CSR UNDER PRESSURE

AN ANALYSIS OF CSR AND STOCK RETURNS IN EUROPE DURING COVID-19

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Abstract:

This paper investigates whether Corporate Social Responsibility shields firm value during and after exogenous shocks, using the COVID-19 crisis as a case study. The main focus is whether firms with higher CSR scores experienced better stock performance during the crisis and the following recovery period. The study analyzes a sample of 610 public European companies, applying regressions on raw and market-adjusted stock returns for the crisis (February 19th to March 25th, 2020) and post-crisis (March 25th to June 3rd, 2020) periods. The analysis includes control variables for firm financials, Fama-French factor loadings and industry fixed effects. During the crisis, CSR is positively associated with adjusted returns, but the effect disappears once controls are introduced. In the post-crisis period, CSR is negatively and significantly associated with both raw and adjusted returns. Idiosyncratic risk shows a strong positive relationship with post-crisis returns, indicating that firms with higher risk profiles outperformed in the recovery phase.

Keywords:

CSR, COVID-19, Stock Return, ESG, Exogenous Crisis

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1. Introduction

Financial markets are inherently volatile, with crises periodically testing the resilience of firms and their investors. Recent global events, such as the COVID-19 pandemic, have intensified discussions on how companies can mitigate risk and maintain stability in times of economic distress. One area that has gained increasing attention is the Corporate Social Responsibility (CSR) investing, which promotes sustainable and ethical business practices, first introduced by Howard R. Bowen in 1953 in the book "Social responsibilities of the businessman". This paper explores how CSR commitments influence stock price behavior during crises, examining whether firms with strong CSR profiles exhibit greater resilience and recovery during and after an exogenous shock.

The coronavirus disease 2019, also known as COVID-19, was a pandemic where the first case was detected in December 2019 in China. Since the start of the pandemic more than 2 million people died in Europe as a result of the disease according to World Health Organization (n.d.). This pandemic led to a financial crisis erasing 35% of the equity value in the euro area between the peak 19th of February and 23rd of March, 2020 according to Ampudia, Baumann and Fornari (2020).

The relevance of corporate social responsibility (CSR) in financial markets has grown evidenced by a growing body of research which highlights how investor preferences have shifted in favor of socially responsible firms and the importance of CSR metrics. For instance, Hartzmark and Sussman (2019) provide empirical evidence that investors allocate more capital to sustainable mutual funds. This heightened emphasis on CSR makes it a crucial area of study, particularly in the context of evaluating its impact on firm performance and risk. The topic is relevant in the European context, as it houses countries at the forefront of sustainable company practices. Notably, Scandinavian countries dominate ESG rankings, with four nations in the region occupying the top global positions for ESG performance according to Statista (2024). This underscores the importance of examining CSR within European markets, where investor expectations and institutional pressures may amplify its financial and reputational consequences.

The previous research on how CSR affects firms both during crises and in general has been done extensively as shown in papers such as Bae, El Ghoul, Gong, and Guedhami (2021), Utz (2017), and Albuquerque, Koskinen and Zhang (2019) among others. Focus has been put on the 2008 financial crisis by Lins, Servaes, and Tamayo (2017) and Ding, Levine, Lin, and Xie (2021) along with Bae et al. (2021) who have researched and compared it to the more exogenous impact of Covid-19. These studies, excluding Utz (2017), have arrived at different conclusions about CSRs effect on stock performance during and after crises.

The research gap that we identify is that no study akin to Bae et. al (2021) have been done with Europe as the scope of the research. Utz (2017) has European companies in his study however, only looking at CSRs impact on stock synchronicity and crash risk. He finds that high CSR score for European companies has a mitigating effect on stock price crash risk and is a predictor for lower idiosyncratic risk. Thus, the question arises of whether a high CSR score has a mitigating effect on stock price during a crisis and if it can explain stock price recovery during the subsequent period. The findings of Utz (2017) spark the hypothesis that CSR should have a mitigating effect during and after crisis as it is found to have a mitigating effect on the stock price crash risk. The contribution this paper aims to add is an extension of Bae et al. (2021), which is done by

testing the effect that CSR has during a crisis in a totally different part of the world. This and everything aforementioned, lead up to the following research question:

Does corporate social responsibility (CSR) protect firm value during and after exogenous shocks such as the COVID-19 crisis?

This paper therefore examines if and how the European companies initial CSR score affected the company's performance during and after the COVID-19 crisis. This is done by replicating the study by Bae et al. (2021) Does CSR matter in times of crisis? Evidence from the COVID-19 pandemic with the extension coming from a new sample from publicly traded European companies instead of companies from the United States. The COVID-19 crisis period is deemed to be February 19th to March 25th, 2020, similar to Bae et al. (2021), and the post-crisis period from March 25th to June 3rd, 2020.

Our research looks at a sample of 610 companies that are all European, during the crisis period (February 19th to March 25th, 2020) and the post-crisis period (March 25th to June 3rd, 2020). We design our research closely to Bae et al. (2021), who also looks at CSRs effect on company performance during crises, namely, COVID-19. They however look at the U.S. market to research CSRs effect in regard to crisis return. Empirical challenges that arise when we conduct our research could be our sample size. With the constraints of the market capitalization and needing full data for the financial variables, our sample size is limited in regard to previous studies. This could potentially limit the ability to make any claims about the results, especially when we are doing our industry analysis due to our divided full sample. Further challenges may lie in the fact that omitted variables such as managerial ability or other factors correlated to CSR may influence the result instead of CSR itself. A good manager may be better equipped to handle a crisis and may also invest more in CSR practices, thus if impact of CSR is found, it may be due to factors outside of our studies.

When we look at CSRs effect on stock returns during the crisis, we first find a significantly positive effect on the market-model adjusted returns, but that effect is lost when incorporating our control variables in the regression. Stock performance is more affected by size, long term debt and idiosyncratic risk during the crisis where size is the only one with a positive effect, the others having a negative impact on the returns. When moving our scope from the crisis period to the post-crisis period we then find that higher CSR has a significantly negative effect on stock performance during the post-crisis period. This may give some evidence that CSR scores are not valued by investors after a big exogenous crash but one should be careful drawing to big conclusions due to the limited sample size and the effect of control variables. We find that variables such as idiosyncratic risk and profitability has a significantly positive effect where idiosyncratic risks have the biggest effect. The inclusion of the controls lowers the negative effect of CSR from -0,23 to -0,10 and -0,27 to -0,14 for the raw and market-model adjusted returns respectively.

