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Corporate social responsibility and credit rating around the world: The role of societal trust

Kiyoung Chang[1] | **Ying Li[2]** | **Hyeongsop Shim[3]**

[1]University of South Florida, Sarasota, Florida, USA

[2]School of Business, University of Washington Bothell, Bothell, Washington, USA

[3]College of Business & Economics, Gachon University, Seongnam-si, South Korea

Correspondence
Ying Li, School of Business, University of Washington Bothell, Bothell, Washington, USA.
Email: yli2@uw.edu

Abstract

We hypothesize that societal trust alleviates moral hazard concerns that undermine credit rating agencies' perceived value of corporate social responsibility (CSR). We test our hypothesis using a large global sample and find a more salient relationship between CSR and credit rating only in countries with high societal trust. Our findings reconcile the mixed empirical worldwide evidence on this relationship. Additional tests provide further evidence that it is societal trust, not other country-level factors, that drives our results.

KEYWORDS
corporate social responsibility, credit rating, credit risk, moral hazard, societal trust

JEL CLASSIFICATION
G24, G32

1 | INTRODUCTION

From multinational conglomerates to fast-growing startups, firms are engaging in the practices of corporate social responsibility (CSR hereafter), which aims to advance a broad set of stakeholder relationships (Hillman & Keim, 2001) through activities that transcend legal requirements.[1] They do so for good reason: researchers theorize and show that CSR functions like insurance as it reduces uncertainty by satisfying stakeholder needs (Godfrey, 2005; Godfrey et al., 2009). Creditors consider borrower social performance in lending decisions (Chava, 2014); and credit rating agencies include "environmental stewardship" and "group and government influence" in ratings criteria (Moody's and S&P Credit Rating Criteria). As studies of the relation between CSR and credit rating in the United States, such as Attig et al. (2013) and Jiraporn et al. (2014) point out, CSR conveys important non-financial information that credit rating agencies consider to be a positive indicator of the firm's creditworthiness.

Even though CSR is gradually becoming a global norm (Waddock, 2008), empirical studies using global samples document the differential impacts of CSR on credit rating (Menz, 2010; Stellner et al., 2015).[2] Why do credit rating agencies vary in their assessment of corporate social performance (CSP)? We hypothesize that the relation between

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CSP and credit rating varies because of moral hazard concerns that credit rating agencies have with respect to the unknown managerial incentives that underlie CSR engagement. As an information gathering and processing intermediary, credit rating agencies are highly sensitive to information asymmetries which lead to adverse selection and/or moral hazard concerns (Millon & Thakor, 1985). Unlike the financial factors that have a more straightforward impact on credit risk, the impact of nonfinancial factors like CSR engagement and performance, when combined with unobservable managerial incentives, is more challenging to assess. Indeed, the agency theory-based view of CSR (Friedman, 1971; Jensen & Meckling, 1976) expresses severe moral hazard concerns associated with CSR, suggesting that managers use CSR to serve themselves, such as developing their own pet project or building their own reputation, instead of serving shareholder interests. Therefore, CSR can be a waste of resources and an indicator for agency cost.

Past research shows that moral hazard concerns can be alleviated by certain formal and informal institutional (religious, cultural, and ethical) frameworks (Brockman et al., 2020; Zak & Knack, 2001). Existing research also finds that CSR alleviates information asymmetry and fills an institutional void (Dhaliwal et al., 2012; El Ghoul et al., 2017). As an informal institution, country-level societal trust protects investors by mitigating moral hazard concerns such as opportunistic managerial behavior and self-dealing (Cline & Williamson, 2016). Following these clues, we hypothesize that societal trust plays an important role in the relation between CSR and credit rating agencies' assessment of CSR.

According to a widespread view among practitioners and corporations, a firm's CSR activities generate social capital and trust (Fitzgerald, 2003; Lins et al., 2017). It is likely that credit rating agencies value CSR more in countries with higher societal trust. CSR is more likely to result in "reciprocity" in more trusting countries (Berg et al., 1995), which suggests that CSR outcomes are more likely to bear fruit and be observed in these countries. Alternatively, credit rating agencies may value CSR more in countries with lower societal trust. When a country's overall societal trust is low, a firm can signal its trustworthiness to rating agencies by engaging in CSR to build more social capital and earn a "credit rating premium."

We investigate how the relation between a firm's CSR score and long-term S&P credit rating varies with country-level societal trust, focusing on the interaction between societal trust and CSR. Using a comprehensive sample of 1446 unique firms with 9933 firm-year observations from 42 countries in six continents over the period 2002–2014,[3] we find that in countries with above-median societal trust, CSR has a more salient impact on credit rating.

Our main proxy for country-level societal trust is a widely used measure based on survey answers collected by the World Values Survey (WVS). We also include two other measures, corruption perception index (CPI) and media freedom (MF), as proxies for societal trust. We then create dummy variables for these proxies to differentiate high- and low-societal trust based on the sample median.[4] Following the literature on credit rating, we use both linear regression and ordered logit regression models to examine the relation between CSR and long-term credit rating after controlling for year, industry/firm, and country fixed effects, and other time-varying country-level factors (country sovereign rating, GDP per capita, etc.).We focus on the interaction between societal trust and CSR. The result – that credit rating agencies value CSR more in countries with high societal trust – is robust to the choice and form of proxy (continuous vs. dummy variable). The economic significance is non-trivial as well: the contribution of CSR to long-term credit rating is 1.24 notches higher in a country with above-median societal trust.

To confirm societal trust is indeed the institutional factor that drives our results, we include in the regression model the interaction terms of CSR with other country-level factors including CSR with private credit, GDP per capital, etc. Furthermore, we investigate the robustness of the role that societal trust plays by varying country factors documented to influence the value of CSR. Our results suggest that credit rating agencies value CSR more in countries with above-median societal trust regardless of a country's legal origin, stakeholder orientation, and anti-director tendency. We conduct additional tests with the help of external shocks (sovereign credit rating downgrades and financial crises) and instrumental variable regressions to mitigate the concern that CSR and trust are both endogenous variables. Results suggest that credit rating agencies value CSR only in countries with above-median societal trust.

The current study contributes to the literature in several ways. First, it contributes to the debate regarding the value of CSR by highlighting the importance of moral hazard concerns and by providing evidence that moral hazard concerns are at least partially attributable to a lack of societal trust. Even though credit rating agencies are likely

believers of the stakeholder view, they may not recognize or reward CSR efforts in a country with severe concerns over the unobservable managerial intentions.

