

CORPORATE SOCIAL RESPONSIBILITY AND STOCK RETURNS DURING THE FINANCIAL CRISIS: EVIDENCE FROM EUROPE

Bachelor's Thesis
Jani Koskinen
Aalto University School of Business
Finance
Fall 2019

Author Jani Koskinen

Title of thesis Corporate Social Responsibility and Stock Returns during the Financial Crisis:
Evidence from Europe

Degree Bachelor of Science in Economics and Business Administration

Degree programme Finance

Thesis advisor(s) Theresa Spickers

Year of approval 2019

Number of pages 32

Language English

Abstract

Firms with high social capital, as measured by corporate social responsibility (CSR) enjoyed 6-7% higher excess returns compared to low-CSR firms in Europe during the financial crisis of 2008-2009. Regional and industry trust are also positively related to firm's CSR activities and excess crisis-period returns, and the effectiveness of CSR on excess returns varies substantially across the Europe and industries. I also find that external stakeholder activities targeted to environmental issues were most appreciated by investors during the crisis, while other CSR activities had insignificant effect on crisis-period returns. The evidence suggests that social capital and trust, built through CSR activities, serve as an insurance policy for negative events which benefits when overall trust in the economy declines.

Keywords Social Capital; Trust; Corporate social responsibility; CSR; Stock returns; Financial crisis; Europe

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1 Introduction

This paper studies the relation between firms' social capital and trust, as a measure of corporate social responsibility (CSR), and stock market returns in Europe during the financial crisis 2008-2009. High-CSR firms yielded significantly higher stock returns (excess of 7.18% raw crisis-period return and 6.30% abnormal crisis-period return) compared to low-CSR firms over the six-month period from August 2008 to February 2009. I also show that regional and industry trust are strongly positively related to firm's CSR activities and excess crisis-period returns, and that the effectiveness of CSR activities on excess returns varies substantially across the Europe and industries. The results are robust for controlling numerous firm characteristics, an alternative crisis-period, and different measurement dates for CSR. To illustrate the economic significance of the findings, the positive effect of firm's cash holdings or profitability, the variables of which previous studies have shown to have affected returns, was only three fifths of CSR's equivalent.

The results are mainly consistent with those of Lins, Servaes, Tamayo (2016) that first discovered the phenomenon from the U.S. market during the financial crisis. However, I find that some elements of CSR are more than important others, as results suggest that external stakeholder activities targeted to environmental issues were the most essential aspects to build trust and create shareholder value during the crisis. These findings contribute to current CSR literature that broadens the focus beyond traditional explanatory variables on stock returns, to social capital and overall trust, especially at time of crisis when trust is most needed.

1.1 Literature review

Concepts of social capital and trust are broadly defined in the literature due to their abstract nature. Arrow (1972) argue that "virtually every commercial transaction has within itself an element of trust", which only underlines the importance of trust in the economics and finance, and ultimately in this topic. Gambetta (1988) defines trust as "the expectation that another person will perform actions that are beneficial, or at least not detrimental, to us regardless of our capacity to monitor those actions ... so that we will consider cooperating with him". Correspondingly, Putnam (1993) defines social capital as "a propensity of people in a society to cooperate to produce socially efficient outcomes".

CSR is generally viewed as a social construction, which limits the possibility to develop an unbiased definition (Berger and Luckmann, 1966). Dahlsrud (2006) analyzes 37 different definitions of CSR and finds that they are consistently referring to five dimensions: voluntariness, stakeholder, social, environmental, and economic. Commission of the European Communities (2001) covers all these dimensions and defines CSR as "a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis".

Implication that CSR is an appropriate proxy for social capital is generally approved by practitioners. Sacconi and Degli Antoni (2011) suggest that CSR activities are an alternative way of building social capital

in the firm supported by a set of analytical studies. Aoki (2011) approaches the topic through the reciprocity principle by arguing that in response to social contributions (i.e. CSR activities) stakeholders may acknowledge social recognitions to firms, which ultimately constitutes their social capital. Servaes and Tamayo (2017) argue in their review of social capital in corporations that without comprehensive commitment to CSR activities, firms are unlikely to build up any social capital. Moreover, persuasion that social capital can be built through CSR activities is common among corporate managers as well. CEO surveys conducted by PricewaterhouseCoopers (2013, 2014) show that following the crisis, CEOs consider increasing their firms' engagement in CSR activities to restore stakeholder trust.

However, it is possible that CSR is proxying some other intangible factor I fail to recognize, or the results may be biased due to fact that CSR is inexactly defined and thus sensitive for subjective valuation. For instance, McWilliams and Siegel (2000) argue that regression models excluding Research and Development (R&D) expenses are misspecified and result in upwardly biased estimates of the financial impact of CSR. The authors continue and further suggest that controlling for investment in R&D neutralizes the effect of CSR. In addition, Nguyen, Nguyen, and Yin (2015) find that better corporate governance mitigated the disruption caused by external shock to firms' financing and investment activities during the financial crisis. To reduce the probability of such outcomes that do not represent the effect of CSR, I conduct further robustness tests regarding issues discussed above. Moreover, I rely heavily on the existing literature that suggest the conjecture of built social capital and trust through CSR activities.

Associating the definitions of social capital, trust, and CSR to the context of financial crisis, may explain the increased demand for stocks of trustworthy firms that drove the prices of such stocks upwards. Guiso, Sapienza, and Zingales (2008) demonstrate that "the decision to invest in stocks requires not only an assessment of the risk-return trade-off given the existing data, but also an act of faith that the data in our possession are reliable and that the overall system is fair". At so-called normal times, the first part of the sentence is undoubtedly emphasized in decision-making. However, events of the financial crisis lead to catastrophic collapse in confidence (Stiglitz, 2008), which arguably made investors question the reliability of firm-specific information and perhaps the entire financial system. Therefore, the financial crisis provides an idealistic framework to examine, how the concepts of social capital and trust affect crisis-period returns in an environment featuring ultimate loss of trust and pessimism.

This paper is inspired by the work of Lins et al. (2016) who study the effect of social capital and trust as measured by CSR on corporate performance in the U.S. market during the financial crisis. The authors find that high-CSR firms yielded four to seven percentage higher returns than those with low CSR ratings, but also outperformed operatively in terms of revenue growth, profitability, and access to debt capital markets during the crisis. They argue that this was due to built trust through CSR activities between a firm and its stakeholders that pays off when the overall trust declines, as occurred during the financial crisis, describing the social capital as an insurance policy for the firm. Lins et al. (2016) also find that CSR activities produce substantial costs for firms involving in them. In their sample, high-CSR firms have an average of over \$200 million higher annual

Selling, General, and Administrative (SG&A) expenses than low-CSR firms, which strengthens the view of CSR as an insurance policy. Such findings also imply that even if CSR had insuring effect against negative shocks, it could still have negative effect on firm's value in the long-term.

Other prior studies have also found evidence of CSR risk-reduction affection. Albuquerque, Koskinen, and Zhang (2019) model CSR activities as an investment in customer loyalty and find that CSR activities decrease a firm's systematic risk (i.e. its beta) and thus increase firm value. These findings suggest gentler decline of high-CSR stocks when the overall market plummets, as they simply carry less market risk, but also create a hypothesis about lower post-crisis returns. Hong and Liskovich (2016) find that high-CSR firms receive more lenient settlements in lawsuits, while Minor and Morgan (2011) argue that CSR activities provide protection for firm's reputation against negative events. Overall, these results suggest that CSR activities help reduce both systematic and idiosyncratic risk of the firm.

Evidently, based on the discussion above, prior studies suggest that CSR activities not only lower the firm's risk profile, but also serve as an insurance policy for the firm, through built social capital and trust. Therefore, it is fair to assume that high-CSR firms yielded excess returns during the financial crisis, when overall trust in the economy sharply declined.