We later look at the different industries to see if there are significant differences between different economic sectors. We find that all sectors were affected negatively with the mean raw crisis return being between -0,35 to -0,19 and the mean raw post crisis return for each sector being in the span of 0,13 to 0,31. We did individual regressions for each industry as well and found no significant results for each industry in the market-model adjusted crisis return. For the adjusted post crisis return, the Real Estate and Consumer Non-cyclicals show negative returns, significant at the 5 and 10% level

respectively, but due to the limited sample for the industries (N= 39 & 48) one should not draw big conclusions about the results regarding CSRs effect on these individual industries.

To assess the robustness of our findings, we constructed an alternative CSR measure by equally averaging the Environmental, Social, and Governance pillar scores. This new measure offers a balanced view of CSR performance, allowing us to test whether our results are sensitive to the construction of the CSR variable. When re-estimating our main regressions using the new CSR variable, we find that the magnitude of the coefficients is generally weakened. This suggests that the way CSR is measured can influence empirical results. The discrepancy highlights a broader challenge in CSR research, the lack of standardization in how CSR ratings are constructed and interpreted. While the direction of the relationship between CSR and stock returns remains broadly consistent, the sensitivity of effect sizes underscores the need for caution when drawing conclusions. Further differences may exist between rating institutes which is something one should be aware of when analyzing CSR scores.

Extensive research has been done on the role of ESG and CSR within a company, both during normal and crisis market conditions. In order for us to effectively analyze the impact of the social capital on firms' stock performance during crises, we have analyzed the previous research on the topic. Our study aims to further investigate into these effects in public companies in Europe more specifically during the exogenous shock, COVID-19.

This paper primarily relates to the literature on the effects of firms' Corporate Social Responsibility (CSR) during financial crises. Prior studies, such as Lins et al. (2017) and Bae et al. (2021), have explored whether CSR provides resilience during times of market distress. Lins et al. (2017) investigates the role of social capital during the 2008 financial crisis by analyzing CSR performance in relation to firm stock returns before, during, and after the crisis. They find that companies with higher CSR scores exhibit better stock performance during the crisis, particularly when market trust is low. In contrast, Bae et al. (2021) analyzes the effects of CSR on firm returns during the COVID-19 crisis using U.S. company data and two different CSR scores (MSCI and Refinitiv). Their findings indicate no significant relationship between CSR scores and firm performance during or after the crisis, even after controlling for market risk factors, firm characteristics, and industry effects. The authors suggest that this nonexistent relationship may stem from CSR scores not adequately capturing meaningful CSR activity at the firm level. We extend this literature by demonstrating how CSR relates to firm stock performance in the European context during the COVID-19 crisis, using Refinitiv CSR data and applying the empirical framework of Bae et al. (2021).

Our paper also contributes to the growing body of research on the economic effects of the COVID-19 pandemic. While existing research, such as Albuquerque et al. (2020), focuses on how environmental and social (ES) performance influenced U.S. firms' resilience during the COVID-19 market crash, our study adds to this by analyzing whether similar effects hold in a European setting. Albuquerque et al. (2020) find that higher ES scores are associated with significantly better stock returns, lower volatility, and higher operating profit margins during the first quarter of 2020. They attribute these outcomes to customer and investor loyalty and suggest that loyalty enhances firm resilience during exogenous shocks. Additionally, our paper is influenced by the theoretical framework proposed in Albuquerque et al. (2019), which links CSR to reduced systematic risk. Their study demonstrates that CSR can be used as a product differentiation strategy, allowing

firms to command higher margins and ultimately lowering their exposure to macroeconomic downturns. We build on this theoretical foundation to interpret our findings on the performance of high CSR firms during the COVID-19 shock in Europe.

Further literature that our paper relates to are Utz (2017). The paper investigates the relationship between CSR and firm risk in different markets, particularly through the lens of crash risk and stock price volatility. The paper finds that companies with higher CSR scores exhibit lower crash risk and idiosyncratic volatility in Europe and the U.S. This suggests that CSR may serve a protective role by reducing extreme negative return events, consistent with the idea that responsible corporate practices foster investor trust and long-term stability. Additionally, our work relates to the literature on ESG rating disagreement. Berg, Kölbel, and Rigobon (2022) highlight the significant divergence in ESG assessments across rating agencies, raising concerns about measurement reliability and the comparability of CSR effects across studies. These discrepancies can introduce noise or bias into empirical findings, particularly when comparing results across data providers. In our study we use the data source, Refinitiv Eikon, and acknowledge the limitations inherent in ESG data construction. By including a robustness test that incorporates the Governance dimension separately, we further explore how CSR measurement decisions influence observed return patterns, particularly during periods of financial stress.

There are conflicting results across studies examining similar measures and time periods, which underscores the necessity for deeper investigation into this area. While Lins et al. (2017) discovered evidence that strong CSR performance positively influenced stock returns during crisis periods, Bae et al. (2021) found no such correlation during the COVID-19 pandemic. This notable discrepancy potentially stems from different factors. First, methodological variations in research design, statistical approaches, and control variables may account for these divergent findings. Second, as Berg et al. (2022) convincingly demonstrate, divergence exists between different CSR rating agencies, attributable to measurement differences, scope discrepancies, and weight variations. This "rating divergence" phenomenon may explain why studies using different ESG data sources reach contradictory conclusions. Our study addresses these gaps by examining the relationship through a distinct geographical lens, focusing on European public companies, to detect potential regional variations in how CSR influences firm resilience during crises. This approach may reveal whether the effectiveness of CSR as a risk mitigation strategy during market turbulence exhibits meaningful differences across markets, potentially reconciling some of the contradictions in existing literature.

The remainder of this paper is organized as follows. Section 2 outlines our methodology and data, detailing the research design, data sources, and sample construction, including the formation of our CSR metrics. Section 3 presents the empirical results, focusing on the regression analyses that examine the relationship between CSR and firm stock performance during and after the COVID-19 crisis. This section also includes a robustness test using an alternative CSR variable, to assess the consistency of our findings. In Section 4, we provide a comprehensive discussion of the results, address potential limitations in the research design, and explore possible directions for future research. Finally, Section 5 offers a concise conclusion, summarizing the main findings and contributions of the paper.