Second, the paper empirically tests two possible roles that societal trust can play with respect to how a credit rating agency interprets CSR's contribution to credit risk, adding to the literature on the important role trust plays in economic activity (Amiraslani et al., 2016; Brockman et al., 2020; Cline & Williamson, 2016; Duarte et al., 2012; Gennaioli et al., 2015; Guiso et al., 2004, 2008, 2009; Gurun et al., 2015; Knack & Keefer, 1997; La Porta et al., 1997; Lins et al., 2017; Putnam et al., 1994; Zak & Knack, 2001). We show that societal trust and CSR are complements instead of substitutes in this specific context.

Finally, we reconcile previous mixed results with a more comprehensive and balanced sample, which helps us obtain results that are less biased. To the best of our knowledge, this is the most comprehensive study with various legal origins well represented on the relation between CSR and credit ratings.[5] The tests using instrumental variables, interaction terms, and external shocks to alleviate endogeneity concerns. We introduce historical population density as a new instrumental variable for CSR that satisfies both relevance and exclusion criteria. Furthermore, our results are less troubled by the omitted variables concern, as they continue to hold after controlling for time-varying country, year, and industry fixed effects. For example, in all of our empirical estimations we include sovereign credit rating, a variable that is time-varying and has important influence on a firm's credit rating, yet often gets ignored in previous studies.

2 | BACKGROUND AND HYPOTHESES

Credit rating agencies play a central role in financial markets by supplying their assessment of a firm's creditworthiness in the form of a credit rating (Kisgen & Strahan, 2010). Indeed, credit rating is a key financial measure with a major influence on the cost of debt, including the cost of public and private debt, and use of credit lines (Faulkender & Petersen, 2006; Kisgen, 2006; Sufi, 2009). As dedicated information gathering agencies, their opinion on the value of CSR as reflected in credit ratings is authoritative and influential, offering a unique perspective with respect to the debate on the CSR value.

As a firm functions as a nexus of incomplete contracts and makes firm-specific investments upon stakeholder demands, it is a natural consequence that uncertainties will arise in the relationship between the firm and its stakeholders (Hart, 2001; Titman, 1984). Today with stand-alone companies rising from declining large conglomerates, vertically integrated manufacturers moving toward looser forms of collaboration with their suppliers, and human capital emerging as the most crucial asset (Zingales, 2000), stakeholder relationships are becoming more important and warrant more attention. Corporations try to address stakeholder needs by engaging in CSR activities. For example, firms compete to improve employee welfare, participate in community building, and give up billions of dollars of revenue by distancing themselves from controversial products.

This explains why in determining a firm's creditworthiness, credit rating agencies evaluate a broad set of financial and non-financial factors, including country risk, industry risk, competitive position, cash flows, leverage, diversification, financial policy, management and/or governance, liquidity, and group or government influence (S&P, 2015, Guide to Credit Rating Essentials). For example, S&P lists environmental and social risk as important risk factors, encourages firms to recognize the complex interdependencies of risks their businesses face, and implements comprehensive policies. Credit rating agencies would positively value a firm's CSR engagement because it leads to mitigation of uncertainties in stakeholder relationships so that the firm is, ceteris paribus, a more creditworthy borrower.

However, credit rating agencies that certify and allow information sharing among agents are wary of moral hazard problems. The agency view of CSR reflects the concerns over these moral hazard problems (Cheng et al., 2013; Chintrakarn et al., 2020; Friedman, 1971; Jensen & Meckling, 1976). So, whereas they recognize stakeholder relationships as a non-financial risk factor to a firm's creditworthiness, credit rating agencies are cautious in inferring improved stakeholder relationships from strong CSP.

Societal trust, a key element of social capital at the country level, mitigates moral hazard concerns as social capital is often viewed as a public means of coping with moral hazard and incentive problems (Stiglitz, 2000). In fact, Brockman et al. (2020) point out that lack of societal trust underlies moral hazard problems. They also show that US – based creditors impose fewer covenants on bonds issuers domiciled in countries with a higher level of societal trust. As part of a country's informal norms, societal trust provides an alternative mechanism for shareholder protection and mitigates self-dealing at the country level (Cline & Williamson, 2016).

Furthermore, in countries with higher societal trust where people are more trusting (because moral hazard concerns are less severe), stakeholders assign a higher subjective probability to an action performed by a counterparty as not-harmful or beneficial (Gambetta, 1988) and are more likely to reward CSR activities with reciprocity, which is the idea that *because you are good to me, I will be good to you.* Such reciprocity results in better cooperation between the firm and stakeholders, contributing to mitigated uncertainty.

Finally, societal trust not only lowers country-level risk and leads to higher long-term growth, but also alleviates managerial risk-taking. Within the U.S., societal trust also explains the lower cost of bank loans and public bonds (Zak & Knack, 2001). Furthermore, Karagaretnam et al. (2019) show that as high societal trust is positively related to financial reporting conservatism and transparency, it reduces managers' ability to take excessive risk.

In summary, in countries with higher levels of societal trust, CSR is more valued by credit rating agencies because it is less likely to be undermined by moral hazard problems and more likely to result in improved stakeholder relationships. Considering S&P's rating criteria that state country factor as one of the major considerations, we hypothesize that

- Hypothesis 1: The positive relation between CSR and a firm's long-term credit rating is more salient in countries with higher societal trust.

Alternatively, CSR efforts not only help firms obtain necessary resources or stakeholder support, but also have an "insurance-like" property that protects firms during negative shocks (Godfrey et al., 2009; Jones, 1995). They may substitute for weak institutions and trust in the corporate world, so that firms in countries with low societal trust may benefit more from engaging in CSR activities. Guiso et al. (2008) and Lins et al. (2017) show that when overall trust in companies is low during financial crisis times, social capital and therefore CSR pays off. Dhaliwal et al. (2012) and El Ghoul et al. (2017) argue that CSR increases transparency and fills institutional voids. Specifically, El Ghoul et al. (2017) posits that CSR activities lower transaction costs and show that CSR is more positively related to firm value in countries with weaker market institutions. Despite the moral hazard concerns that prevail in a country with low societal trust, it is possible that credit rating agencies assign better ratings to firms with strong social performance. The substitution effect between CSR and societal trust leads us to the alternative hypothesis below:

- Hypothesis 1a: The positive relation between CSR and a firm's long-term credit rating is more salient in countries with lower societal trust.

3 | SAMPLE, VARIABLES, AND METHODOLOGY

3.1 | Sample selection

In addition to the rapidly growing attention given to CSR initiatives, a plethora of information on CSR activities and, in particular, rating and scoring of CSR activities, has been made available through numerous information intermediaries (Ioannou & Serafeim, 2015). Thomson Reuters' ASSET4 is one of the most reputable providers of environmental, social, and governance (ESG) rating data, with a broad coverage of firms from all over the world. Major investment houses such as BlackRock rely on ESG information from ASSET4 as their analysis tools (Cheng et al., 2014).

