight of the COVID-19 pandemic, and active CSR strategies feed investors' attention and valuation, firms should invest more in CSR when a crisis happens. Moreover, they should commit to CSR regularly to increase the effectiveness of CSR investment when a crisis occurs.

Potential investors should invest in firms that are more sensitive to bad events and react by increasing their CSR activities. Moreover, they do not have to be concerned about the extra cost of adopting CSR actions around bad events as they can be justified by the financial benefits through a less negative reaction from the market.

Shareholders should have more trust in holding the stocks of CSR adopters and those having the ability to increase their CSR engagements following health crises.

Policymakers should encourage firms to react to bad events by facilitating the implementation of new CSR actions. Policymakers have to do more to strongly promote CSR infrastructure and should find a way to support CSR-oriented firms. Thus, policymakers should move from crude regulatory and discretionary policies to more flexible CSR policies that encourage firms to implement voluntary new actions, especially in bad times. As pandemics persist and the economic costs to face health risks increase, policymakers should establish a win–win CSR-oriented strategy resulting in stronger long-run growth. Therefore, active CSR policy strategies should be integrated into the sustainable development policy framework by subsiding SR investing schemes during a turbulent period.

This study has some limitations and accordingly future research can be pursued. *First*, active CSR activities are tested without considering the nature of such activities. As the community, customers, and employees are the most affected stakeholders, it is fruitful for future research to investigate the effect of active CSR activities on each stakeholder. *Second*, CEOs' decisions are not optimal because of uncertainties about the infection and mortality rates surrounding the COVID-19 pandemic. However, we did not take into account CEOs' power as a moderator factor of the CSR actions-returns relationship. Then, it will be interesting for further studies to consider this moderating factor. *Third*, we consider a short-term event window. However, as the pandemic persists, the economic costs to face health risks increase and uncertainty is more important. To extend the findings, future studies may be carried out during the second and the following waves of the pandemic. *Fourth*, this study considers the French government's announcement of the transmission of the virus on January 24, 2020, as the event date. Thus, studying market reaction around other even dates is also useful. In this line of thought, future research can be carried out around two other negative events, separately or jointly: 11 March 2020 (COVID-19 was declared by the World Health Organization (WHO) as a pandemic) and 13 March 2020 (Europe has become the epicenter of the pandemic with more cases and deaths reported according to the World Health Organization (WHO). Finally, an intrinsic

dimension of this health crisis is also the tendency to see its positive aspects. Therefore, further study could consider market reaction to positive events: 13 March 2020 (WHO, the United Nations Foundation and their partners launched the COVID-19 Response Fund to collect donations from firms, institutions, and individuals), 31 March 2020 (The French government announced the establishment of a solidarity fund to support companies affected by COVID-19) or 11 April 2020 (WHO issued a statement committing scientists to work with the organization to accelerate the development of a vaccine against COVID-19).

Appendix

Definitions and sources of variables used in the cross-sectional regressions

Variables	Definition	Source
AARi	Average abnormal returns of firm i over the event study window [− 5, + 5] around the date of announcement of the transmission (t = 0) of the virus. Abnormal return is the difference between the actual return and the expected return, as predicted by the CAPM	Thomson Reuters Datastream and authors' calculations
CARi	Cumulative abnormal return of firm i over the event window	Thomson Reuters Datastream and authors' calculations
ADOPT	A dummy variable that takes 1 if the firm belongs to the group of CSR adopters and 0 otherwise	Thomson Reuters Datastream and authors' calculations
ACTIV	A dummy variable that takes 1 if the firm belongs to the group of active CSR adopters and 0 otherwise	Thomson Reuters Datastream and authors' calculations
SIZE	Natural logarithm of the total assets	Thomson Reuters Datastream
DEBT	The ratio of total debt to total assets	Thomson Reuters Datastream
LIQ	Cash and short-term investment to total assets	Thomson Reuters Datastream
PROF	Net income scaled by total assets	Thomson Reuters Datastream
BTOM	The book value of equity scaled by the market value of equity	Thomson Reuters Datastream

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Declarations

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References

Acharya, & Steffen. (2020). The risk of being a fallen angel and the corporate dash for cash in the midst of COVID. NBER working papers 27601. National Bureau of Economic Research, Inc.