2. Data

The data that we use in this paper is collected from the Refinitiv Eikon (previously ASSET4) database which is known to be a very reputable and trustworthy source of data for CSR scores according to Stellner, Klein, and Zwergel (2015). Our sample of companies is constructed by adding all publicly traded companies from Europe with market capitalization over $250,000,000 as of December 2019. Lins et al (2017) motivates this limitation due to smaller companies tending to have lower liquidity and being subjected to more price pressure effects of trading, thus they justify their omittance due to these factors likely being more pronounced during a crisis. We then filter out companies that do not have data in Refinitiv Eikon on our control variables and financial firms in accordance with both Lins et al. (2017) and Bae et al. (2021). After our sample is constructed, we construct the first table, Table (1), containing the summary statistics of our data.

Table 1: Summary Statistics

Variable	N	Mean	St.Dev	Min	Median	Max
Crisis Return	608.00	-0.30	0.14	-0.82	-0.30	0.28
Adjusted Crisis Return	608.00	-0.09	0.15	-0.58	-0.09	0.49
PostCrisis Return	608.00	0.25	0.21	-0.17	0.21	1.50
Adjusted PostCrisis Return	608.00	0.13	0.21	-0.34	0.10	1.42
CSR Score	610.00	0.57	0.22	0.06	0.60	0.95
Size	610.00	9.48	0.65	8.45	9.40	11.23
Long Term Debt	610.00	0.19	0.14	0.00	0.17	0.56
Short Term Debt	610.00	0.28	0.16	0.03	0.25	0.76
Cash Holdings	610.00	0.08	0.09	0.00	0.05	0.47
Profitability	610.00	0.09	0.07	0.00	0.07	0.45
Book-to-Market	610.00	0.66	0.58	-0.04	0.49	3.23
Dummy Negative BTM	610.00	0.01	0.11	0.00	0.00	1.00
Momentum	608.00	0.25	0.33	-0.59	0.24	1.26
Idiosyncratic Risk	608.00	0.04	0.02	0.01	0.03	0.15

Table 1 shows summary statistics for all variables used. The variables are all defined in Appendix A. The final sample consists of 608 companies with full data for all variables and 610 companies for some variables. CSR Scores are collected from Refinitiv Eikon along with stock returns and company information. Firms categorized as financial firms in the TRBC economic sector names are omitted along with firms with a market cap below $250,000,000. Returns and financial variables are winsorized at the 1% level.

The variables in Table 1 was constructed in accordance with Bae et. al (2021) and the formulas behind the variables are the following: Crisis Return is defined as the raw buy and hold return for the period February 19th to March 25th, 2020. Adjusted Crisis Return is defined as the stock return during the crisis period adjusted with an estimated market-model from 60 months of return between 2015-2019 and Stoxx600 as the market return. PostCrisis Return is defined as the raw buy and hold return for the period March 25th to June 3rd, 2020. Adjusted PostCrisis Return is defined as the Adjusted Crisis Return but for the post crisis period. CSR Score is defined as the average of Refinitiv Eikons 2019 environmental- and social score for each company. Size is defined as the logarithm of market capitalization for each company. Long Term Debt is defined as the long term debt divided by total assets. Short Term Debt is defined as short term debt divided by total assets. Cash Holdings is defined as the cash divided by total assets. Profitability is defined as the operating income divided by total assets. Book-to-Market is defined as the book value of equity divided by the market value of firm equity. Dummy Negative BTM is defined as a dummy variable for firms with a negative book to market value, where 1 denotes a negative value. Momentum is defined as the annual raw stock return between January 1st to December 31st, 2019. Idiosyncratic Risk is defined as the variance of the market adjusted return for 2019.

To assess the companies' ESG scores we collect Refinitiv's ESG scores for all available companies. In accordance with Bae et. al (2021) we compile the Environmental Pillar Score and the Social Pillar Score and take the average of those two to get a single CSR measure for each available company. The score from Refinitiv also includes a governance score but that is omitted as previous authors have done, e.g. Bae et al. (2021) and Albuquerque et al. (2020). We choose to focus on the environmental and social aspects of the scores in accordance with Lins et al. (2017) who used it to examine the effects of CSR during the 08 crisis and Bae et al. (2021) who did the same research but in the context of COVID-19. As shown in Table (1), the mean CSR Score was 0.57, with a standard deviation of 0.22, and ranges from 0.06 up till 0.95.

We get our return data from Refinitiv Eikon and calculate the returns during our previously defined periods of interest. The stock returns during these periods are calculated as the buy and hold return over the different periods, the weekly returns for the crisis period as well as the post crisis period for all public European companies that fit our requirements. Our requirements consist of the following: the market capitalisation must be over $250,000,000 as of December 2019, all financial companies have also been excluded in accordance with Lins et al. (2017) and Bae et al. (2021). Furthermore, some companies that fit our requirements have been excluded due to missing data. After applying all requirements and excluding non-feasible companies our sample consists of 610 publicly traded European companies.

We define our crisis period as the time between the 19th of February to the 25th of March 2020, keeping it as close as possible to Bae et al. (2021) within the limits of our data. We compute the returns as the raw buy and hold returns over the period 19th of February to 25th. Further we compute one raw return and one market adjusted return. This is done with a market model that is estimated over 60 months of stock return data between 2015-2019, with the Stoxx600 acting as the market return. The mean of the raw (market-adjusted) return during the crisis period is about -30% (-9%).

We define our post-crisis period in a similar manner. It is defined as the period between the 25th of March to the 3rd of June. We compute the raw returns over this period of time and calculate the market-adjusted returns for this post-crisis period. The adjusted

returns are calculated with the same market model created to adjust the crisis returns. The mean of the raw (market-adjusted) return during the post-crisis period is about 25% (13%).

Table (8) (See Appendix) shows the correlations between the returns for different periods, the CSR Score and the different control variables. We identify that Crisis Return is negatively correlated with the returns during the post crisis period. A slightly positive correlation between Crisis Return and CSR Score is observed, whilst the PostCrisis Return is negatively correlated with CSR Score. The correlation between size and CSR score is over 0,5 and positive potentially suggesting that bigger companies usually have better CSR ratings, possibly because of their extensive resources to invest in CSR measures and the public's attention on the larger corporations.

After having gathered the sample of companies, we cleaned the data from missing and invalid values in order to use the data for further analysis. In order to determine whether the sample experiences excess return or not, we used Stoxx 600 as market return. The average return for the Stoxx 600 of a 60-month period starting January 31st, 2015, until December 31st, 2019, in accordance with Bae et al. (2021). In order to determine Stoxx 600 as the expected return we used the Capital Asset Pricing Model developed by Sharpe (1964) to decide the beta of our sample and thus also the Idiosyncratic Risk.