To construct our sample, we start from the universe of ASSET4 firms, which includes 3,798 unique firms from 45 countries, spanning the years 2002–2014. We then obtain a long-term credit rating from the S&P Capital IQ database for each of these firms, annual financial statement data from Compustat North America and Global Compustat, and monthly stock return data from Datastream. We require that each country has at least five observations and each firm has non-missing data on financial variables, CSR rating, long-term credit rating from S&P, and monthly stock returns. Applying these criteria, our final sample consists of 1446 unique firms and 9933 firm-year observations from 42 countries in all six inhabitable continents.

Table 1 presents the distribution of sample firms by country of origin (headquarters). Of the 42 countries, the US dominates in terms of the number of observations (4888 out of 9933). Japan, the United Kingdom, and Canada each account for more than 500 observations, whereas some countries such as Hungary, Colombia, and Philippines have fewer than 10 observations.[6] Following Klock et al. (2005), we convert long-term credit ratings to numbers ranging from 1 (D) to 22 (AAA). The overall inter-industry mean long-term credit rating is around 14 (corresponding to a letter grade of BBB).

3.2 | Main variables

Our main variables of interest are long-term credit ratings, CSR ratings, and societal trust.[7] Below, we describe how each of these variables is measured.

3.2.1 | Long-term credit rating

S&P issues various credit ratings, long term and short term, for both issuers (firms) and particular issues (bonds) (Standard and Poor's, 2015). Our study examines the effect of CSR ratings on corporate credit ratings, which, like sovereign credit ratings, correspond to issuer credit ratings. Because CSR has a long-term orientation (Ortiz-de-Mandojana & Bansal, 2016; Wang & Bansal, 2012), we expect it will more likely have a relation with long-term instead of short-term credit ratings. The long-term credit rating data we use herein are derived from the S&P Capital IQ database, which contains forward looking credit ratings assigned by S&P rating services for issuers. There are at least two advantages to focusing on credit ratings from a single credit rating agency, that is, S&P: (1) S&P is a major global credit rating agency that has an appropriate coverage for an international study, and (2) a consistent rating standard must have been applied by the same credit rating agency.

When we aggregate long-term credit ratings by countries where firms' headquarters are located in Table 1, we observe that mean firm credit rating ranges between 10.27 for Indonesia (corresponding to a letter grade of BB-) and 19.42 for Singapore (corresponding to a letter grade of AA). The sovereign credit rating also spans a wide range, between 11.38 for Turkey (corresponding to a letter grade of BB) and 22 for several countries including Canada, Denmark, Germany, the Netherlands, Norway, Singapore, Switzerland, and the United Kingdom. Almost half of the observations of our sample are from the United States and the mean firm-level credit rating and sovereign rating for US firms is 13.9 and of 21.61, respectively.

Summary statistics in Table 2 show that the mean long-term credit rating for our sample is 14.24, corresponding to a letter rating between BBB and BBB+. The median long-term credit rating is 14, very close to the mean, corresponding to the BBB grade. Although the lowest long-term credit rating is 1, the 25th and 75th percentiles at 13 and 16 suggest that most of the firms in our sample are in investable grade. However, we recognize that our sample is subject to selection bias, as ASSET4 covers only the largest firms in the world, and thus our findings should not be generalized to smaller and less well-known firms.

TABLE 1 Sample distribution

Country	No. of firm-year obs	Sovereign credit rating	Company credit rating	CSR	Social	Env	LogCPI	Trust	Media freedom	Gov ideology
Australia	290	22.00	14.14	0.67	0.66	0.67	4.45	0.46	1	0.58
Austria	32	21.75	14.25	0.81	0.80	0.82	4.35		1	0.61
Belgium	43	20.49	15.23	0.81	0.81	0.81	4.30		1	0.12
Brazil	83	13.60	13.08	0.73	0.78	0.67	3.67	0.09	0	1.00
Canada	590	22.00	13.44	0.56	0.56	0.56	4.44	0.42	1	0.30
Chile	37	18.57	13.95	0.56	0.55	0.57	4.27	0.12	0.27	0.81
China	34	19.00	14.15	0.38	0.34	0.42	3.63	0.49	0	1.00
Colombia	5	12.80	12.80	0.87	0.93	0.81	3.57		0	
Czech Republic	11	18.09	15.45	0.59	0.71	0.46	3.86		1	1.00
Denmark	13	22.00	16.92	0.92	0.94	0.91	4.53		1	0.18
Finland	66	21.91	13.85	0.84	0.82	0.86	4.53	0.58	1	0.52
France	432	21.53	14.50	0.85	0.87	0.84	4.26	0.19	1	0.14
Germany	305	22.00	14.39	0.80	0.80	0.81	4.37	0.34	1	0.37
Greece	30	12.03	11.67	0.77	0.82	0.72	3.70		0.70	0.45
Hong Kong, China	142	21.24	16.10	0.54	0.55	0.53	4.38	0.40	0.23	
Hungary	6	11.83	11.67	0.92	0.92	0.91	3.93	0.29	0.33	0.67
India	55	13.00	12.76	0.83	0.85	0.81	3.54	0.38	0	1.00
Indonesia	22	11.86	10.27	0.65	0.76	0.55	3.45	0.21	0	
Ireland	71	18.35	13.61	0.68	0.70	0.66	4.32		1	0.45
Israel	11	16.91	14.91	0.37	0.36	0.39	4.12		0.82	0.00
Italy	131	16.78	14.82	0.77	0.79	0.75	3.79	0.28	0.15	0.21
Japan	897	19.36	15.92	0.72	0.65	0.78	4.32	0.37	1	0.00
Korea, Rep.	91	17.38	14.89	0.83	0.80	0.85	3.99	0.28	0.26	0.14
Luxembourg	26	22.00	12.15	0.55	0.53	0.57	4.43		1	0.50
Malaysia	30	16.00	15.00	0.55	0.59	0.52	3.85	0.09	0	
Mexico	49	14.33	13.76	0.63	0.66	0.61	3.50	0.15	0	0.02
Netherlands	129	21.81	15.44	0.83	0.86	0.79	4.46	0.43	1	0.23
New Zealand	44	20.55	15.09	0.57	0.55	0.60	4.53	0.49	1	0.55
Norway	64	22.00	13.78	0.83	0.83	0.82	4.46	0.74	1	0.66
Philippines	6	12.83	11.67	0.33	0.46	0.21	3.54		0	0.50
Poland	14	16.00	13.71	0.60	0.68	0.53	4.01	0.18	1	0.13
Portugal	30	16.70	14.30	0.81	0.88	0.75	4.13		1	0.68
Russian Federation	100	13.93	11.91	0.52	0.57	0.47	3.20	0.25	0	0.50
Singapore	36	22.00	19.42	0.55	0.57	0.52	4.50	0.37	0	
South Africa	21	14.14	12.38	0.81	0.87	0.75	3.77	0.23	0	1.00
Spain	99	18.75	15.25	0.89	0.91	0.87	4.16	0.20	1	0.67