2 Data and Methodology

2.1 Data Collection

To construct the sample, I collect information on firms' CSR ratings from Refinitiv ESG database, which contains environmental, social and governance (ESG) ratings of large, publicly traded firms. The database covers over 70% of global market cap, across more than 400 different ESG metrics, with history going back to 2002. ESG scores from Refinitiv are designed to objectively measure a firm's relative ESG performance, commitment and effectiveness in ten different categories: resource use, emissions, innovation, workforce, human rights, community, product responsibility, management, shareholders and CSR strategy. In this paper, I focus on five of these categories: resource use, emissions, workforce, human rights and community, and construct the CSR variable by using them. As Lins et al. (2016), I exclude innovation and product responsibility categories, since they are mainly industry-related and thus considered outside the scope of CSR. Finally, I exclude the last three categories as categories under governance are not generally part of a firm's CSR remit (Lins et al. 2016). However, I control governance in further robustness tests.

Refinitiv reports each ESG category separately as a score from 0 to 100. To compute the overall ESG score, each category is weighted by the number of indicators that constitute each category in comparison to all indicators used in the Refinitiv ESG Score framework. The higher weight is assigned for categories that are more mature in terms of disclosure and transparency, and thus computed with a higher degree of confidence. I apply the same formula for category weights in my study when constructing the CSR variable. The category

weights differ significantly from each other: workforce 32 %, emissions 24 %, resource use 21 %, community 15 % and human rights 9 %. Finally, to obtain the primary explanatory variable, a firm's total weighted CSR score, I multiply each category score with the category weights, ending up with CSR score that ranges from 0 to 1.

Table 1. ESG Category definitions

ESG categories and their definitions focused in this paper to construct CSR variable (Refinitiv, 2019). The number of indicators per category determines the weight of the respective category.

Category	Definition	No. Indicators	Weight
Resource Use	Reflects a firm's performance and capacity to reduce the use of materials, energy or water, and to find more eco-efficient solutions by improving supply chain management.	19	20.7 %
Emission	Measures a firm's commitment and effectiveness towards reducing environmental emissions in the production and operational processes.	22	23.9 %
Workforce	Measures a firm's effectiveness towards job satisfaction, a healthy and safe workplace, maintaining diversity and equal opportunities and development opportunities for its workforce.	29	31.5 %
Human Rights	Measures a firm's effectiveness towards respecting the fundamental human rights conventions.	8	8.7 %
Community	Measures a firm's commitment towards being a good citizen, protecting public health and respecting business ethics.	14	15.2 %

I retrieve the stock price data and accounting data from Datastream and Thomson Reuters Eikon, respectively. First, I select public firms that could be either active or inactive by their status to avoid the survivorship bias. Second, I choose stocks of which country of exchange is located in Europe. In case of multiple stock exchange listings, I pick the stock exchange the firm is headquartered in. Third, I remove financial firms that are classified either banks or insurance companies by TRBC Industry Group data. This is due to bank bailouts and massive emergency rescue packages given by European governments, that no less than 114 European banks received during the years 2007 and 2013 (Gerhardt and Van der Vennet, 2016) However, I retain other financials classified by TRBC Economic Sector data, as they are either real estate

investment trusts (REITs), investment banks, holding companies, or other financials that were not crucial to financial system and thus not under government support at time of the financial crisis.

I focus to examine the effect of CSR during the financial crisis, which Lins, Volpin, and Wagner (2013) define as a period from August 2008 to March 2009. August 2008 preceded the month when Lehman Brothers went bankrupt after the Federal Reserve declined to guarantee its loans, while March 2009 was the month when major global indices, including STOXX Europe 600 (a broad European stock index), hit its lowest level of the crisis. However, stocks already started recovering globally during March 2009, and hence February 2009 was the month when STOXX Europe 600 saw its lowest monthly close price. Therefore, I exclude March 2009 from the financial crisis period but control the inclusion of it in further robustness tests.

The main stock return measures for each firm are the Raw Period Return, which is the raw buy-and-hold return including possible dividend payments, and the Abnormal Period Return, which is the raw return minus the expected return. I compute the expected returns from the market model (MacKinlay, 1997) over 60-month period ending in July 2008, as a function of local stock market indices. This regression provides me 5-year monthly beta coefficients for each firm, which I apply to the market model to compute expected returns for the crisis period. Finally, I subtract the expected returns from the raw returns resulting in abnormal crisis-period returns.

Ultimately, after combining all the data, I obtain a sample of 516 firms, excluding banks and insurance companies, with sufficient coverage on ESG data, stock price data, and accounting data from Refinitiv, Datastream, and Thomson Reuters Eikon databases, respectively.

2.2 Descriptive Statistics

Table 2 provides descriptive statistics for main variables of this study as values of median, standard deviation, 25th percentile, median, and 75th percentile. The mean value of CSR, which is the primary explanatory variable of interest, is 0.579, while the median value is 0.599. Raw Period Return is strongly negative, with a mean value of -0.351 , and a median value of -0.344 , expressing the market turmoil that prevailed during the 6-month period from August 2008 to February 2009. Abnormal Period Return is slightly positive with a mean value of 0.015, and a median value of 0.013, excluding firm's systematic risk the market model predicts. The sample contains mainly large-cap stocks, which is due to lack of ESG data, and therefore market capitalizations of the firms are relatively high, with a median value of \$5,630 million, and a minimum value of \$305 million. Momentum, which is the raw return over the preceding 12-month period of my period of interest, is consistently negative, with a mean value of -0.213 , and a median value of -0.224 , indicating the stocks had already experienced major losses before escalation of the crisis.

Table 3 presents correlation matrix of dependent and explanatory variables. CSR is strongly positively correlated with logarithm of market capitalization, with a value of 0.54, indicating larger firms spend more effort to their CSR activities. Therefore, it is essential to control firm's market capitalization to avoid CSR

from picking up the effect of it, and to avoid omitted variable bias. Remarkably, CSR is almost zero correlated with debt levels, and slightly negatively correlated with cash holdings and profitability. This suggest that CSR is not an element of excess investment and output of profitability, excess cash, and financial leeway.

Table 2. Descriptive statistics of the sample.

The sample consists of 516 firms (excluding banks and insurance firms) with all data available to compute stock returns and variables summarized in the table. Accounting data and CSR ratings are computed as of year-end 2007. *CSR* represents a firm's social responsibility in five different categories (resource use, emissions, workforce, human rights, and community). Each category is weighted by the number of indicators that make up each category, resulting in total weighted CSR score that ranges from 0 to 1. *Raw Period Return* is the raw buy-and-hold return including possible dividend payments over the period from August 2008 to February 2009. *Abnormal Period Return* is the raw return minus the expected return over the period from August 2008 to February 2009. The expected return is computed using the market model over the 60-month period ending in July 2008, as a function of local stock market index. *Market capitalization* is presented in US\$ millions. *Long-term debt* is computed as long-term debt divided by total assets. *Short-term debt* is computed as short-term debt divided by total assets. *Cash holdings* is computed as cash and short-term investments divided by total assets. *Profitability* is computed as pretax income (to remove the effect of different country tax rates) divided by total assets. *Book-to-market* is computed as book value of equity divided by market value of equity. *Negative B/M dummy* is a dummy variable set equal to 0 if firm's book-to-market value is positive, and equal to 1 if negative. *Momentum* is the raw return over the period from August 2007 to July 2008. *Idiosyncratic risk* is computed as the residual variance from the market model over the 60-month period ending in July 2008.

Table 2	Mean	Std. Dev	25th perc.	Median	75th perc.
CSR	57.86	20.93	40.23	59.86	75.34
Raw Period Return	-0.351	0.242	-0.531	-0.344	-0.183
Abnormal Period Return	0.015	0.241	-0.129	0.013	0.153
Market capitalization	18,476	36,989	2,362	5,630	14,422
Long-term debt	0.194	0.184	0.069	0.165	0.275
Short-term debt	0.059	0.078	0.013	0.038	0.077
Cash holdings	0.113	0.128	0.034	0.073	0.141
Profitability	0.124	0.113	0.057	0.096	0.159
Book-to-market	0.492	0.492	0.219	0.361	0.603
Negative B/M dummy	0.012	0.107	0	0	0
Momentum	-0.213	0.300	-0.412	-0.224	-0.046
Idiosyncratic risk	0.006	0.005	0.003	0.004	0.007

Table 3. Correlation matrix of dependent variables and explanatory variables.