Further parameters that we have gathered from Refinitiv Eikon are the CSR Score, which we constructed by adding the Environmental Pillar Score and the Social Pillar Score and divide by two in order to get the average of these two. The Cash Holdings were constructed by dividing cash holdings by total assets. The Short Term Debt was constructed by dividing total current liabilities by the total assets. The Long Term Debt was constructed by dividing total Long Term Debt by total assets. Profitability was constructed by dividing operating income by total assets. Size was constructed by taking the natural logarithm of market capitalisation. The Book-to-Market was constructed by taking the book value, total assets minus total liabilities, divided by market capitalisation. We also added a dummy variable for the cases with negative book-to-market ratio, called Dummy Negative BTM. All these variables are constructed in accordance with Lins et al. (2017) and Bae et al. (2021) and further definitions can be found in appendix A. All our regressions in this study control for Fama-French three factors using factor loadings, a momentum factor that looks at stock performance during 2019 and we also incorporate industry fixed effects based on the TRBC economic sector name. Following the previous authors, we winsorize control variables and returns at 1% and we report robust standard errors, adjusted for heteroskedasticity.

3. Empirical Results

3.1 Regression model

To start, we initiate our research as Bae et al. (2021) does and run a regression to check whether our computed CSR score has any effect on the companies' crisis period stock return. Our regression looks as follows:

$$R_i = \alpha + \beta_1 Csr\ Score_i + \Sigma\beta_k + Control\ Variables + \Sigma\beta_m Factor\ Loadings + \Sigma\beta_n Industry\ Fixed\ Effects + \varepsilon_i \quad (1)$$

Our dependent variable is the raw buy and hold return for our defined crisis period February 19th to March 25th and our CSR Score variable is created from the average of the environmental and social score from Refinitiv in 2019. Within all of our subsequent regressions we control for Fama-French 3 factor loadings and industry fixed effects divided by the TRBC economic sector name for each company in our data set. Further on we winsorize our control variables and stock returns at 1% and t statistics from robust standard errors that are adjusted for heteroskedasticity are also reported in brackets in our regression tables.

3.2 Crisis Returns and CSR

In order to examine the results of CSR during the COVID-19 crisis we use specification (1) in a regression model. Our CSR score variable is average of the Environmental Pillar Score and the Social Pillar Score from Refinitiv Eikons CSR ratings. Table (2) shows the results from this regression. The first column contains the variable names, CSR Score and the control variables. Columns (1) - (4) contain regression results with raw stock return as the dependent variable during the previously defined period of crisis. For column (1) and (3) the returns are captured using the Raw return in contrast to (2) and (4) where the return is adjusted based on the market-model created earlier. The coefficient for CSR Score and adjusted return is significant and slightly positive whilst the coefficient for CSR Score and raw return is slightly positive but insignificant.

Table 2: Crisis returns and CSR

	Raw	Adj Return	Raw	Adj Return
CSR Score	0.02	0.10***	-0.05	0.03
	(0.83)	(3.79)	(-1.60)	(0.87)
Log(MV)			0.02**	0.05***
			(2.09)	(3.86)
Long-term debt			-0.12***	-0.07
			(-2.70)	(-1.48)
Short-term debt			-0.04	0.03
			(-0.93)	(0.61)
Cash holdings			-0.07	0.12
			(-0.94)	(1.62)
Profitability			0.03	-0.09
			(0.39)	(-1.08)
B/M			-0.02	0.00
			(-1.57)	(0.15)
Negative B/M			-0.01	-0.02
			(-0.29)	(-0.39)
Momentum			0.02	0.04*
			(1.15)	(1.93)
Idiosyncratic risk			-1.82***	0.02
			(-3.30)	(0.03)
Adjusted R^2	0.17	0.14	0.24	0.18
Observations	608	608	608	608
Factor loadings	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes

Table 2 denotes the results from the regressions of CSR Scores from Refinitiv Eikon on stock return during the crisis period between 19th February to the 25th of March, 2020. In columns (1) & (3) denoted Raw, the stock return used is raw buy and hold return during the defined period and column (2) & (4) uses market-model adjusted returns for the same period. All other variables can be found and are defined in Appendix A. All regressions use Fama-French three factor loadings and the TRBC economic sector name industry fixed effects. T-statistics based on robust standard errors, adjusted for heteroskedasticity are reported in the parenthesis. ***, **, * denotes statistical significance at the 1%, 5%, and 10% level respectively.

In column (3) and (4) we added control variables. Which shows a strongly negative coefficient for idiosyncratic risk and raw return (control) and significant at a 5% level. This suggests that Idiosyncratic risk is associated with a strongly negative return. We can also tell that Long-term debt and Raw return coefficient is slightly negative and significant at a 1% level, this suggests that Long-term debt negatively affects the return during crisis period. The size variable (Log(MV)) is slightly positive at a 5% level for the raw return and significant at 1% level for the market adjusted return.

Our results contradict those of Lins et al. (2017) who were able to demonstrate a positive effect of CSR on crisis period returns during the 2008 financial crisis. Our results do to a bigger extent emulate those of Bae et al. (2021) who like us find no evidence that CSR would influence a company's stock return during a crisis period. The small difference that exists is that we find a significant effect for the adjusted return without controlling for firm financials, but that effect is negated when introducing those. The magnitude of Log(MV) is moderate but does increase when adjusting for the market model. This suggests that size is the best predictor for better crisis returns. Idiosyncratic risk has by far the largest, significant, effect of -1,82 but that is only present when not adjusting for the market return. This large effect disappears when adjusting for the market return, which implies that the effect of idiosyncratic risk aligns with the market return during the crisis and thus the effect is eliminated when adjusting for the market downturn.

3.3 Post crisis and CSR

In Table (3) we do the same regression as in Table (2) on the companies CSR score but with the stock return from our post crisis period, March 25th to June 3rd, 2020. The dependent variable is thus the post crisis return in both column (1) and (3) whereas column (2) and (4) uses the market adjusted return for the same period. In columns (1) & (2) we do not include control variables but do so in the following two columns. The result from our regression shows a significantly negative effect suggesting a higher CSR score has a negative effect, both with and without control variables on post crisis stock return.