(Continues)

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TABLE 1 (Continued)

Country	No. of firm-year obs	Sovereign credit rating	Company credit rating	CSR	Social	Env	LogCPI	Trust	Media freedom	Gov ideology
Sweden	175	21.94	14.77	0.80	0.80	0.80	4.51	0.65	1	0.44
Switzerland	162	22.00	16.17	0.87	0.87	0.86	4.48	0.51	1	
Thailand	24	15.00	14.88	0.76	0.80	0.72	3.57	0.41	0	
Turkey	16	11.38	11.38	0.60	0.67	0.53	3.83	0.05	0	
United Kingdom	623	22.00	14.17	0.76	0.78	0.75	4.38	0.30	1	0.81
United States	4,888	21.61	13.90	0.54	0.55	0.53	4.29	0.39	1	0.41
Overall	9,933	18.08	14.09	0.70	0.72	0.67	4.08	0.33	0.59	0.49

This table describes country distribution of our sample. The sample comprises domestic and global Compustat non-financial firms with Asset4 CSR scores and S&P Capital IQ company and country credit ratings during the 2002–2014 period. This table also shows the number of firm-year observations, average sovereign credit rating, firm credit rating, CSR scores, logarithm of country corruption perception index, country trust index, country media freedom, government ideology (right:0, left:1, center:0.5) in the sample by country.

3.2.2 | CSR ratings

ASSET4 collects objective, relevant, auditable, and systematic ESG information and generates CSR ratings for the universe of firms it covers. The raw ESG information derives from publicly available sources including stock exchange filings, annual financial and sustainability reports, and non-governmental organizations' websites. Specifically, trained analysts then transform the raw information, which is usually qualitative, into consistent, numerical data points to enable quantitative analysis. Every year, more than 900 data points are used as inputs to calculate 250 key performance indicators (KPIs) that are further organized into 18 categories within four pillars: environmental, social, corporate governance, and economic performance. Similar to other studies that have applied ASSET4 data to analyze the relation between CSR and CFP (Chang et al., 2018; Cheng et al., 2014; Liang & Renneboog, 2017; Lys et al., 2015), the main CSR score variable (*CSR*) we use herein is the arithmetic mean of the environmental and social pillar scores. We exclude corporate governance and economic pillar scores because economic pillars are irrelevant for our research question (Stellner et al., 2015) and it is likely that governance pillars have a different mechanism influencing credit risk than the trust-building channel through building and improving stakeholder relationships. In robustness tests, we also use the arithmetic mean of the environmental, social, and governance pillar scores as measures for CSR and find consistent yet weaker results.

As the four pillar scores and other CSR ratings from ASSET4 range between 0 and 100, which is much larger in magnitude compared to other explanatory variables, we rescale them to a range between 0 and 1. When we aggregate the various CSR ratings over countries, we find a large variation in the mean: from a high of 0.92 in Denmark to a low of 0.33 in the Philippines for the adjusted CSR rating; from a high of 0.94 in Denmark, to a low of 0.34 in China for the social pillar score; and finally from a high of 0.91, again in Denmark, to the lowest value of 0.21 recorded for the Philippines for the environmental pillar score.

3.2.3 | Country-level societal trust variables

Following the literature (Guiso et al., 2008; La Porta et al., 1997; Pevzner et al., 2015), we take the mean response to a WVS question that elicits people's belief on trust as a proxy for societal trust in a particular country.[8] A higher mean response on variable *Trust* suggests a higher level of societal trust. Out of the 42 countries in our sample, 33 have

TABLE 2 Descriptive statistics

Panel A. Firm-level variables

Variable	N	Mean	P50	P25	P75	SD
Lt rating$_t$	9933	14.237	14.000	13.000	16.000	2.905
CSR$_{t-1}$	9933	0.612	0.697	0.331	0.881	0.288
LogTA$_{t-1}$	9933	9.372	9.299	8.469	10.210	1.201
Leverage$_{t-1}$	9933	0.236	0.219	0.137	0.315	0.139
ROA$_{t-1}$	9933	0.049	0.047	0.023	0.081	0.064
Sale growth$_{t-1}$	9933	0.077	0.056	-0.011	0.134	0.200
R&D intensity$_{t-1}$	9933	0.016	0.000	0.000	0.019	0.030
Missing R&D	9933	0.428	0.000	0.000	1.000	0.495
CAPX intensity$_{t-1}$	9933	0.057	0.045	0.026	0.073	0.046
FA/TA$_{t-1}$	9933	0.354	0.307	0.155	0.532	0.234
Cash/TA$_{t-1}$	9933	0.100	0.073	0.031	0.137	0.096
Current ratio$_{t-1}$	9933	1.541	1.340	0.992	1.848	0.891
Ebit/int$_{t-1}$	9933	0.213	0.060	0.031	0.127	1.024
Debt/EBITDA$_{t-1}$	9933	2.699	2.062	1.178	3.406	3.110
Neg Debt/EBITDA$_{t-1}$	9933	0.011	0.000	0.000	0.000	0.104
Market beta$_{t-1}$	9933	1.066	1.022	0.634	1.448	0.657
Idiosyncratic risk$_{t-1}$	9933	0.048	0.043	0.031	0.058	0.025
CSR volatility$_{t-1}$	8818	0.142	0.089	0.033	0.200	0.147
CF volatility$_{t-1}$	8812	0.145	0.093	0.049	0.177	0.231
Empolicy$_{t-1}$	9933	0.335	0.000	0.000	1.000	0.472

(Continues)

TABLE 2 (Continued)

Panel B. Country-level and macroeconomic variables

Maturity and credit spread statistics are calculated using US data.

Variable	N	Mean	P50	P25	P75	SD
Sovereign cr rating	42	18.082	18.658	14.495	21.883	3.702
LogCPI	42	4.081	4.208	3.773	4.422	0.376
Trust	31	0.333	0.338	0.203	0.422	0.164
Media freedom	42	0.590	1.000	0.000	1.000	0.460
Gov ideology	34	0.489	0.500	0.215	0.669	0.305
Private credit/GDP	42	0.945	0.940	0.572	1.244	0.420
Mktcap/GDP	42	1.029	0.738	0.434	1.045	1.493
Inflation	42	0.028	0.020	0.016	0.034	0.023
GDP per capita	42	32.144	31.601	11.090	46.677	23.285
Maturity spread	12	2.043	2.110	1.151	2.910	1.104
Credit spread	12	1.571	1.625	1.323	1.780	0.479

Panel A in this table reports firm-level characteristics and Panel B reports country-level and macroeconomic variables. The sample covers the period 2002–2014. More detailed definitions of each variable can be found in Table A3 in the Appendix.

values for Country Trust Index, which is constructed from the 4th to 6th wave of WVS.[9] The mean societal trust based on this proxy is 0.33, with *Trust* ranging between 0.05 for Turkey and 0.65 for Sweden.