Table 3	CSR	Raw Return	Abnormal Return	ln(Mkt cap)	Long- term debt	Short- term debt	Cash holdings	Return on assets	Book-to- market	Negative B/M	Momentum
Raw Period Return	0.18										
Abnormal Period Return	0.12	0.74									
ln(Market cap)	0.54	0.08	0.05								
Long-term debt	0.02	-0.01	-0.06	-0.08							
Short-term debt	0.02	-0.11	-0.09	0.00	-0.00						
Cash holdings	-0.13	-0.00	0.10	-0.05	-0.26	-0.09					
Profitability	-0.05	0.06	0.05	0.08	-0.15	-0.10	0.29				
Book-to-market	0.01	-0.15	-0.08	-0.08	0.01	0.07	-0.13	-0.18			
Negative B/M dummy	0.02	0.02	0.02	-0.04	0.40	0.09	0.00	0.16	-0.15		
Momentum	0.05	0.01	-0.24	0.21	-0.13	-0.07	0.05	0.09	-0.21	-0.09	
Idiosyncratic risk	-0.31	-0.21	-0.04	-0.19	-0.01	-0.02	0.20	0.10	0.04	0.02	-0.11

3 Analysis and Findings

I estimate various regressions of stock returns as a function of firms' CSR variables and a number of control variables during the crisis period. The ultimate goal is to examine the effect of CSR on both raw period-returns and abnormal crisis-period returns. To ensure that the effect of CSR is not due to variables correlating with CSR, I control for several variables considered to affect stock returns. In all regressions, I include sector dummies (classified by TRBC Economic Sector data) as some sectors may be more likely to invest in CSR than others. Moreover, some sectors suffered more than others during the crisis (Lins et al. 2016). I also include country dummies (based on country of exchange) due to fact that sample consists of firms from 19 countries and that some countries were hit more by crises than others (Berkmen, Gelos, Rennhack, and Walsh 2012). In addition, I control for the Carhart's four factors (1997) by estimating the factor loadings over the 60-month period ending in July 2008.

I employ several control variables to measure a firm's financial health and other firm characteristics that have been shown to affect stock returns: Market Capitalization (log of market cap), Long-term debt (long-term debt divided by assets), Short-term debt (short-term debt divided by assets), Cash holdings (cash and short-term investments divided by assets), Profitability (pretax income divided by assets), Book-to-market (book value of equity divided by market value of equity), Momentum (raw return over the preceding 12-month period), and Idiosyncratic risk (residual variance from the market model over the preceding 60-month period). Moreover, I introduce Negative B/M dummy for firms with negative shareholders' equity as their returns are more likely to behave as of those with high book-to-market value and under financial distress (Fama and French 1992).

To justify the chosen control variables, Fama and French (1992), and Daniel and Titman (1997) show that firm's size and book-to-market ratio explain cross-sectional variation in stock returns. Carhart (1997) supplement the three-factor-model with fourth, momentum factor. Goyal and Santa-Clara (2003) find significant relation between average stock variance, especially idiosyncratic, and the market return. Duchin, Ozbas, and Sensoy (2010) and Harford, Klasa, and Maxwell (2014) argue that unprofitable firms with a little financial leeway were forced to cut their investment activities, especially if they had short-term debt maturing during the financial crisis. Thus, it is fair to assume these firms underperformed versus their peers with a better financial health. The regression model is formulated as follows:

$$Return_{i,t} = b_0 + b_1 CSR_{i,2007} + Firm\ characteristics + Four\text{-}factor\ loadings + Sector\ dummies + Country\ dummies + e_{i,t}$$

3.1 Baseline Results

Results show that high-CSR firms yielded significantly higher returns compared to low-CSR firms during the financial crisis. Columns (A) and (B) in Table 4 indicate that a one-standard-deviation increase in CSR (0.209) increased raw crisis-period return and abnormal crisis-period return 3.02% (0.50% monthly) and 3.84% (0.63% monthly), respectively.

To ensure that the effect of CSR is not due to variables correlating with CSR, I introduce control variables in columns (C) and (D). Yet, the results still hold and remain significant, although the magnitude of CSR is somewhat weaker in terms of abnormal crisis-period return. A one-standard-deviation increase in CSR resulted in 3.11% (0.51% monthly) higher raw crisis-period return and 2.90% (0.48% monthly) higher abnormal crisis-period return.

The results for control variables are in-line with existing literature as firms with better financial health suffered less during the crisis. Firms benefited from higher profitability and cash holdings and, correspondingly, suffered from higher debt ratios. To illustrate, a one-standard-deviation increase in profitability (0.113) and cash holdings (0.128) resulted in 1.88% and 1.78% increase in raw crisis-period return, respectively. Comparably, a one-standard-deviation increase in short-term debt (0.078) and long-term debt (0.184) resulted in -2.23% and -1.77% decrease in raw crisis-period return, respectively. Remarkably, the effect of control variables measuring financial health were consistently lower than CSR's equivalent for both raw crisis-period return and abnormal crisis-period return, albeit combined effect of short-term debt and long-term debt was greater than CSR's effect.

Value factor (stocks with high book-to-market ratio) had negative effect on returns as well, which is in-line with previous studies suggesting investors move to growth stocks from value stocks in times of high volatility and uncertainty. Moreover, momentum and idiosyncratic risk had significant negative impact, especially on abnormal crisis-period return, while the effect of firm's size was somewhat nonexistent.

Next, I re-estimate the previous regressions but instead of using CSR as an explanatory variable, I divide firms into quartiles based on their CSR. I include dummy variables for the 2nd, 3rd, and 4th quartiles (Q2, Q3, and Q4) while the 1st quartile (Q1) serves as the reference category, of which effect is captured by constant (firms with the lowest CSR). Such setting allows to examine whether the effect of CSR on returns is more intense at some level of CSR activities than others. The regression model is formulated as follows:

$$Return_{i,t} = b_0 + b_1CSRQ2_{i,2007} + b_2CSRQ3_{i,2007} + b_3CSRQ4_{i,2007} + Firm\ characteristics + Four\text{-}factor\ loadings + Sector\ dummies + Country\ dummies + e_{i,t}$$

Columns (A) and (B) in Table 5 show that the positive effect of CSR increases together with its level. When moving from Q1 to Q2, Q3, and Q4, raw crisis-period return increases 1.55%, 5.92%, and 7.73%, respectively. For abnormal crisis-period return, the effect is even more significant, as returns increase 2.79%, 7.79%, and 9.76% when moving from Q1 to Q2, Q3, and Q4, respectively. Distinctly, the intense of CSR leaps substantially between Q2 and Q3 and hence modestly from Q3 to Q4.

Table 4. CSR as an explanatory variable.

$$Return_{i,t} = b_0 + b_1 CSR_{i,2007} + Firm\ characteristics + Four\text{-}factor\ loadings + Sector\ dummies + Country\ dummies + e_{i,t}$$

Linear regressions of crisis-period returns on CSR and control variables over the period from August 2008 to February 2009. Columns (A) and (B) show the results for regressing CSR on Raw Period Return and Abnormal Period Return, respectively, while controlling four-factor loadings, sector dummies, and country dummies. In columns (C) and (D), I repeat the previous regressions but now add firm financial characteristics considered to affect returns. The estimate is presented in the first row. *t*-statistics is in parentheses in the second row. *, **, *** indicate the significance at the 10%, 5%, and 1% level, respectively.