Table 3: Post crisis returns and CSR

	Raw	Adj Return	Raw	Adj Return
CSR Score	-0.23***	-0.27***	-0.10**	-0.14***
	(-6.01)	(-7.15)	(-2.26)	(-3.08)
Log(MV)			-0.02	-0.03*
			(-1.10)	(-1.88)
Long-term debt			-0.04	-0.06
			(-0.55)	(-0.95)
Short-term debt			-0.04	-0.07
			(-0.68)	(-1.26)
Cash holdings			0.01	-0.10
			(0.05)	(-0.82)
Profitability			0.20	0.26**
			(1.55)	(1.99)
B/M			-0.03	-0.03**
			(-1.60)	(-2.04)
Negative_B/M			0.07	0.07
			(0.56)	(0.55)
Momentum			0.02	0.01
			(0.72)	(0.17)
Idiosyncratic risk			4.95***	3.96***
			(5.65)	(4.64)
Adjusted R^2	0.12	0.12	0.24	0.21
Observations	608	608	608	608
Factor loadings	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes

Table 3 denotes the results from the regressions of CSR Scores from Refinitiv Eikon on stock return during the post crisis period between March 25th to June 3rd, 2020. In columns (1) & (3) denoted Raw, the stock return used is raw buy and hold return during the defined period and column (2) & (4) uses market-model adjusted returns for the same period. All other variables can be found and are defined in Appendix A. All regressions use Fama-French three factor loadings and the TRBC economic sector name industry fixed effects. T-statistics based on robust standard errors, adjusted for heteroskedasticity are reported in the parenthesis. *, **, ***, denotes statistical significance at the 10%, 5%, and 1% level respectively.

In column (3) & (4) we do just like Bae et al. (2021) and Lins et al. (2017), we incorporate the control variables. The coefficient estimates of CSR is weakened when adding the control variables and columns (3) loses some significance. Column (4) stays significant at the 1% level. The estimates also show the effect of idiosyncratic risk being significant at the 1% level and with a big positive effect suggesting that higher idiosyncratic risk strongly affects post crisis return and crisis recovery. The coefficients of the control variables other than idiosyncratic risk are non-significant other than profitability, size (Log(MV)), and book-to-market (B/M) being slightly significant with a weak effect.

Comparing it to Table (2), the effect of CSR is significant in the post crisis period and the only significant measure from Table (2) is now negative as with all other CSR coefficients in Table (3). Idiosyncratic risk is statistically significant, and its effect is very large in the post crisis period, both with the raw return and the market adjusted return. During the crisis period, its coefficient estimate is significantly negative when using raw returns. Our proxy for size, the Log(MV) variable, also changes its effect by going from slightly positive and highly significant during the crisis to being negative and less significant in column (4) in the post-crisis period.

The effect of CSR is consistent when adjusting for the market, and the magnitude of CSR is decreased when introducing control variables, but its effect is still moderate. Idiosyncratic risk, as in Table (2), has the biggest effect and shows that while CSR has a negative effect, having more non-systemic risk has a remarkably larger effect on the post crisis returns. Size and book-to-market ratio has a small negative effect and profitability proves to be important, being significant at the 5% level and having a moderate impact on post crisis returns. The effects of the other variables are, although significant and having a moderate effect, overshadowed by idiosyncratic risks large effect which greatly exceeds the other variables

3.4 Components of CSR during and after the crisis

To further research the impact of CSR, we split up our initial CSR score variable into its fundamental parts of Environmental Pillar Score and Social Pillar Score. Using the same regressions model as before, specification (1), we can follow Bae et al (2021) further and see if what our CSR score consists of influences stock performance on its own.

Table (9) (See Appendix) uses our initial CSR components as regressors on the raw and adjusted return for each company as Bae et al. (2021) do. Using specification (1) with the two components from the Refinitiv CSR measures decomposed into the two variables by which we created the final CSR variable. The results point towards a non-significant result for all columns, with or without the control variables. This is akin to the results that Bae et al. (2021) extrapolate when splitting up the environmental and social pillar of their Refinitiv CSR score.

Table 4: CSR score components Post crisis

	Raw	Adj Return	Raw (Full)	Adj Return (Full)
Environment Score	-0.0013***	-0.0016***	-0.0005	-0.0007
	(-2.7617)	(-3.4455)	(-1.0458)	(-1.5968)
Social Score	-0.0009*	-0.0011**	-0.0006	-0.0007
	(-1.6524)	(-2.0020)	(-1.0747)	(-1.3695)
Adjusted R^2	0.12	0.12	0.24	0.21
Observations	608	608	608	608
Control variables	No	No	Yes	Yes
Factor loadings	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes

Table 4 denotes the results from the regressions of the two components of our CSR score during the post crisis period between March 25th to June 3rd , 2020. In columns (1) & (3), the stock return used is raw buy and hold return during the defined period and column (2) & (4) uses market-model adjusted returns for the same period. All other variables can be found and are defined in Appendix A. All regressions use Fama-French three factor loadings and the TRBC economic sector name industry fixed effects. T-statistics based on robust standard errors, adjusted for heteroskedasticity are reported in the parenthesis. *, **, ***, denotes statistical significance at the 10%, 5%, and 1% level respectively.

Table (4) contains the same set of regressions and components, but instead of during-crisis results Table (4) shows the post-crisis results, 25th March to 3rd June, 2020. In contrast to Table (9), Table (4) presents significant results at the 1% level for both the raw return and the adjusted return for the Environment score coefficient, however, the result being very close to 0 has thus a very small estimated effect of -0.0013 and -0.0016 for the raw and adjusted return respectively. This implies that even if the scores by themselves are significant, their effect is quite negligible due to their low magnitude. For the Social Score, there is also a difference to the crisis-return, namely a significant result at 10% for the raw return coefficient and a significant result at a 5% level for the adjusted return. This suggests that the Environment- and Social Score may have a small negative effect in the post crisis period but without any real impact on the stock return, neither for the raw return nor the adjusted return when controlling for our control variables.

Table (10) (See Appendix) shows the correlation between CSR Score, Environmental Pillar Score, and Social Pillar Score. Overall, the correlations are rather high, ranging between 0.74 and 0.94, suggesting that the CSR score is strongly driven by both the Environmental Pillar Score and the Social Pillar Score, however, they both provide distinct and not identical results. This suggests that it is of value to looked at the two variables separately as well as previously done in Table (9) & Table (3).

3.5 Industry analysis

To further check if there are factors affecting stock performance during our crisis period, we do an analysis of the different industries in our data set. Different industries were affected in different ways by the pandemic. By dividing them and looking at their performance we can investigate if there is a within industry effect on the stock returns during and after the crisis. We divide our companies into 9 different industries using the TRBC economic sector names. The financial sector is omitted as Lins et al. (2017) and Bae et al. (2021) do. What we see is that all 9 sectors experience negative returns during the crisis. These negative returns all lie between -35% and -19%. Sectors such as Consumer Cyclicals and Non-Cyclicals experience effects that can be expected from the two sectors where Cyclicals rely more on economic situation whereas Non-Cyclicals are less affected and thus experience one of the smallest crises shocks and a smaller post-crisis return than industries such as Technology or Consumer Cyclicals.