Akhtaruzzaman, M., Boubaker, S., & Umar, Z. (2022). COVID-19 media coverage and ESG leader indices. *Finance Research Letters*. https://doi.org/10.1016/j.frl.2021.102170

Albuquerque, R., Koskinen, Y., Yang, S., & Zhang, C. (2020). Resiliency of environmental and social stocks: An analysis of the exogenous COVID-19 market crash. *The Review of Corporate Finance Studies, 9*(3), 593–621.

Alfaro, L., Chari, A., Greenland, A. N., & Schott, P. K. (2020). *Aggregate and firm-level stock returns during pandemics, in real time* (No. w26950). National Bureau of Economic Research.

Anderson, D. R., Sweeney, D. J., & Williams, T. A. (1993). *Statistics for business and economics*. West Publishing Company.

Barber, B., & Lyon, J. D., (1997), Detecting long-run abnormal stock returns: The empirical power and specification of test statistics, *Journal of Financial Economics*, *43*(3), p. 341–372.

Ben Rejeb attia, M., Sassi, H., & Lassoued, N. (2013). Signaling over income smoothing and IFRS adoption by banks: A panel data analysis on MENA countries. *Economics Bulletin, 33*(3), 2340–2356.

Boubaker, S., Cellier, A., Manita, R., & Saeed, A. (2020). Does corporate social responsibility reduce financial distress risk? *Economic Modelling, 91*, 835–851. https://doi.org/10.1016/j.econmod.2020.05.012

Boubaker, S., Cellier, A., & Rouatbi, W. (2014). The sources of shareholder wealth gains from going private transactions: The role of controlling shareholders. *Journal of Banking and Finance, 43*(1), 226–246. https://doi.org/10.1016/j.jbankfin.2014.03.025

Boubaker, S., Farag, H., & Nguyen, D. K. (2015). Short-term overreaction to specific events: Evidence from an emerging market. *Research in International Business and Finance, 35*, 153–165. https://doi.org/10.1016/j.ribaf.2014.10.002

Boubaker, S., Liu, Z., & Zhan, Y. (2022). Customer relationships, corporate social responsibility, and stock price reaction: Lessons from China during health crisis times. *Finance Research Letters*. https://doi.org/10.1016/j.frl.2022.102699

Brogi, M., Lagasio, V., & Porretta, P. (2022). Be good to be wise: Environmental, social, and governance awareness as a potential credit risk mitigation factor. *Journal of International Financial Management and Accounting*. https://doi.org/10.1111/jifm.12156

Brown, S., & Warner, J. (1980). Measuring security price performance. *Journal of Financial Economics, 8*, 205–258.

Calvin, C. G., & Street, D. L. (2020). An analysis of Dow 30 global core indicator disclosures and environmental, social, and governance-related ratings. *Journal of International Financial Management and Accounting, 31*(3), 323–349. https://doi.org/10.1111/jifm.12123

Carhart, M.M. (1997), On Persistence in Mutual Fund Performance. *The Journal of Finance, 52*, 57-82.https://doi.org/10.1111/j.1540-6261.1997.tb03808.x.

Cheng, H. G., & Phillips, M. R. (2014). Secondary analysis of existing data: Opportunities and implementation. *Shanghai Archives of Psychiatry, 26*(6), 371–375. https://doi.org/10.11919/j.issn.1002-0829.214171

Croce, M.M., Farroni, P., & Wolfskeil, I. (2020). When the markets get COVID: COntagion, viruses, and information diffusion. CEPR Discussion Papers 14674, C.E.P.R. Discussion Papers.