Table 4	Raw return (A)	Abn. Return (B)	Raw return (C)	Abn. Return (D)
CSR	0.1443 (2.912)***	0.1839 (3.664)***	0.1489 (2.499)**	0.1389 (2.305)**
Ln(Market cap)			-0.0034 (-0.293)	0.0088 (0.750)
Long-term debt			-0.0960 (-1.527)	-0.0735 (-1.155)
Short-term debt			-0.2856 (-2.258)**	-0.2660 (-2.078)**
Cash holdings			0.1387 (1.593)	0.1541 (1.749)*
Profitability			0.1663 (1.711)*	0.1136 (1.155)
Book-to-market			-0.0470 (-2.084)**	-0.0286 (-1.256)
Negative B/M dummy			0.0308 (0.298)	0.0096 (0.092)
Momentum			-0.0969 (-1.938)*	-0.1418 (-2.802)***
Idiosyncratic risk			-3.0751 (-1.265)	-5.5976 (-2.275)**
Constant	-0.2688 (-4.287)***	-0.2134 (-3.361)***	-0.1773 (-1.598)	-0.2004 (-1.786)*
Four-factor loadings	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes
N	516	516	516	516
Adjusted R ²	0.1973	0.1717	0.2286	0.2052

As previously, I include control variables to remove the distortions of other firm characteristics. Columns (C) and (D) indicate that CSR affection on returns remains significant but slightly decreases when moving from Q3 to Q4 in terms of abnormal crisis-period return (1.86%, 6.50%, and 6.30%, for Q2, Q3, and Q4, respectively). To same extent, when moving from Q1 to Q2, Q3, and Q4, raw crisis-period return increases 1.36%, 6.42%, and 7.18%, respectively. The results presented are equivocal as they clearly evidence the

positive effect of CSR during the financial crisis but, simultaneously, indicate that CSR's effect on returns is non-linear and even turns negative after reaching certain point. These findings differ from those of Lins et al. (2016), who find that investors were most concerned when a firm had a low level of CSR and most reassured when CSR was at its highest level.

To test whether the effect of CSR actually decreases after reaching point of sufficient trust, I further divide firms into deciles to examine margin effects on returns. However, Figure 1 implies that positive trend exists from the first decile to the last, although some inconsistently after the 8th decile. Accordingly, it appears that investors were most convinced when the level of CSR was high but decelerating increase in returns signals to diminishing marginal utility of CSR activities.

Figure 1. CSR deciles as explanatory variables.

Linear regression of crisis-period returns on CSR deciles over the period from August 2008 to February 2009. Firms are divided into deciles based on their CSR. I control for firm financial characteristics, four-factor loadings, sector dummies, and country dummies.

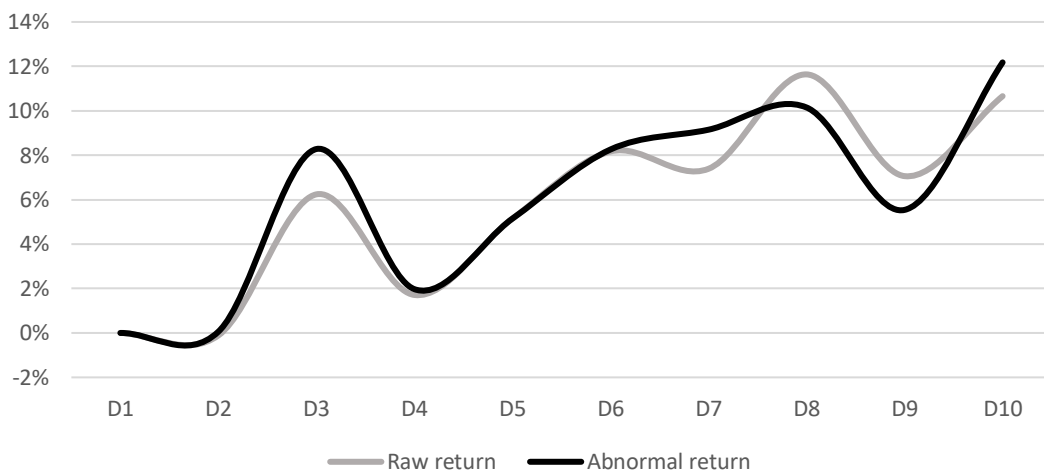


Table 5. CSR quartiles as explanatory variables.

$$Return_{i,t} = b_0 + b_1CSRQ2_{i,2007} + b_2CSRQ3_{i,2007} + b_3CSRQ4_{i,2007} + Firm\ characteristics + Four\text{-}factor\ loadings + Sector\ dummies + Country\ dummies + e_{i,t}$$

Linear regressions of crisis-period returns on CSR quartiles over the period from August 2008 to February 2009. Firms are divided into quartiles based on their CSR by including dummy variables for the 2nd, 3rd, and 4th quartiles. The 1st quartile serves as a reference category. Columns (A) and (B) show the results for regressing CSR quartiles on Raw Period Return and Abnormal Period Return, respectively, while controlling for four-factor loadings, sector dummies, and country dummies. In columns (C) and (D), I repeat the previous regressions but now add firm financial characteristics considered to affect returns. The estimate is presented in the first row. *t*-statistics is in parentheses in the second row. *, **, *** indicate the significance at the 10%, 5%, and 1% level, respectively.

Table 5	Raw return (A)	Abn. Return (B)	Raw return (C)	Abn. Return (D)
CSR Q2	0,0155 (0.553)	0,0279 (0.981)	0,0136 (0.475)	0,0186 (0.642)
CSR Q3	0,0592 (2.094)**	0,0779 (2.720)***	0,0642 (2.145)**	0,0650 (2.144)**
CSR Q4	0,0773 (2.651)***	0,0976 (3.301)***	0,0718 (2.100)**	0,0630 (1.822)*
Ln(Market cap)			-0,0019 (-0.166)	0,0112 (0.970)
Long-term debt			-0,1018 (-1.599)	-0,0818 (-1.270)
Short-term debt			-0,2841 (-2.238)**	-0,2671 (-2.080)**
Cash holdings			0,1265 (1.446)	0,1443 (1.630)
Profitability			0,1680 (1.716)*	0,1122 (1.133)
Book-to-market			-0,0475 (-2.104)**	-0,0289 (-1.264)
Negative B/M dummy			0,0439 (0.421)	0,0234 (0.222)
Momentum			-0,0980 (-1.951)*	-0,1444 (-2.840)***
Idiosyncratic risk			-3,0200 (-1.224)	-5,4701 (-2.190)**
Constant	-0,2208 (-3.827)***	-0,1553 (-2.658)***	-0,1377 (-1.175)	-0,1750 (-1.475)
Four-factor loadings	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes
N	516	516	516	516
Adjusted R ²	0,1951	0,1687	0,2263	0,2025

3.2 Different Elements of CSR and Returns

Since aggregate CSR inevitably affects crisis-period returns, I am interested if only certain elements of CSR are essential for returns. Lins et al. (2016) argue that a firm can build its social capital through a variety of activities and that such activities can enhance the trust of all of a firm's stakeholders. However, it is likely that high-CSR firms enter some activities more often than others, and that some activities are apt to building trust and thus higher valued by stakeholders at time of uncertainty.

To examine this, I compare effects of different elements in two different settings. First, I disaggregate CSR into two elements: those that stand for environmental factors (Resource Use and Emissions) and those that stand for social factors (Workforce, Human Rights, and Community). For the second setting, I divide CSR into two elements: those that influence primarily internal stakeholders (Workforce) and those that influence primarily external stakeholders (Resource Use, Emissions, Human Rights, and Community). To form these elements, I apply the same methodology as for CSR variable and thus exploit the same category weights defined in Table 1. Moreover, I control the same firm characteristics as in prior regressions. The regression model is formulated as follows:

$$Return_{i,t} = b_0 + b_1Element1_{i,2007} + b_2Element2_{i,2007} + Firm\ characteristics + Four\text{-}factor\ loadings + Sector\ dummies + Country\ dummies + e_{i,t}$$

Results in Table 6 indicate a clear distinction between two elements in both settings. Columns (A) and (B) show that a one-standard-deviation increase in environmental (0.254) and social (0.214) factors resulted in 3.13% and 0.11% higher abnormal crisis-period returns, respectively. Correspondingly, columns (C) and (D) indicate that a one-standard-deviation increase in internal (0.263) and external (0.218) stakeholder activities is associated with 0.28% and 2.93% higher abnormal crisis-period returns, respectively. As a consequence, the findings suggest that external stakeholder activities targeted to environmental issues were seen as the most essential aspects to build trust and create shareholder value.