Table 5: Industry Analysis: Descriptive Statistics

Industry	N	Cris Raw	Cris Adj	Post Raw	Post Adj	CSR	Environmental	Social
Full sample	610	-0.30	-0.09	0.25	0.13	0.57	52.81	61.57
Basic Materials	70	-0.29	-0.04	0.27	0.13	0.60	58.15	61.31
Consumer Cyclicals	100	-0.35	-0.13	0.30	0.18	0.59	54.40	62.91
Consumer Non-Cyclicals	48	-0.20	-0.05	0.16	0.08	0.59	56.47	62.61
Energy	31	-0.33	-0.09	0.20	0.07	0.63	60.02	66.66
Healthcare	44	-0.19	-0.03	0.22	0.13	0.64	55.40	72.02
Industrials	152	-0.34	-0.10	0.24	0.11	0.56	50.05	61.87
Real Estate	39	-0.34	-0.20	0.13	0.05	0.57	55.96	57.44
Technology	90	-0.29	-0.08	0.31	0.19	0.49	42.25	54.88
Utilities	36	-0.24	-0.09	0.20	0.12	0.59	58.41	59.84

Table 5 presents summary statistics for the TRBC Economic Sectors except for the financial one. The variables are defined in *Appendix A*. The statistics include raw and market-model adjusted return for both the crisis and post crisis period along with the CSR score and its components for each sector.

Looking at the CSR score in Table (5) we see that the industries have scores ranging from 0.49 to 0.64 with the average coming in at 0.57. It is Healthcare and Energy that have the highest, mainly being derived from their high Social scores. Technology has the lowest score in all aspects, both average score and with the two components alone.

In Table (6) we test each of the 9 industries and their coefficient estimates for CSR score. This is done by testing both the adjusted crisis return, and the adjusted post-crisis return for each of the industries. We use specification (1) to regress the industry returns along with our factor loadings and control variables. We omit the industry fixed effects as we now are doing regressions for each industry separately.

Table 6: Industry-Level Regressions of CSR Score on Adjusted Returns

Industry	Crisis adj	Post-crisis adj
Consumer Cyclicals	0.07	-0.17
Basic Materials	-0.05	-0.13
Technology	-0.04	-0.10
Industrials	-0.06	-0.03
Consumer Non-Cyclicals	0.21	-0.21*
Healthcare	-0.02	0.06
Real Estate	0.16	-0.25**
Energy	-0.24	-0.15
Utilities	-0.01	0.06

Table 6 shows industry specific regressions using specification (1) without the industry fixed effects for each of the TRBC economic sectors. Column (1) uses crisis returns for each company as the dependent variable and column (2) uses post crisis returns. Both regressions use Fama-French three factor loadings and control variables. *, **, ***, denotes statistical significance at the 10%, 5%, and 1% level respectively.

What we see in Table (6) is to be expected given our previous, mostly non-significant results when incorporating our control variables in the regressions. The only stand out from the industry-level regression is the Real Estate industry during the post crisis, having a coefficient estimate of -0.25 and being significant at the 5% level. This would suggest that a higher CSR score within the Real Estate industry leads to a lower abnormal return during the post-crisis recovery period though the significance is not superb. Consumer Non-Cyclicals experience a similar effect, however it is less significant and thus should only be looked at as weak evidence of an effect. All other estimates are statistically insignificant and thus show no effect on the stock returns neither during nor after the crisis.

3.6 Robustness

When using CSR as a measure to analyze companies, the way one values the different components and constructs the final variable can impact the results. Data from different rating institutes can be divergent from each other for the same company as shown by Berg et al. (2022). How authors construct the CSR coefficient can also impact results. As Bae et al. (2021) and Lins et al. (2017) do we omit the governance aspect of the CSR score. As a robustness test, we thus incorporate the Governance score and test the effect with the new measure.

Our robustness test with our new variable named CSR2 is found in Table (7). To create the new variable, we have incorporated the Governance score into the aggregate CSR score that previously only contained an average of the environmental and social score from Refinitiv Eikon. The governance score is now incorporated and the sum of the three ESG metrics is divided by three and then a hundred to get it in decimal form. Incorporating the governance score gives us a fuller picture of how the company is run as well as including something that investors value in accordance with the findings of Cheung, Thomas Connelly, Limpaphayom, and Zhou (2007). The results that we get with the new CSR2 variable are interesting. During the crisis, we see that there is a significant positive effect of the adjusted return when omitting the control variables, although with a low coefficient estimate. We also get a low, negative effect that is significant on the raw return with control variables. The stand outs here are Log(MV) which has a significant positive effect during the crisis, suggesting that bigger companies perform better during the exogenous shock. Long-term debt has a significantly negative effect according to the data and idiosyncratic risk is highly negative when dealing with the raw crisis return. In columns (5) to (8), the post crisis returns are analyzed. We can see a highly significant effect on all post returns except for column (7). All coefficient estimates are however negative and low showing little to no effect on post crisis returns for our sample. Size as measured by Log(MV) is again significant with a small negative effect for the adjusted returns and slightly less significantly negative for the raw post crisis returns.

From the robustness test one can interpret that adding the governance pillar into the aggregate CSR score makes the variable more significant in most columns, showing that while the full CSR variable may be significant, the coefficient estimate suggests a very small effect on stock returns. Instead, the size is significant with a bigger effect as well, and we also see the idiosyncratic risk has a big negative effect in column on raw returns during the crisis period, with -1.81 as the coefficient, and being highly positive and significant in column (7) & (8), with 4.98 and 4.00 as coefficients respectively. As idiosyncratic risk is highly significant and has a large effect on stock returns during the post-crisis period on can relate stronger post crisis recovery to higher idiosyncratic risk from these results.