Another proxy for societal trust is the perceived corruption level of a country. A higher value on the CPI suggests lower perceived corruption and higher trustworthiness. The natural logarithm (hereafter log) of CPI (*logCPI*) ranges between 3.20 for the Russian Federation and 4.53 for Denmark, Finland, and New Zealand. We also define a dummy variable *High CPI* which takes the value 1 if *logCPI* is higher than the median value and 0 otherwise. All 42 countries have values for CPI and media freedom.

Higher public trust is likely to prevail in countries that enjoy media freedom as journalists are more able to help keep corruption and self-dealing in check for the country (Hanitzsch & Berganza, 2012). We use the *Freedom of the Press* index from Freedom House as another proxy for country-level perceived trustworthiness. The greater the value of the index, the higher the societal trust in the country. Finally, we check the correlation coefficients for our three proxies for societal trust to ensure that they (about 0.61) are reasonably high.

4 | EMPIRICAL RESULTS

To test our hypothesis, we examine the impact of societal trust on the relation between CSR performance and long-term credit rating. Our focus is the coefficient estimate on the interaction term, *CSR* * *Societal Trust*. We estimate the following equation:

$$Long\ Term\ Credit\ Rating_{it} = f\left(CSR_{i,t-1}, Societal\ Trust_{c,t}, CSR_{i,t-1} * Societal\ Trust_{c,t}, Control\ Variables_{i,t},\right.$$

$$\left. Country\ Fixed\ Effects, Industry\ Fixed\ Effects, Year\ fixed\ effects\right) \tag{1}$$

where *t* indexes time, *c* indexes country, and *i* indexes firms. The dependent variable is long-term credit rating issued to a firm in a specific year by S&P. *Societal trust* is a proxy for the societal trust of a country where a firm is headquartered.

In Equation (1), we include two sets of control variables that are found to be relevant in the prior literature (Almeida et al., 2017; Baghai et al., 2014). The first set of control variables include the following firm-specific financial variables: (1) the log of inflation adjusted book value of total assets in millions of US dollars (*LogTA*), (2) the leverage ratio calculated by long-term debt divided by total assets (*Leverage*), (3) profitability measured by return on assets (*ROA*), (4) sales growth calculated by annual incremental sales divided by total sales in the previous year (*Sales growth*), (5) R&D measured by R&D expenditure over total assets (*R&D intensity*), (6) the capital expenditure ratio (*CAPEX intensity*), (7) the tangibility ratio (*FA/TA*), (8) the cash ratio (*Cash/TA*), (9) the current ratio measured by current assets over current liabilities (*Current Ratio*), (10) the interest coverage ratio (*EBIT/Int*), (11) long- and short-term debt divided by EBITDA (*Debt/EBITDA*), and (12) *Market beta* and *Idiosyncratic risk* estimated by 24-month stock returns before the fiscal year end.

The second set of controls include country-level variables that influence credit ratings, specifically: (1) sovereign credit ratings that have a direct influence on corporate ratings (Almeida et al., 2017), (2) the yield spread of the 10-year T-bond and 3-month T-bill, which proxies for term risk (*Maturity Spread*), (3) the credit spread between the yield on 10-year corporate bonds and the 10-year T-bond, which proxies for credit risk (*Credit Spread*), (4) capital market size (*Mktcap/GDP*), and (5) size of credit market offered by banks (*Private credit/GDP*), (6) inflation rates (*Inflation*), and (7) inflation adjusted GDP per capita (*GDP per cap*). Following Baghai et al. (2014), we set the leverage ratio to zero and include a dummy variable (*Neg Debt/EBITDA*) that equals one if the ratio is negative, to take the discontinuity of the leverage ratio at zero into account. We also winsorize all financial variables at the 1st and 99th percentiles to guard against outlier effects.

In addition, we control for industry fixed effects and year fixed effects where industry is defined by the two-digit SIC code. We also control for country fixed effects in various models for Equation (1). As country-level variables

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are time-varying and country-specific, they provide more detailed information than country fixed effects. When we include both country-level variables and country fixed effects in a model with interaction terms, we expect country fixed effects to subsume the main effects due to multicollinearity. We therefore do not always control for country fixed effects. However, to address the concern that country-level variables may be capturing other unidentified country-level characteristics, we keep country fixed effects and allow country-level societal trust to be subsumed by country fixed effects in certain models.

Because trust is not easily measurable (Guiso et al., 2004), we construct a number of proxies in an attempt to gauge societal trust. Specifically, we include: the extent to which people tend to trust each other, which is captured by a dummy variable that takes the value of 1 if the answer to a particular question from the World Values Survey is above median (High Trust); perceived corruption measured by Transparency International's CPI; and Media Freedom, a dummy variable that takes the value of 1 if a country has full media freedom defined by Freedom House. While we control the same set of variables and industry and year fixed effects, we vary in controlling for firm/country fixed effects and report results from different models in Table 3. Specifically, Columns (1)–(3) control for industry and year fixed effects only, Columns (4)–(5) additionally control for country fixed effects, Columns (6) control for firm fixed effects where industry and country fixed effects are absorbed.

The estimate of coefficient for High Trust*CSR in Column (1) of Table 3 is positive and highly significant, suggesting a much more salient CSR effect on long-term credit rating in countries where people are more trusting. The economic significance is non-trivial as well: the contribution of CSR to long-term credit rating is 1.24 notches higher in a country with above-median societal trust. If one notch amounts to 30 basis points on average in cost of debt, high societal trust is associated with 37 basis points (1.24*30 = 37) in cost of debt for firms with the same CSR score in our full sample.

The two additional proxies for high societal trust, High CPI and HighMF score, are corruption- and media freedom-related, since both low corruption and high media freedom are documented to result in higher trust, for example, more trusting journalists (Hanitzsch & Berganza, 2012). Indeed, High CPI and High MFscore have a correlation of above 0.60 with High Trust, suggesting that they are not poor proxies for High Trust. The two additional proxies are both dummy variables, which take the value of 1 if a country's CPI is above the median for High CPI, and if a country's media freedom, measured by the Freedom of the Press index constructed by Freedom House, is above the median for High MFscore. The estimate of coefficient for High CPI*CSR and High MFscore*CSR in Columns (2) and (3) is positive and highly significant, and of a large magnitude, suggesting a more salient CSR effect on the long-term credit rating in countries with less perceived corruption or more media freedom. This lends further support to H1.