Table 6. Different elements of CSR as explanatory variables.

$$Return_{i,t} = b_0 + b_1Element1_{i,2007} + b_2Element2_{i,2007} + Firm\ characteristics + Four\text{-}factor\ loadings + Sector\ dummies + Country\ dummies + e_{i,t}$$

Linear regressions for two different settings of crisis-period returns on different elements of CSR over the period from August 2008 to February 2009. In the first setting, CSR is divided into two elements: Environmental activities and Social activities. Columns (A) and (B) show the results for the first setting regressing Environmental and Social activities on Raw Period Return and Abnormal Period Return, respectively, while controlling for firm financial characteristics, four-factor loadings, sector dummies, and country dummies. In the second setting, CSR is divided into two elements: Internal stakeholder activities and External stakeholder activities. Columns (C) and (D), show the results for the second setting regressing Internal and External activities on Raw Period Return and Abnormal Period Return, respectively, while controlling for the same variables as in prior columns. The estimate is presented in the first row. *t*-statistics is in parentheses in the second row. *, **, *** indicate the significance at the 10%, 5%, and 1% level, respectively.

Table 6	Raw return (A)	Abn. Return (B)	Raw return (C)	Abn. Return (D)
Environmental	0.1231 (2.293)**	0.1230 (2.264)**		
Social	0.0158 (0.246)	0.0052 (0.080)		
Internal			0.0293 (0.625)	0.0106 (0.224)
External			0.1230 (1.880)*	0.1346 (2.035)**
Control variables	Yes	Yes	Yes	Yes
Four-factor loadings	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes
N	516	516	516	516
Adjusted R ²	0.2294	0.2064	0.2273	0.2045

3.3 Regional Trust, CSR and Returns

Putnam (2000) argues that one's social capital is more valuable in a society where overall social capital is higher, creating hypothesis in this context that value of CSR activities is greater in countries of a higher level of trust.

I obtain data on regional variation in trust from Eurobarometer (Standard EB 69, 2008) conducted by the European Commission's Directorate General Communication during the period from March 2008 to May 2008, which was only a few months before the onset of the crisis. According to the European Parliament, the barometer consists of a series of public opinion surveys covering a wide range of issues focusing mainly on citizens' perceptions and expectations published semi-annually since 1973. The barometer also comprises specific surveys measuring trust towards the European Union and national institutions of the 27 EU member states, including a survey that asks: "I would like to ask you a question about how much trust you have in certain institution (national justice / the legal system). Please tell me if you tend to trust it or tend not to trust it." The survey consists of over 30,000 interviews with an average of 48% trusting their national justice or the legal system. Clearly, there is substantial variation in trust between different countries when only 32% of the interviewees in Italy trusted their justice system compared to 84% in Finland. Generally, the level of trust is higher in the Nordic and Central European countries while being lower in Southern European countries. The main limitation of the data is the fact it covers only EU member states thus omitting three of nineteen countries in the original sample. To address the problem, I exclude firms located in the missing countries (Norway, Russia, and Switzerland) in further regressions, which reduces the sample from 516 to 462 observations.

To test the hypothesis, I repeat the prior analyses but now allow the effect of CSR on returns to vary depending on whether the firm locates in a high- or low-trust region by including an interaction term in the regression model. I apply a dummy variable to mark whether the firm's country of exchange locates in high-trust region. However, the concept of high-trust region is indefinite and thus it is impossible to point out delicately which amount of trust is required to qualify this definition. Therefore, I run a series of regressions with each a different constraint that separates the country from high- or low-trust region by exploiting different high-trust region dummy variables. To illustrate, I apply four different dummy variables in four otherwise identical tests with limits of $\geq 66\%$, $\geq 59\%$, $\geq 55\%$, and $\geq 48\%$ trust in justice system to qualify in high-trust region. This allows me to examine whether the inflation of high-trust dummy affects the power of CSR and hence reveals whether there is a relationship among overall trust in a region, CSR and crisis-period returns. The regression model is formulated as follows:

$$Return_{i,t} = b_0 + b_1CSR_{i,2007} + b_2High\text{-}trust\ region_{i,2008} + b_3(CSR_{i,2007} \times High\text{-}trust\ region_{i,2008}) + Firm\ characteristics + Four\text{-}factor\ loadings + Sector\ dummies + Country\ dummies + e_{i,t}$$

The results in Table 7 show that crisis-period returns are increasingly affected by CSR in high-trust region and that the interaction effect exists. There is also a clear pattern in the effect of CSR on crisis-period returns when the amount of trust required to qualify in high-trust region varies. In other words, by applying

the smallest group of countries with the highest level of trust to represent high-trust region, the interaction effect is at its greatest. Moreover, the effect of CSR in low-trust region is consistently insignificant, especially on abnormal crisis-period returns. To illustrate the findings for raw crisis-period returns, by applying limit of $\geq 66\%$ trust in justice system to separate high- and low-trust regions, a one-standard-deviation increase in CSR is associated with excess returns of 2.45% (0.40% monthly) in low-trust regions, but up to 5.54% (0.90% monthly) in high-trust regions. By applying the same limit of trust for abnormal crisis-period returns, the distinction is even more significant: a one-standard-deviation increase in CSR resulted in excess returns of 1.77% (0.29% monthly) in low-trust regions, but 7.06% (1.14% monthly) in high-trust regions.

The findings in this section suggest a strong link between the overall trust in a society, firm's CSR activities, and excess crisis-period returns. They are in-line with Putnam's (2000) argument that building social capital is more valuable in a society where overall trust is higher as high-CSR firms had outstanding excess returns in high-trust regions, but only minor in low-trust regions. Similarly, Lins et al. (2016) find equivalent results, but distinction between high- and low-trust regions was considerably slighter in the U.S market, implying that Europe is much more heterogeneous area in terms of regional trust.

Table 7. Interaction effect of CSR and regional trust on crisis-period returns.

$$Return_{i,t} = b_0 + b_1CSR_{i,2007} + b_2High-trust\ region_{i,2008} + b_3(CSR_{i,2007} \times High-trust\ region_{i,2008}) + Firm\ characteristics + Four-factor\ loadings + Sector\ dummies + Country\ dummies + e_{it}$$

Linear regressions of crisis-period returns on CSR and regional trust over the period from August 2008 to February 2009. Countries are divided into either high- or low-trust region based on their citizens' trust in national justice / the legal system according to Standard Eurobarometer (2008). I have applied four different limits to separate high- and low-trust regions. Columns (A) and (B) show the results for limit of $\geq 66\%$, columns (C) and (D) for limit of $\geq 59\%$, columns (E) and (F) for limit of $\geq 55\%$, and columns (G) and (H) for limit of $\geq 48\%$. CSR \times High-trust region expresses the interaction effect of CSR and high-trust region on crisis-period returns on conditional High-trust region dummy = 1. CSR \times Low-trust region expresses the effect of CSR on crisis-period returns on conditional High-trust region dummy = 0. In all regressions, I control for firm financial characters, four-factor loadings, sector dummies, and country dummies. The estimate is presented in the first row. *t*-statistics is in parentheses in the second row. *, **, *** indicate the significance at the 10%, 5%, and 1% level, respectively.

	Trust in justice system $\geq 66\%$		Trust in justice system $\geq 59\%$		Trust in justice system $\geq 55\%$		Trust in justice system $\geq 48\%$	
Table 7	Raw return (A)	Abn. Return (B)	Raw return (C)	Abn. Return (D)	Raw return (E)	Abn. Return (F)	Raw return (G)	Abn. Return (H)
CSR \times High-trust region	0.2650 (3.024)***	0.3377 (3.362)***	0.2250 (2.752)***	0.2840 (3.068)***	0.1711 (1.991)**	0.1844 (2.021)**	0.1490 (1.322)	0.1521 (1.301)
CSR \times Low-trust region	0.1172 (1.804)*	0.0847 (1.293)	0.1169 (1.735)*	0.0779 (1.146)	0.1192 (1.460)	0.0784 (0.949)	0.1488 (1.321)	0.0875 (0.768)
Firm characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Four-factor loadings	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	462	462	462	462	462	462	462	462
No. firms in high-trust	104	104	152	152	319	319	423	423
No. Firms in low-trust	358	358	310	310	143	143	39	39
Adjusted R ²	0.2294	0.2107	0.2287	0.2097	0.2275	0.2055	0.2270	0.2040

3.4 Industry Trust, CSR and Returns

Similar to previous section, I examine whether the effect of CSR on crisis-period returns is conditional on industry trust, i.e. how trustworthy people perceive certain industries.