Table 7: CSR with Governance on Stock Return

	Raw	Adj	Raw	Adj	Raw	Adj	Raw	Adj
CSR2	0.000	0.001***	-0.001**	0.000	-0.002***	-0.003***	-0.001*	-0.001**
	(0.49)	(3.40)	(-2.06)	(0.34)	(-5.57)	(-6.60)	(-1.75)	(-2.46)
Log(MV)			0.03**	0.05***			-0.02	-0.03**
			(2.34)	(4.11)			(-1.36)	(-2.18)
Long-term debt			-0.12***	-0.07			-0.03	-0.06
			(-2.62)	(-1.44)			(-0.54)	(-0.91)
Short-term debt			-0.04	0.03			-0.05	-0.08
			(-0.86)	(0.71)			(-0.79)	(-1.37)
Cash holdings			-0.07	0.12			0.01	-0.10
			(-0.98)	(1.58)			(0.09)	(-0.78)
Profitability			0.03	-0.10			0.20	0.27**
			(0.38)	(-1.12)			(1.59)	(2.03)
B/M			-0.02	0.00			-0.03*	-0.03**
			(-1.47)	(0.23)			(-1.66)	(-2.10)
Negative B/M			-0.01	-0.02			0.07	0.08
			(-0.27)	(-0.39)			(0.57)	(0.57)
Momentum			0.02	0.04*			0.02	0.01
			(1.16)	(1.94)			(0.71)	(0.17)
Idiosyncratic risk			-1.81***	0.00			4.98***	4.00***
			(-3.31)	(0.00)			(5.66)	(4.67)
Adjusted R^2	0.17	0.14	0.24	0.18	0.11	0.11	0.24	0.21
Observations	608	608	608	608	608	608	608	608
Factor loadings	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 7 denotes the results from the regressions of CSR Score including the governance score from Refinitiv Eikon on stock return during the crisis period in column (1) - (4) (February 19th to March 25th, 2020). Columns (5) - (8) uses the returns from the post crisis period (March 25th to the June 3rd, 2020) in columns (1), (3), (5), and (7), the stock return used is raw buy-and-hold return during the defined period and column (2), (4), (6), and (8) uses market-model adjusted returns for the same period. All other variables can be found and are defined in Appendix A. All regressions use Fama-French three factor loadings and the TRBC economic sector name industry fixed effects. T-statistics based on robust standard errors, adjusted for heteroskedasticity are reported in the parenthesis. ***, **, *, denotes statistical significance at the 1%, 5%, and 10% level respectively.

4. Discussion

Our empirical results point towards CSR having limited effect in shielding companies stock performance from the exogenous shocks such as the COVID-19 crisis. During the defined crisis period, CSR scores do not exhibit a significant relationship with adjusted stock returns when controlling for standard financial variables and risk factors. This suggests that corporate social responsibility did not serve as a buffer against the immediate market downturn. In contrast, our results on the post crisis period imply that a higher CSR score, instead of helping companies recover from the shock, negatively affects stock returns. While this may have different causes, one possible explanation is that in the aftermath of a crisis, investors may favor firms with more risk over those perceived as allocating resources to long term non-financial goals. While definite links to stock performance are impossible to make, the negative effect of CSR could further imply a shift in investor preferences during recovery periods. The strong positive and significant effect of idiosyncratic risk on post crisis returns in Table (3) supports the idea that investors may become more tolerant of firm risk in pursuit of return opportunities after a market dip. As idiosyncratic risk is by far the coefficient with the largest effect, it indicates that it is the variable that predicts and impacts stock return, especially in the post crisis period, the most.

The results of our research should be considered carefully as our robustness test, altering the CSR variable, influences and weakens the effect of the coefficients. Thus, how one constructs the CSR variable can influence the results and impact the research. Our industry level analysis further indicates no strong effects of CSR across sectors, though smaller subsample sizes limit conclusion ability. Notably, sectors such as Healthcare and Consumer Non-Cyclicals display stronger average returns during the crisis period, consistent with healthcare's relevance during a pandemic and non-cyclicals resilience towards the economy.

The underlying mechanisms behind this are hard to explain without larger and more comprehensive studies being done but we believe that our results could be due to investor preferences shifting during the crisis. While CSR may be favored during normal market conditions, the crisis may induce new behaviors for investors that alters the strategies and their value of different company metrics. Thus, CSR may be one of the metrics that are deemed less important during market crashes. Our post crisis results also point towards CSR not being favored. During the post crisis period, other variables such as idiosyncratic risk seem to drive stock performance instead, which could suggest that investors prefer to take on larger risks after a big market dip.

Limitations for this paper may include, but are not limited to, the limited sample size of 610 European companies. This sample size resulted from our requirement that firms have a market capitalization of at least $250,000,000 as of December 2019, combined with the geographical constraint that firms be headquartered in Europe. A larger sample could have affected the outcome of the study, either by strengthening the results or producing different patterns, or it might have yielded similar findings. However, a broader dataset could have provided more certainty and clearer conclusions. Furthermore, there is always a risk that the data used may be skewed, incorrect, or misinterpreted.

In addition, several data providers offer similar categories of information, for example, both MSCI and Refinitiv Eikon supply CSR scores. If MSCI had been used instead of Refinitiv Eikon, the results could have differed due to variations in

methodology. Lastly, the choice of control variables and regression techniques may also have influenced the results. Using alternative specifications could have led to different outcomes. Another limitation of this paper is the time frame of the study, which focuses specifically on the COVID-19 crisis and the following post-crisis period. This provides a relevant and timely context, but the results may not be applicable to other types of crises, such as financial crashes or political instability. The impact of CSR on firm performance could vary depending on the nature of the crisis, meaning that the conclusions drawn here may not hold in different circumstances.

Further research may investigate the issue deeper, looking into country specific effects of CSR, especially during the COVID-19 crisis where different country policies affected company performance. Thus, further controls for such factors may help isolate the effect of CSR even more. Other things that one could investigate to isolate CSR further is indigenous variables such as managerial ability which could potentially be linked to CSR performance within a company. A good and experienced manager may value CSR more and run a company better which could provide a possible connection between CSR and stock performance. Therefore, it may be relevant to try and isolate the managerial ability in order to enhance the analysis of CSR.

One important caveat to also consider is the issue of potential endogeneity between CSR and firm performance. As mentioned, managerial ability may play a role in how well a company both performs in general, but it may also have an impact on a firms CSR commitments and the actions a firm takes to achieve good ratings. Firms that weather crises well may also have more resources to invest in CSR, making it unclear whether CSR influences stock performance or vice versa. While our cross-sectional approach provides evidence of association in the post crisis period, it does not identify causality. Future studies could use other variables or incorporate further fixed effects such as country specific ones to more effectively isolate the effects.