In Columns (4)–(5), we focus on High Trust as the proxy for above-median societal trust and report results from including additional country fixed effects. As societal trust does not have much time variation in our sample period, the main effects on High Trust is subsumed due to the severe multicollinearity from including both country-level variables together with country fixed effects. The estimate of coefficient for the interaction term in Column (4), High Trust*CSR, remains positive and highly significant. In Column (5), we include both High CPI and High MFscore and treat them as country-level controls to examine the moderating role of our main proxy, High Trust. We continue to find a positive and highly significant coefficient estimate for High Trust*CSR.

In Column (6), we include firm fixed effects and stack the effect of CSR in high- and low-societal trust countries in the same regression. This empirical specification allows the effect of CSR on long-term credit rating to vary depending on whether the firm is headquartered in a country with high- or low-societal trust to enable easy comparison within the same regression. The interaction term CSR* High Trust is positive and significant while CSR*Low Trust is insignificant. Overall, our results point to both statistically and economically more salient CSR effects on long-term credit ratings in countries where high societal trust prevails, supporting Hypothesis 1.

To ensure that we clearly identify that credit rating is more sensitive to CSR in countries with higher societal trust, we include additional interaction terms of CSR and country-level factors other than societal trust. In unreported results, we include interaction terms of CSR*Private credit, CSR*GDP per capita, and CSR*Inflation rate, etc. and find that societal trust is indeed the only country-level factor that influences the sensitivity of credit rating to CSR. We also

TABLE 3 Country-level societal trust and the CSR—long-term credit rating relation

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
CSR_{t-1}	−0.502	−0.475	−0.527	−0.849**	−0.988**	
	(−1.308)	(−1.231)	(−1.422)	(−2.101)	(−2.188)	
High Trust	−0.793**			Subsumed	Subsumed	
	(−2.429)			By Country FE	By County FE	
High Trust * CSR_{t-1}	1.237***			1.660***	1.433***	
	(2.957)			(4.116)	(2.662)	
High CPI		−0.525			0.667	
		(−1.120)			(1.006)	
High CPI* CSR_{t-1}		1.181***			−0.128	
		(3.030)			(−0.196)	
High MFscore			−1.327**		−0.283	
			(−2.514)		(−0.709)	
High MFscore * CSR_{t-1}			1.307***		0.515	
			(3.159)		(0.971)	
CSR_{t-1} (Low Trust countries)						0.220
						(0.426)
CSR_{t-1} (High Trust countries)						0.329**
						(2.341)
$LogTA_{t-1}$	0.765***	0.761***	0.756***	0.801***	0.800***	0.631***
	(12.944)	(12.924)	(12.991)	(21.072)	(14.657)	(7.457)
$Leverage_{t-1}$	−3.320***	−3.293***	−3.250***	−3.169***	−3.156***	−2.010***
	(−11.754)	(−11.696)	(−11.555)	(−14.310)	(−7.839)	(−10.115)
ROA_{t-1}	9.845***	9.905***	9.799***	10.141***	10.136***	3.792***
	(10.282)	(10.704)	(9.935)	(14.523)	(14.327)	(10.790)
$Sale\ growth_{t-1}$	−0.572***	−0.564***	−0.580***	−0.586***	−0.582***	−0.110
	(−8.070)	(−7.916)	(−7.760)	(−9.642)	(−5.042)	(−1.559)
$R\&D\ intensity_{t-1}$	4.026***	4.167***	4.340***	4.133***	4.135**	1.417*
	(3.170)	(3.571)	(4.006)	(3.144)	(2.099)	(1.784)
$Missing\ R\&D_{t-1}$	−0.341**	−0.328**	−0.337**	−0.285**	−0.288**	0.103
	(−2.297)	(−2.371)	(−2.232)	(−2.597)	(−2.452)	(1.261)
$CAPX\ intensity_{t-1}$	0.790	0.779	0.672	1.138	1.129	3.357***
	(0.830)	(0.872)	(0.700)	(1.082)	(0.976)	(4.461)
FA/TA_{t-1}	1.040*	1.087*	1.131*	0.636	0.636*	1.150***
	(1.684)	(1.767)	(1.762)	(1.335)	(1.845)	(3.562)
$Cash/TA_{t-1}$	−0.356	−0.410	−0.487	−0.755	−0.777	−0.105
	(−0.481)	(−0.571)	(−0.756)	(−1.605)	(−1.301)	(−0.461)
$Current\ ratio_{t-1}$	0.162**	0.168**	0.173**	0.198**	0.201***	0.114***
	(2.273)	(2.313)	(2.418)	(2.687)	(3.450)	(3.627)

(Continues)

TABLE 3 (Continued)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
EBIT/Int $_{t-1}$	0.052*	0.050*	0.057*	0.033	0.033	0.011
	(1.685)	(1.725)	(1.763)	(1.539)	(1.029)	(1.049)
Debt/EBITDA $_{t-1}$	−0.116***	−0.118***	−0.121***	−0.129***	−0.129***	−0.071***
	(−9.115)	(−8.551)	(−8.633)	(−7.158)	(−8.242)	(−6.000)
Neg Debt/EBITDA $_{t-1}$	−1.503***	−1.509***	−1.544***	−1.621***	−1.624***	−1.078***
	(−3.599)	(−3.615)	(−3.528)	(−3.526)	(−3.957)	(−5.284)
Market beta $_t$	−0.694***	−0.696***	−0.711***	−0.544***	−0.543***	−0.163***
	(−14.172)	(−14.173)	(−14.450)	(−6.596)	(−11.851)	(−4.551)
Idiosyncratic risk $_t$	−32.270***	−32.251***	−32.046***	−31.403***	−31.409***	−15.364***
	(−16.728)	(−16.837)	(−15.974)	(−13.464)	(−20.534)	(−12.607)
Maturity spread $_t$	0.453***	0.457***	0.454***	0.392***	0.246**	0.164***
	(12.895)	(13.458)	(12.511)	(7.918)	(2.055)	(4.007)
Credit spread $_t$	−0.763***	−0.759***	−0.784***	−0.630***	−1.974***	−0.287**
	(−5.585)	(−5.514)	(−5.740)	(−4.086)	(−5.137)	(−2.702)
Sovereign cr rating $_t$	0.075	0.042	0.093	0.320***	0.306***	0.308***
	(1.291)	(0.592)	(1.544)	(4.013)	(5.542)	(5.195)
Private credit/GDP $_t$	0.008***	0.008***	0.007***	−0.001	−0.000	−0.010***
	(2.898)	(2.983)	(2.788)	(−0.197)	(−0.054)	(−3.487)
Mktcap/GDP $_t$	0.000	0.000	−0.000	−0.000	−0.000	0.001***
	(0.587)	(0.714)	(−0.063)	(−0.625)	(−0.673)	(2.762)
Inflation $_t$	−10.516***	−9.891***	−11.463**	3.570	3.327**	1.104
	(−2.815)	(−3.099)	(−2.646)	(1.508)	(2.490)	(0.965)
GDP per cap $_t$	−0.004	−0.004	0.002	−0.120**	−0.116***	−0.077**
	(−0.517)	(−0.485)	(0.257)	(−2.519)	(−3.352)	(−2.681)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	No
Country FE	No	No	No	Yes	Yes	No
Firm FE	No	No	No	No	No	Yes
SE clustered by firm	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8,896	8,896	8,895	8,894	8893	8,776
Adjusted R-squared	0.622	0.622	0.623	0.652	0.652	0.918