I obtain data on industrial variation in trust from Edelman Trust Barometer (2008) produced by Edelman Intelligence during 2007-2008. The barometer is a global survey measuring trust and credibility in institutions such as non-governmental organizations, firms, and government. A survey that measures trust of informed publics in different industry sectors conducted in 18 countries asks: “Please tell me how much you trust businesses in each of the following industries to do what is right. Please use a nine-point scale where one means that ‘you do not trust them at all’ and nine means that you ‘trust them a great deal’”. Again, there is a considerable variation on how trustworthy respondents perceive different industries as technology scored 77% in the survey compared to 46% scored by media companies.

To test the conjecture, I apply the same methodology as in previous section. I include a similar interaction term in the regression model to test the interaction effect of high- and low-trust industries on CSR and crisis-period returns. I apply a dummy variable to reflect whether the firm operates in a high-trust industry. Likewise, I conduct two otherwise identical tests, but with different dummy variables that represent different acceptable levels ($\geq 59\%$ and $\geq 57\%$) of trust in separation of high- and low-trust industries, responding to the indefinite nature issue. The regression model is formulated as follows:

$$Return_{i,t} = b_0 + b_1 CSR_{i,2007} + b_2 High-trust\ industry_{i,2008} + b_3 (CSR_{i,2007} \times High-trust\ industry_{i,2008}) + Firm\ characteristics + Four-factor\ loadings + Sector\ dummies + Country\ dummies + e_{i,t}$$

The results in Table 8 indicate that crisis-period returns are more affected by CSR in trustworthy industries. Moreover, the interaction effect increases by raising the acceptable level of trust in industries to qualify in high-trust category, which supports the implication that CSR activities are more valuable in trustworthy industries. For raw crisis-period returns, by applying limit of $\geq 59\%$ industry trust to divide high- and low-trust industries, a one-standard-deviation increase in CSR is associated with excess returns of 2.29% (0.38% monthly) in low-trust industries, but up to 6.59% (1.07% monthly) in high-trust industries. By applying the same limit of trust for abnormal crisis-period returns, the interaction effect is slightly lower: a one-standard-deviation increase in CSR is associated with excess returns of 2.29% (0.38% monthly) in low-trust industries, but 5.43% (0.89% monthly) in high-trust industries. The findings are very similar to those found in regional differences in trust and provide additional supporting evidence from interaction effect of trust and CSR on crisis-period returns.

Table 8. Interaction effect of CSR and industry trust on crisis-period returns.

$$Return_{i,t} = b_0 + b_1 CSR_{i,2007} + b_2 High\text{-}trust\ industry_{i,2008} + b_3 (CSR_{i,2007} \times High\text{-}trust\ industry_{i,2008}) + Firm\ characteristics + Four\text{-}factor\ loadings + Sector\ dummies + Country\ dummies + e_{i,t}$$

Linear regressions of crisis-period returns on CSR and industry trust over the period from August 2008 to February 2009. Industries are divided into either high- or low-trust industry based on informed publics' trust in each industry according to Edelman Trust Barometer (2008). I have applied two different limits to separate high- and low-trust industries. Columns (A) and (B) show the results for limit of $\geq 59\%$ and columns (C) and (D) for limit of $\geq 57\%$. $CSR \times High\text{-}trust\ industry$ expresses the interaction effect of CSR and high-trust industry on crisis-period returns on conditional High-trust industry dummy = 1. $CSR \times Low\text{-}trust\ industry$ expresses the effect of CSR on crisis-period returns on conditional High-trust industry dummy = 0. In all regressions, I control for firm financial characters, four-factor loadings, sector dummies, and country dummies. The estimate is presented in the first row. t-statistics is in parentheses in the second row. *, **, *** indicate the significance at the 10%, 5%, and 1% level, respectively.

Table 8	Industry trust $\geq 59\%$		Industry trust $\geq 57\%$	
	Raw return (A)	Abn. Return (B)	Raw return (C)	Abn. Return (D)
CSR \times High-trust industry	0.3154 (3.577)***	0.2598 (3.037)***	0.2821 (3.328)***	0.1743 (2.369)**
CSR \times Low-trust industry	0.1097 (1.734)*	0.1095 (1.709)*	0.1029 (1.580)	0.1255 (1.900)*
Firm characteristics	Yes	Yes	Yes	Yes
Four-factor loadings	Yes	Yes	Yes	Yes
Sector dummies	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes
N	516	516	516	516
No. firms in high-trust ind.	104	104	149	149
No. firms in low-trust ind.	412	412	367	367
Adjusted R ²	0.2309	0.2050	0.2304	0.2024

3.5 Robustness Tests

I conduct a series of robustness tests to check whether the findings are robust after several adjustments to regression model inputs. First, I test robustness of the results by changing measurement time of CSR, to see whether the variable is persistent over the short-term period. In the baseline results, CSR and other variables are measured at the end of 2007, which was the preceding year the financial crisis escalated. However, stocks had already declined in Europe during that year, after having peaked in July 2007. Therefore, it is possible that some firms anticipated the upcoming market turmoil and began adjusting their CSR activities accordingly.

To test this, I measure CSR at the end of 2006, at which time firms were presumably free of concerns and unable to predict the difficulties ahead. It is also possible that CSR is just an element of excess investment for well-performing firms before the crisis. Hence, these firms were forced to cut their excesses and abandon their operations that had negative net present value resulting in better performance than their peers during the

crisis. To address this concern, I also measure CSR at the heart of the crisis, as of year-end 2008, when those firms of excess investment had arguably cut their CSR activities. Table 9 shows that findings are robust and remain significant. Apparently, the baseline results are set between CSR measures from 2006 and 2008. In other words, the effect of CSR intensifies when the measurement date approaches the crisis period.

Table 9. Robustness tests on different measurement dates of CSR.

Linear regressions of crisis-period returns on CSR over the period from August 2008 to February 2009. Columns (A) and (B) show the results for regressing CSR measured in 2006 on Raw Period Return and Abnormal Period Return, respectively, while controlling for firm financial characteristics, four-factor loadings, sector dummies, and country dummies. Columns (C) and (D) show the results for regressing CSR measured in 2008 on Raw Period Return and Abnormal Period Return, respectively, while controlling for the same variables as in prior columns. The estimate is presented in the first row. *t*-statistics is in parentheses in the second row. *, **, *** indicate the significance at the 10%, 5%, and 1% level, respectively.

Table 9	CSR 2006		CSR 2008	
	Raw return (A)	Abn. Return (B)	Raw return (C)	Abn. Return (D)
CSR	0.1315 (2.079)**	0.1202 (1.852)*	0.1740 (2.878)***	0.1631 (2.603)***
Control variables	Yes	Yes	Yes	Yes
Four-factor loadings	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes
N	430	430	457	457
Adjusted R ²	0.2428	0.1853	0.2676	0.2242

Second, I test whether the results are dependent on selected time period for the financial crisis. I excluded March 2009 as part of the crisis period as February 2009 was the month when STOXX Europe 600 saw its lowest monthly close price. However, stocks continued to decline in the beginning of March, reaching their crisis lows, but strongly recovered ever since. However, despite of including March 2009, results in Table 10 show that findings remain significant although slightly weaker, which is presumably due to risen overall trust reflected by increased stock returns and market optimism.

Table 10. Robustness test on alternative crisis-period.

Linear regressions of crisis-period returns on CSR over the period from August 2008 to March 2009. Columns (A) and (B) show the results for regressing CSR on Raw Period Return and Abnormal Period Return, respectively, while controlling for firm financial characteristics, four-factor loadings, sector dummies, and country dummies. The estimate is presented in the first row. *t*-statistics is in parentheses in the second row. *, **, *** indicate the significance at the 10%, 5%, and 1% level, respectively.