Dabbebi, A., Lassoued, N., & Khanchel, I. (2022). Peering through the smokescreen: ESG disclosure and CEO personality. *Managerial and Decision Economics*. https://doi.org/10.1002/mde.3587

Ding, W., Levine, R., Lin, C., & Xie, W. (2020). *Corporate immunity to the COVID-19 pandemic* (No. w27055). National Bureau of Economic Research.

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

Eccles, R. G., Ioannou, I., & Serafeim, G. (2014). The impact of corporate sustainability on organizational processes and performance. *Management Science, 60*(11), 2835–2857.

Flammer, C., Ioannou, I. (2021). Strategic management during the financial crisis: How firms adjust their strategic investments in response to credit market disruptions. *Strategic management Journal, 42*, 1275– 1298. https://doi.org/10.1002/smj.3265

Gallego-Álvarez, I., & Quina-Custodio, I. A. (2017). Corporate social responsibility reporting and varieties of capitalism: An international analysis of state-led and liberal market economies. *Corporate Social Responsibility and Environmental Management, 24*, 478–495.

Garcia, S., Mendes-Da-Silva, W., & Orsato, J. (2017). Sensitive industries produce better ESG performance: Evidence from emerging markets. *Journal of Cleaner Production, 150*, 135–14.

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

Garel, A., & Petit-Romec, A. (2020). The resilience of French companies to the COVID-19 crisis. Available at SSRN 3616734.

Garel, A., & Petit-Romec, A. (2021). Investor rewards to environmental responsibility: Evidence from the COVID-19 crisis. *Journal of Corporate Finance, 68*, 101948.

Gormsen, N. J., & Koijen, R. S. J. (2020, August 3). Coronavirus: Impact on stock prices and growth expectations. University of Chicago, Becker Friedman Institute for Economics Working Paper No. 2020-22. Available at SSRN. https://ssrn.com/abstract=3555917, https://doi.org/10.2139/ssrn.3555917

Halba, B. (2003). *Bénévolat et volontariat en France et dans le monde*. La Documentation française.

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

Huang, W., Chen, S., & Nguyen, L. T. (2020). Corporate social responsibility and organizational resilience to COVID-19 crisis: An empirical study of Chinese firms. *Sustainability, 12*(21), 8970.

Khanchel I, Bacar I, Lassoued N (2022) Sustainability and firm performance: the role of ESG disclosure and green innovation. Working paper

Khanchel, I., & Lassoued, N. (2022a). ESG disclosure and the cost of capital: Is there a ratcheting effect over time? *Sustainability, 14*, 9237. https://doi.org/10.3390/su14159237

Khanchel, I., & Lassoued, N. (2022b). Is it hard to be different during the COVID-19 crisis? Investigating the relationship between corporate social responsibility and earnings management. *International Journal of Ethics and Systems*. in press https://doi.org/10.1108/IJOES-05-2022-0102

Kleinbaum, D. G., Kupper, L. L., & Muller, K. E. (1998). *Applied regression analysis and other multivariable methods*. PWS-KENT.

Kolaric, S., & Schiereck, D. (2016). Are stock markets efficient in the face of fear? Evidence from the terrorist attacks in Paris and Brussels. *Finance Research Letters, 18*(C), 306–310.

Kolnhofer-Derecskei, A., & Nagy, V. (2020). Employee volunteerism—Conceptual study and the current situation. *Sustainability, 12*(20), 1–35.

Krajewski, M., Tonstad, K., & Wohltmann, F. (2021). Mandatory human rights due diligence in Germany and Norway: Stepping, or striding, in the same direction? *Business and Human Rights Journal, 6*, 550–558.

Krüger, P. (2015). Corporate goodness and shareholder wealth. *Journal of Financial Economics, 115*(2), 304–329.