The dependent variable is S&P's long-term issuer credit rating. Columns (1) to (3) include year and industry (represented by SIC2) fixed effects, Columns (4) to (5) add country fixed effects and Column (6) include year and firm fixed effects. *Trust* is country level societal trust based on the most recent wave of the World Values Survey, and *High Trust* is a dummy variable that takes the value 1 if *Trust* is above median and 0 otherwise. *High CPI* is a dummy variable that equals 1 if *LogCPI*, which is the logarithm of the corruption perception index (CPI), is above median and 0 otherwise. When country's corruption is high *LogCPI* is lower. *High MFscore* is a dummy that equals 1 if a country's media freedom score is above median and 0 otherwise. When country's media freedom is higher than the median, media freedom score is high. The sample covers the period 2002–2014. Refer to Table A3 in the Appendix for detailed explanations of other variables. Robust *t*-statistics are calculated after clustering at the firm level and are reported in parentheses.

*, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

include additional country-level factors, like creditor rights and debt enforcement (Djankov et al., 2008; Djankov et al., 2007) in our regression model, and the results remain.[10]

We further examine whether societal trust remains salient in the relation between CSR and long-term credit rating when other country-wide factors vary. We report the results in Table 4 where we consider several country factors that are known to influence a firm's CSR engagement and financial performance measures thought to react to CSR activities. For example, legal origin is one of the fundamental reasons that drive CSR engagement. Liang and Renneboog (2017) show that firms in countries with a civil law origin have higher CSR ratings than those in countries with a common law origin. Stakeholder orientation is another country-level factor that influences the relation between CSR disclosure and analyst forecast error (Dhaliwal et al., 2012). As results in Columns (1)–(3) show, the coefficient estimate on *High Trust* *CSR* remains positive and significant after controlling for a country's legal origin, stakeholder orientation, and anti-director index after we control for year and industry fixed effects. When we add country fixed effects, results in Columns (4)–(6) show that the coefficient estimate for *High Trust* *CSR* continues to be positive and significant, with country-level main effects dropped out.

Furthermore, our findings provide empirical evidence for Williamson's (2000) four-level social analysis. As a Level 1 factor, societal trust should be more dominant than other factors in lower levels. Societal trust remains a salient factor after controlling other country factors confirm such projection.

5 | ADDITIONAL TESTS

We conduct several additional tests to better understand how societal trust influences the relation between CSR and long-term credit rating. Specifically, we estimate the relation between CSR and long-term credit rating using (1) external shock analysis and (2) instrumental variable (IV) regressions.

5.1 | External shocks

We first conduct a shock analysis by using variations in CSR due to plausibly exogenous external shocks that help us identify the moderating effect of societal trust. Both sovereign downgrades and the great recession during 2007–2009 are times with high uncertainty. We argue that firms' CSR may be more effective helping them to sustain long-term credit ratings during these uncertain times. We use two dummies as proxies for sovereign downgrades: *Sovereign downgrade* that takes the value 1 when a country is downgraded by S&P in the current year and 0 otherwise and *Sovereign downgrade2* that takes value 1 when the downgrade occurs either in the current or the previous year and 0 otherwise. We estimate Equation (1) and report results in Columns (1)–(3) of Table 5. The interaction term, *CSR*High Trust*, is positive and highly significant in statistical terms in overall terms and economically significant during any of these shocks.

In summary, our results using external shock analysis support Hypothesis 1. The consistent results from these tests provide further evidence that S&P values CSR performance more when it is less concerned about moral hazard problems in that country. We don't find support for H1a.

5.2 | Instrumental variable regressions

In Table 6, we conduct IV regressions to complement our analysis. By using an IV that correlates with CSR rating (satisfying the relevance condition) but does not lead to changes in long-term credit rating (satisfying the exclusion condition), we can arrive at a consistent estimate for both the direction and magnitude of the relation between CSR rating and long-term credit rating even though the estimate may be less efficient (Wooldridge, 2002).

TABLE 4 Societal trust or other country factors?

VARIABLES	(1) Common Law	(2) Stakeholder Orientation	(3) Anti Director	(4) Common Law	(5) Stakeholder Orientation	(6) Anti Director
CSR_{t-1}	−0.504	−0.288	−0.241	−0.662	−0.841	−0.623
	(−1.192)	(−0.583)	(−0.482)	(−1.569)	(−1.586)	(−1.326)
High Trust	−0.868**	−1.171***	−0.717*			
	(−2.086)	(−3.020)	(−1.837)			
High Trust * CSR_{t-1}	1.397***	1.203**	1.100**	1.827***	1.654***	1.467***
	(2.593)	(2.501)	(2.261)	(3.332)	(3.212)	(3.176)
Common Law	−0.080					
	(−0.241)					
Common Law* CSR_{t-1}	−0.159			−0.416		
	(−0.375)			(−0.982)		
High Stake		0.216				
		(0.777)				
High Stake* CSR_{t-1}		−0.814**			−0.074	
		(−2.235)			(−0.203)	
High Antidir			0.627**			
			(2.383)			
High Antidir* CSR_{t-1}			−0.490			−0.121
			(−1.483)			(−0.374)
Financial variables controlled	Yes	Yes	Yes	Yes	Yes	Yes
Country-level Macro variables controlled	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	No	No	No	Yes	Yes	Yes
SE clustered by	Firm	Firm	Firm	Firm	Firm	Firm
Observations	8676	8601	8676	8675	8600	8675
Adjusted R-squared	0.621	0.623	0.622	0.649	0.649	0.649