March 2009 included		
Table 10	Raw return (A)	Abn. Return (B)
CSR	0.1185 (1.964)**	0.1187 (1.897)*
Control variables	Yes	Yes
Four-factor loadings	Yes	Yes
Industry dummies	Yes	Yes
Country dummies	Yes	Yes
N	516	516
Adjusted R ²	0.1854	0.1955

Third, I test whether inclusion of governance variable affects the results, as some recent studies have shown that well-governed firms outperformed their peers during the financial crisis (Lins et al. 2013; and Nguyen et al. 2015). If CSR was correlating with governance, it could be simply proxying the effect of governance, resulting in omitted variable bias. To test this, I control governance by using the same ESG data provided by Refinitiv. I apply Governance Pillar Score to proxy the quality of each firm's governance and scale it to range from 0 to 1 as CSR does. Governance Pillar is one of three pillars constituting overall ESG, and it is formed by three categories: management, shareholders, and CSR strategy. As other ESG categories, each governance category is weighted by the number of indicators that constitute each category. Management stands for the largest category with a weight of 63%, while shareholders and CSR strategy have weights of 22% and 15%, respectively. To test the hypothesis, I repeat the baseline regressions, but this time include governance as another explanatory variable along with CSR.

Similar to results in Aebi, Sabato, and Schmid (2012) and Lins et al. (2016), columns (A) and (B) in Table 11 show that governance has no significant effect on returns as an explanatory variable, while the positive effect of CSR slightly increases compared to baseline results in Table 4.

Table 11. Robustness tests. Controlling for Governance & R&D investments.

Linear regressions of crisis-period returns on CSR over the period from August 2008 to February 2009. Columns (A) and (B) show the results for regressing CSR and Governance on Raw Period Return and Abnormal Period Return, respectively, while controlling for firm financial characteristics, four-factor loadings, sector dummies, and country dummies. Columns (C) and (D) show the results for regressing CSR and R&D investments on Raw Period Return and Abnormal Period Return, respectively, while controlling for the same variables as in prior columns. The estimate is presented in the first row. *t*-statistics is in parentheses in the second row. *, **, *** indicate the significance at the 10%, 5%, and 1% level, respectively.

Table 11	Raw return (A)	Abn. Return (B)	Raw return (C)	Abn. Return (D)
CSR	0.1586 (2.566)**	0.1537 (2.457)**	0.2433 (2.847)***	0.1955 (2.401)**
Governance	-0.0304 (-0.594)	-0.0460 (-0.889)		
R&D investment			0.5311 (1.483)	0.7756 (2.273)**
Control variables	Yes	Yes	Yes	Yes
Four-factor loadings	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes
N	516	516	229	229
Adjusted R ²	0.2276	0.2049	0.2969	0.2182

As a final robustness test, I check whether the results are robust to controlling for investment in R&D. McWilliams and Siegel (2000) argue that regression models excluding R&D expenses are misspecified and result in upwardly biased estimates of the financial impact of CSR and inclusion of such costs neutralizes the effect of CSR. Padgett and Galán (2010) study the effect of R&D intensity on CSR and find that R&D intensity positively affects CSR. They argue that the relationship is significant in manufacturing industries whereas insignificant in non-manufacturing industries. To construct R&D investment variable for each firm, I retrieve R&D expenses for the financial year 2007 and divide it by total assets measured at the end of 2007. However, such data is available for less than half of the firms in the original sample, which limits the number of observations to 229 in this test, reducing the comparability of results. As previously, I repeat the baseline regressions, but this time include investment in R&D as another explanatory variable along with CSR.

Columns (C) and (D) in Table 11 show that the results are robust, yet investment in R&D positively affects returns and has significant effect on abnormal crisis-period return. It is also worth noting that adjusted R² of the regression model increases compared to baseline results, especially in terms of raw crisis-period return, which is in-line with the argument of McWilliams and Siegel (2000) that investment in R&D should be included in regression models including CSR. However, this may be a consequence of reduced sample size

as well. Overall, both CSR and R&D investment seem to explain crisis-period returns, although the effect of R&D investment is at most indicative and calls for further examination in this context.

4 Discussion

The outperformance of high-CSR firms during the financial crisis supports the view that CSR activities offer protection from an economic shock. Albuquerque et al. (2019) find that CSR activities decrease firm's systematic risk. In other words, high-CSR firms suffered less since they are less exposed to market risk, which explains greater raw crisis-period returns compared to other firms. If this was only the case, those firms should also have zero abnormal crisis-period returns, as the lower systematic risk would have been predicted by the market model. Therefore, high-CSR firms appear to carry less idiosyncratic risk as well whether this is due to increased trustworthiness or some other unidentified factor. However, a number of tests presented in this paper supported with existing literature suggest that firms' CSR activities are apt to building social capital and trust that benefits at times when overall trust declines, as happened during the financial crisis.

Trust-building effect of CSR activities seem to be two-parted, when the first benefit comes from an operational improvement. Albuquerque et al. (2019) model CSR activities through customer loyalty and argue that superior CSR goods consumed by wealthy customers have more stable demand across the economic cycle. Similarly, Lins et al. (2016) suggest that customer loyalty is one of the channels through which high-CSR firms gained operatively during the crisis but base their argument on the reciprocity concept. Moreover, by applying the same reciprocity concept, they suggest that employee and investor channels also helped high-CSR firms during the crisis, through increased efficiency (measured as sales per employee) and debt capital raising.

The second part relates to more abstract concept reflected in a valuation premium that investors arguably place on high-CSR firms at time of negative economic shock. This phenomenon is strongly linked to firms' social capital and trust in the literature, as the excess returns cannot be explained by increased figures as in operational improvement. Guiso et al. (2008) argue that "the decision to invest in stocks requires ... also an act of faith that the data in our possession are reliable and that the overall system is fair", which most of time, investors and other stakeholders supposedly take as granted. However, the financial crisis was a severe systemic crisis that shook the people's trust in fundamental institutions, observed in a sharp decline of overall confidence (Roth, 2009). For instance, for the first time since the creation of the European Central Bank, majority of European citizens no longer trusted in it (Standard Eurobarometer 71, 2009). Therefore, if the assessment of financial data reliability and overall system fairness moved closer towards the central decision-making, investors likely prefer trustworthy seen high-CSR firms that have built their social capital and trust through various CSR activities.

The findings presented in this paper are consistent in many ways with those of Lins et al. (2016) with the exception of a few circumstances. The magnitude of CSR variable on crisis-period returns is similar in both geographical areas, although I find that the difference between the 3rd and the 4th quartiles (quartiles of high-CSR firms) is only minor or even nonexistent, which contradicts with the findings of their study. However, I find that the major benefit of CSR activities arises between the 2nd and the 3rd quartiles, with roughly 5% increase in crisis-period excess returns.

As Lins et al. (2016), I show that regional trust is strongly related to firm's CSR activities and excess crisis-period returns. The relationship of those three factors appears to be even stronger in Europe, as high-CSR firms yielded outstanding 1.14% monthly abnormal returns in high-trust regions, but only minor (0.29% monthly) in low-trust regions during the crisis-period. I argue that the increased interaction effect of regional trust on CSR activities is due to heterogeneous nature of Europe, which emphasizes the regional differences in trust and thus the power of CSR activities across the continent. More practical approach would suggest that firms in the Nordic and Central European countries (in this study: Finland, Denmark, Sweden, Austria, Netherlands, and Germany) should enter in CSR activities, but also accept lower cost of equity in high-CSR investments and projects, as they reduce firms' risk profile in the countries where the overall trust in justice, legal system, and fundamental institutions is greater. To same extent, firms in Southern Europe countries or other low-trust regions (e.g. GIIPS countries) should not have the same incentives to enter in CSR activities as the added (economic) value of such activities is indifferent.