5. Conclusion

In conclusion, our findings indicate that during a crisis period, higher CSR scores are associated with better adjusted returns. However, in the post-crisis period, CSR is correlated with worse adjusted returns, an effect that is even more negative than the positive impact observed during the crisis. Notably, the raw return coefficient for idiosyncratic risk during the crisis is -1.82 and statistically significant at the 1% level, suggesting that idiosyncratic risk is not associated with favorable returns in times of crisis. Conversely, in the post-crisis period, the relationship between idiosyncratic risk and return becomes strongly positive, with a coefficient of 4.95, also significant at the 1% level.

When comparing the individual components of CSR, the Environmental and Social scores, we find no statistically significant results during the crisis period. However, in the post-crisis period, the Environmental score exhibits a positive relationship with both raw and adjusted returns. In contrast, the Social score shows a slightly negative and statistically significant association with returns, suggesting that its impact may differ from that of the Environmental dimension in the post-crisis context.

To test the robustness of our results and data, we added a new variable to the CSR measure, namely the governance factor from ESG. This expanded measure, referred to as CSR2, continues to show a positive and statistically significant relationship with adjusted returns, supporting our earlier findings. However, when raw returns are considered, the results become weaker or even slightly negative once firm-level control variables are included. This indicates that while the inclusion of governance reinforces the link between CSR and risk-adjusted performance, it may also introduce additional variation that affects the relationship with raw returns. Overall, the robustness test confirms the core patterns observed in the main analysis, while also pointing to the more complex role governance may play in how CSR influences firm performance.

The findings of this study may have been influenced by differences in managerial ability across firms. For example, forward-looking managers who anticipated the potential benefits of CSR during a crisis may have proactively increased their firms' CSR engagement at the onset of the pandemic to mitigate negative impacts. Additionally, the analysis of CSR's effect on performance during a crisis is inherently complex, with many contributing factors that could not be fully controlled for. Future research could explore country-specific differences in CSR impacts during crises, as institutional contexts and regulatory environments may moderate the relationship between CSR and firm performance differently, especially during a crisis such as COVID-19.

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Appendix

A. Variable definitions

Replicated from Bae et al. (2021)

Variable	Definition
Crisis return	Raw buy and hold return between the period February 19th to March 25th, during 2020
Adjusted crisis return	Stock return during the crisis period adjusted with an estimated market-model from 60 months of return between 2015-2019 and Stoxx600 as the market return
Post crisis return	Raw buy and hold return between the period March 25th to June 3rd, during 2020
Adjusted post crisis return	Stock return during the post crisis period adjusted with an estimated market-model from 60 months of return between 2015-2019 and Stoxx600 as the market return
CSR score	Average of Refinitivs 2019 environmental and social score for each company
Size	Logarithm of company market capitalization
Long-term Debt	Long term debt divided by total assets
Short-term Debt	Short term debt divided by total assets
Cash holdings	Cash divided by total assets
Profitability	Operating income divided by total assets
Book-to-Market	Book value of equity divided by market value of firm equity
Dummy Negative BTM	Dummy for firms with a negative book-to-market value, 1 denotes a negative value
Momentum	Annual raw stock return 2019-01-03 to 2019-12-26
Idiosyncratic risk	Standard deviation of the market-adjusted return in 2019

B. Table 8: Correlation Matrix

Table 8: Correlation Matrix

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Crisis Return	1.00													
2. Adjusted Crisis Return	0.78	1.00												
3. PostCrisis Return	-0.42	-0.31	1.00											
4. Adjusted PostCrisis Return	-0.36	-0.41	0.97	1.00										
5. CSR Score	0.05	0.18	-0.23	-0.28	1.00									
6. Size	0.23	0.24	-0.24	-0.25	0.58	1.00								
7. Long Term Debt	-0.07	-0.10	-0.10	-0.09	0.11	0.11	1.00							
8. Short Term Debt	-0.07	0.05	0.08	0.03	0.03	-0.09	-0.42	1.00						
9. Cash Holdings	-0.07	0.01	0.20	0.17	-0.30	-0.29	-0.32	0.21	1.00					
10. Profitability	0.07	-0.01	0.13	0.16	-0.13	0.00	-0.21	0.07	0.29	1.00				
11. Book-to-Market	-0.11	-0.03	-0.09	-0.12	0.06	-0.17	0.07	-0.26	-0.25	-0.39	1.00			
12. Dummy Negative BTM	-0.02	-0.02	0.05	0.05	0.01	-0.01	0.10	0.17	-0.02	0.07	-0.14	1.00		
13. Momentum	0.07	0.07	0.03	0.01	-0.01	0.04	-0.04	0.00	0.10	0.07	-0.11	0.02	1.00	
14. Idiosyncratic Risk	-0.24	-0.02	0.43	0.35	-0.24	-0.37	-0.12	0.15	0.26	0.01	0.01	0.02	-0.07	1.00

Table 8 shows correlations between the different variables. All variables are defined in Appendix A.

C. Table 9: CSR score components Crisis

Table 9: CSR score components Crisis

	Raw	Adj Return	Raw (Full)	Adj Return (Full)
Environment Score	-0.0001	0.0004	-0.0005	-0.0000
	(-0.2109)	(1.1331)	(-1.4093)	(-0.0889)
Social Score	0.0003	0.0006	0.0001	0.0004
	(0.7762)	(1.4364)	(0.1289)	(0.8382)
Adjusted R^2	0.17	0.14	0.24	0.18
Observations	608	608	608	608
Control variables	No	No	Yes	Yes
Factor loadings	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes

Table 9 denotes the results from the regressions of the two components of our CSR score during the crisis period between February 19th and March 25th, 2020. In columns (1) & (3), the stock return used is raw buy-and-hold return during the defined period and column (2) & (4) uses market-model adjusted returns for the same period. All other variables can be found and are defined in Appendix A. All regressions use Fama-French three factor loadings and the TRBC economic sector name industry fixed effects. T-statistics based on robust standard errors, adjusted for heteroskedasticity are reported in the parenthesis. *, **, ***, denotes statistical significance at the 10%, 5%, and 1% level respectively.

D. Table 10: Correlation Matrix Split CSR

Table 10: Correlation Matrix Split CSR

	1	2	3
1. CSR Score	1.00		
2. Environmental Pillar Score	0.94	1.00	
3. Social Pillar Score	0.92	0.74	1.00

Table 10 shows correlations between the two components of our final CSR Score. The variable CSR Score is created as an average of the Environmental Pillar Score and the Social Pillar Score which is collected for each company from Refinitiv Eikon.

AI declaration

AI, such as ChatGPT, has been used to help with spelling, phrasing, and grammar. It has further been used to help with coding in R and aid with formatting tables and correcting errors in the code.