Landier, A., & Thesmar, D. (2020, April 27). Earnings expectations in the COVID crisis. HEC Paris Research Paper No. FIN-2020-1377. Available at SSRN. https://ssrn.com/abstract=3587394

Lassoued, N., & Elmir, A. (2012). Portfolio selection: does corporate governance matter? *Corporate Governance 12*(5):701–713

Lassoued, N., & Khanchel, I. (2021). Impact of COVID-19 pandemic on earnings management: An evidence from financial reporting in European firms. *Global Business Review*. https://doi.org/10.1177/09721509211053491

Lassoued, N., & Khanchel, I. (2022). Voluntary CSR disclosure and CEO narcissism: The moderating role of CEO duality and board gender diversity. *Review of Managerial Science*. https://doi.org/10.1007/s11846-022-00555-3

Law on Social Modernisation, Law No. 2002-73. Official Journal (pp. 1008–1052).

Law on Social Reporting, Law No. 77-769 of July 12, 1977. Official Journal.

Lins, K. V., Servaes, H., & Tamayo, A. (2017). Social Capital, Trust, and Firm Performance: The Value of Corporate Social Responsibility during the Financial Crisis. *The Journal of Finance, 72*(4), 1785–1823

Liu, B., Ju, T., & Gao, S. S. S. (2021). The combined effects of innovation and corporate social responsibility on firm financial risk. *Journal of International Financial Management and Accounting, 32*(3), 283–310. https://doi.org/10.1111/jifm.12135

Loipersberger, F. (2018). The effect of supranational banking supervision on the financial sector: Event study evidence from Europe. *Journal of Banking and Finance, 91*(C), 34–48.

Malliet, P., Reynès, F., Landa, G., Hamdi-Cherif, M., & Saussay, A. (2020). Assessing short-term and long-term economic and environmental effects of the COVID-19 crisis in France. *Environmental and Resource Economics, 76*(4), 867–883.

Morel, C. (2003). Cultural democratisation in France: The business of business? *Modern and Contemporary France, 11*(1), 21–32.

OECD. (2020). The territorial impact of COVID-19: Managing the crisis across levels of government. https://www.oecd.org/coronavirus/policy-responses/the-territorial-impact-of-covid-19-managing-the-crisis-across-levels-of-government-d3e314e1/

Pagano, M., Wagner, C., & Zechner, J. (2021, November 24). Disaster resilience and asset prices. Available at SSRN. https://ssrn.com/abstract=3603666

Palma-Ruiz, J. M., Castillo-Apraiz, J., & Gómez-Martínez, R. (2020). Socially responsible investing as a competitive strategy for trading companies in times of upheaval amid COVID-19: Evidence from Spain. *International Journal of Financial Studies, 8*(3), 41. https://doi.org/10.3390/ijfs8030041

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

Taleb, N. N. (2007). *The black swan: The impact of the highly improbable* (p. 2007). Random House.

Thomson Reuters. (2017). Thomson Reuters ESG data and solutions. https://financial.thomsonreuters.com/content/dam/openweb/documents/pdf/financial/esg-research-brochure.pdf

Velte, P. (2017). Does ESG performance have an impact on financial performance? Evidence from Germany. *Journal of Global Responsibility, 8*(2), 169–178.

Yarovaya, L., Matkovskyy, R., & Jalan, A. (2021). The effects of a "black swan" event (COVID-19) on herding behavior in cryptocurrency markets. *Journal of International Financial Markets, Institutions and Money, 75*(C), 101321.

Zhai, H., Xiao, M., Chan, K. C., & Liu, Q. (2022). Physical proximity, corporate social responsibility, and the impact of negative investor sentiment on stock returns: Evidence from COVID-19 in China. *International Review of Finance, 22*, 308–314. https://doi.org/10.1111/irfi.12343

Zhao, J. (2021). Reimagining corporate social responsibility in the era of COVID-19: Embedding resilience and promoting corporate social competence. *Sustainability, 13*(12), 6548.

Ziogas, I., & Metaxas, T. (2021). Corporate social responsibility in South Europe during the financial crisis and its relation to the financial performance of Greek companies. *Sustainability, 13*, 8055. https://doi.org/10.3390/su13148055

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