I also find evidence that the same implication applies to trustworthy industries. High-CSR firms operating in such industries (e.g. technology, health care, and retail) produced substantial 0.89% monthly abnormal returns, but only 0.38% monthly abnormal returns in more unreliable industries (e.g. media, entertainment, and CPG manufacturing). By approaching the topic from an aspect of controversial industries, Palazzo and Richter (2005) study CSR engagement in the tobacco industry and find that CSR is based upon a much thinner approach. This is because mainstream aspects of CSR (e.g. philanthropy and stakeholder collaboration) are non- or even counterproductive in the tobacco industry due to deep distrust towards the industry. Nevertheless, Jo and Na (2012) find that firm's CSR engagement actually reduces risk more effectively in controversial industries. Thus, above findings suggest that the difference between high- and low-trust industries is not due to CSR's risk reduction effect, but in a way how firms approach CSR engagement in different industries. In other words, firms in trusted industries assimilate CSR in a broader manner, which is arguably seen as more trustworthy among stakeholders.

Yet, probably the biggest contradiction between the results of this paper and those of Lins et al. (2016) is the one from the different elements of CSR and their effects on crisis-period returns. They find evidence that both internal and external stakeholder activities have significant effect on crisis-period returns and suggest that both activities were seen as valuable by investors. Comparably, my findings suggest that only external stakeholder activities targeted to environmental issues have significant effect on crisis-period returns. The

difference may be a consequence of different data sources and different methodology applied in ESG scores calculation by data providers as well (MSCI vs. Refinitiv).

However, there is also an ongoing debate in the literature as to whether, especially, environmental or social elements are value-creating elements. Similar to my findings, (e.g. Hart, 1995; Russo and Fouts, 1997) argue that outstanding presence in environmental activities combined to its effective communication to external stakeholders could reinforce and differentiate a firm's reputation. Cormier and Magnan (2013) find that reliable and relevant environmental disclosures enhance firm's legitimacy but also help analysts conduct more accurate earnings forecasts. Consequently, the findings suggest that environmental activities, which also belong to external stakeholder activities, appear to increase firm's transparency that may be viewed as greater trustworthiness at time of uncertainty. Furthermore, findings of Cormier and Magnan (2013) indicate that environmental activities help communicating firm's intrinsic value reflected in better analyst forecasts, that may act as counterreaction in a stock market crash as investors tend to overreact to unexpected and dramatic news (De Bondt and Thaler, 1985).

Correspondingly, social activities are mostly linked to improvement in operational performance, which I relate to the first part of CSR's trust-building benefits in this paper. Similar to prior arguments of channels through which high-CSR firms gained operatively, Qui, Shaukat, and Tharyan (2015) argue that advantages gained through social disclosures "can manifest in the form of enhanced ability of the firm to attract and retain higher quality human capital, higher customer and supplier loyalty, and increased firm sales.", which is exactly what Lins et al. (2016) suggest and find in their study. Perhaps, the European high-CSR firms did not experience similar improvement in operative performance, which would explain the differences in results. If this was the case, the excess returns gained by high-CSR firms would be exclusively due to the second part of CSR benefits gained through environmental activities and reflected in a valuation premium that investors place on high-CSR firms during the crisis. However, as a caveat, this is only speculation since the analysis of operational improvements is outside of the focus in this study. Finally, it is also possible that current metrics measuring social activities fail to capture its effect as such activities are more hard-to-measure compared to environmental activities.

Despite of the protection CSR evidently provides from a crisis of trust, it unfortunately does not offer a shortcut to success as general investment strategy. A number of studies have shown that socially responsible investing (SRI) has insignificant effect on portfolio returns (e.g. Galema, Plantinga, and Scholtens, 2008) or is even related to negative risk-adjusted returns (e.g. Renneboog, Ter Horst, and Zhang, 2008). Hypothetically speaking, if the returns of high-CSR stocks were solely dependent on the level of trust, all else being equal, the only possible outcome after a crisis of trust would be negative excess returns assuming that there is an inverse relationship and the level of trust recovers. Moreover, CSR activities appear not to provide protection from all the economic crises. Lins et al. (2016) show that high-CSR firms had significant excess returns during the Enron crisis of 2001-2003 surrounded by accounting scandals but find no evidence of excess returns during

a shock to the supply of credit of 2007-2008. They argue that the shock to the supply of credit was not a crisis of trust supported by Edelman Trust Barometer, which showed no decline in confidence during the crisis.

After all, this study is not without limitations. First, due to lack of historical data, I manage to gather a sample of 516 firms which obviously covers only a fraction of European public firms at time of the financial crisis. This is mostly due to a circumstance that ESG data is only available for larger firms, e.g. Refinitiv provides ESG data for one-quarter of over 2,000 firms with market cap of over \$250 million. Therefore, my sample is biased to represent only larger firms in the economy, and it is possible that the findings do not apply for SMEs as well. Second, although I control for many factors considered to affect returns, it is always possible that CSR is correlated with some other unidentified variable being attributable to some other factor instead of social capital and trust. Third, the measures for calculating ESG scores are always subjective, due to abstract nature of concepts it includes, meaning that modifying the methodology could result in different ESG scores and results in this paper. Fourth, in this study, CSR is set to proxy the effect of social capital and trust. Thus, it is possible that the effect of CSR is not based upon the concepts discussed in this paper, but some other concepts outside of the scope of this study. Finally, the financial crisis was probably a once-in-a-generation event due to its exceptionally severe nature. Therefore, it is possible that the findings presented in this study cannot be generalized for other historical events or similar crises in the future. Nonetheless, the fact that my findings hold after controlling for numerous firm's financial characteristics, other factors related to stock returns, sector, country, and a number of robustness tests, provides strong support for robustness of the results.

5 Conclusion

The findings summarized in this paper indicate that high-CSR firms enjoyed 6-7% higher excess returns compared to low-CSR firms in Europe during the financial crisis of 2008-2009. I also show that regional and industry trust are strongly positively related to firm's CSR activities and excess crisis-period returns, and that the effectiveness of CSR activities on excess returns varies substantially across the Europe and industries. Existing literature points out that CSR activities not only help firms reduce their systematic and idiosyncratic risk but build social capital and trust that benefits when the overall trust suddenly declines. Thus, CSR activities serve as if an insurance policy for the firms as prior studies have also shown (e.g. Lins et al. 2016). Assumptions and propositions presented in this paper rely strongly on that conjecture of built social capital and trust through CSR activities.

Moreover, I find that not all the elements of CSR offer protection from an economic shock, which contradicts with previous findings (e.g. Lins et al. 2016). I suggest that environmental activities effectively communicated to external stakeholders were most appreciated by investors during the crisis, while internal stakeholder and social activities of CSR had no effect on crisis-period returns. Prior studies (e.g. Cormier and Magnan, 2013) suggest that environmental activities particularly increase firm's external reputation and

transparency that could be viewed as greater trustworthiness at time of uncertainty, but also effectively communicated intrinsic value.

My findings combined with existing literature have many practical implications as well. From the firm's perspective, given the lower systematic and idiosyncratic risk, investments that increase firm's CSR should be discounted with lower cost of equity (Albuquerque et al. 2019). I extend this by suggesting that firms in high-trust regions (e.g. the Nordic and Central European countries) and operating in trustworthy industries (e.g. technology and healthcare) should accept lower cost of equity in high-CSR investments and projects than their counterparts. From the investor's perspective, given the same assumptions of lower beta and idiosyncratic risk, investors should accept lower required rate of return for high-CSR firms and consider firm's CSR activities in the choice of stocks to include in a portfolio (Albuquerque et al. 2019). I further extend this by arguing that investors should also take into account firm's geographical location and industry, but also the nature of CSR activities when considering the value of firm's CSR activities. High-CSR firms in such regions and industries could also be used for hedging one's portfolio.

Overall, these findings contribute to current CSR literature that broadens the focus beyond traditional explanatory variables on stock returns, to social capital and overall trust, especially at time of crisis when trust is most needed. The main implication from the results is that CSR serves as an insurance policy for negative events. Prior findings and the ones presented in this paper also imply that the trust-building effect of CSR seem to be two-parted during a crisis of trust: it helps firms perform operatively better and is associated with a valuation premium investors place for firms involved in such activities. However, since I only focus on the financial crisis, which was an exceptionally severe systemic crisis and probably a once-in-a-generation event, it is uncertain if my results hold in other crises of trust. Therefore, it opens opportunities for future research, as well as the contribution of different parts of CSR on returns.

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