This table reports the relation between CSR and long-term credit rating when both societal trust and other country factors that are known to influence the CSR effects are included in the model. Columns (1)–(3) report results based on legal origin (Common law country vs. Civil law country), stakeholder orientation (High vs. Low stakeholder orientation), and anti-director index (High vs. Low anti-director index), respectively, with control of year and industry fixed effects. Columns (4)–(6) include the same country factors and add country fixed effects. The sample covers the period of 2002–2014. We include the same firm-level financial and country-level macro control variables for this table as for Table 3 and omit them to save space. Refer to Table A3 in the Appendix for detailed explanations of other variables. Robust t-statistics are calculated after clustering at both country and firm levels and are reported in parentheses.
*, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

TABLE 5 CSR effect during external shocks

VARIABLES	(1)	(2)	(3)
CSR_{t-1}	−0.958**	−1.046**	−1.000**
	(−2.399)	(−2.424)	(−2.531)
High Trust	3.292**	3.001*	4.763***
	(2.181)	(1.847)	(3.126)
High Trust * CSR_{t-1}	1.722***	1.776***	1.991***
	(4.112)	(3.940)	(4.739)
Sovereign downgrade	−0.043		
	(−0.296)		
Sovereign down*CSR_{t-1}	0.582***		
	(3.193)		
Sovereign downgrade2		−0.154	
		(−1.112)	
Sovereign down2*CSR_{t-1}		0.633***	
		(3.609)	
Fin crisis (2007–09)			0.680***
			(2.683)
Fin crisis*CSR_{t-1}			−0.024
			(−0.157)
Sovereign cr rating $_t$	0.345***	0.338***	0.312***
	(6.332)	(5.788)	(5.487)
Constant	7.130***	7.245***	2.564*
	(6.001)	(5.385)	(1.804)
Financial variables controlled	Yes	Yes	Yes
Country-level Macro variables controlled	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Country FE	Yes	Yes	Yes
SE clustered by	Firm	Firm	Firm
Observations	8896	7805	7320
Adjusted R-squared	0.652	0.657	0.656

This table reports how the effect of CSR in the presence of external shocks, including sovereign debt downgrades (Column (1)–(2)) and the US financial crisis (either 2007–2008 or 2007–2009) (Column (3)) for firms in high- and low-societal trust countries. The dependent variable is Standard and Poor's long-term issuer credit rating. We convert credit ratings into numerical values following (Klock et al. (2005)), with 1 corresponding to D and 22 corresponding to AAA. *LogTA* and *GDP per capita* are measured by inflation adjusted US dollars using 2010 as the base year. Columns (1)–(3) control for SIC2-digit industry, year, and country fixed effects. The sample covers the period 2002–2014. Refer to Table A3 in the Appendix for detailed explanations of other variables. Robust *t*-statistics are calculated after clustering at both country and firm levels and are reported in parentheses.

*, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

TABLE 6 Instrumental Variable (IV) regressions

VARIABLES	First Stage		Second Stage	
			Instrumented CSR_{t-1} & High Trust*CSR_{t-1}	Instrumented *High Trust* & High Trust*CSR_{t-1}
	(1)	(2)	(3)	(4)
CSR_{t-1}			−7.121**	−0.081
			(−2.261)	(−0.033)
High Trust			−1.212	−1.961
			(−0.504)	(−1.532)
High Trust*CSR_{t-1}			9.162**	2.858*
			(2.396)	(1.746)
Instruments for *CSR*:				
Log(country population density)$_{1990}$	0.032**			
	(0.016)			
High Trust**Log(country population density)*$_{1990}$	−0.022			
	(0.017)			
Industry median CSR_{t-2}	−0.001			
	(0.002)			
*High Trust * Industry median CSR_{t-2}*	0.004**			
	(0.002)			
Instrument for *High Trust*:				
Non-tropical		0.239***		
		(0.111)		
Non-tropical*CSR*		0.584***		
		(0.185)		
F-statistic for Instruments	5.51***	12.62***		
Financial variables controlled			Yes	Yes
Country-level Macro variables controlled			Yes	Yes
Year FE			Yes	Yes
Industry FE			Yes	Yes
Observations			8,897	7,625
Adjusted *R*-squared			0.336	0.609

The dependent variable in the second stage in Columns (3) and (4) is *Lt rating*(t). The results in Column (1) and (3) are based on using two instruments for the endogenous CSR variable. Our main IV for *CSR* is *Log (country population density)*$_{1990}$, which is a country's population density in 1990 and the second IV variable is *Industry Median CSR_{t-2}*, which is the annual industry, measured by two-digit SIC, median CSR combined environmental and social score. The results in Columns (2) and (4) are based on using one instrument, *Non-Tropical*, for the endogenous *High Trust* variable. The sample covers the period 2002–2014. Refer to Table A1 in the Appendix for detailed explanations of other variables. Robust *t*-statistics are calculated after clustering at firm levels and are reported in parentheses.

*, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

We construct two instrument variables (IV): *Log(country population density)$_{1990}$*, which is our main IV, measuring the population density of a country in 1990, and *Industry Median CSR$_{t-2}$*, which is the annual median industry (minus the focal firm) CSR scores, where industry is measured by two-digit SIC codes and CSR score is measured by ASSET4's environmental and social combined score, in year *t*-2. CSR is a channel for private firms to offer public goods (Kitzmueller & Shimshack, 2012). Population density is related to CSR through its impact on the return from investments in public goods. Specifically, as higher population density increases returns from investments on public goods (Frederiksen, 1981; Simon, 1977), firms' potential benefit from CSR would also increase. For example, in a country with higher population density, a firm's CSR activities like donation to the community or adoption of high environmental standard would benefit a larger number of stakeholders, who are likely to reciprocate that benefits the firm. Therefore, we would expect firms in countries with high population density to engage more in CSR activities that advance stakeholder relationships. Population density in 1990 can also be considered non-endogenous in this setting, because it is driven by historical economic, demographic, geographical, and cultural factors, that should not influence a firm's current long-term credit rating. Hence, *Log(country population density)$_{1990}$* qualifies as an instrumental variable for CSR by meeting both the relevance and exclusion conditions.

We then perform a number of tests to assess the validity of our instruments for CSR and report results in Columns (1) and (3) of Table 6. With two instruments for CSR and our interest in the interaction term *High Trust*CSR*, we have four instruments for the first 2SLS IV regression: *Log (country population density)$_{1990}$*, *Industry median CSR$_{t-2}$*, *High Trust*Log (country population density)$_{1990}$* and *High Trust* Industry median CSR$_{t-2}$*. After controlling for firm-level financial variables, country-level macro variables, industry and year fixed effects, results from the first-stage regression confirm a positive and significant relation between CSR and the instrument variables (population density and High Trust* annual industry median CSR scores). Results from the *F*-test reject the hypothesis that all the excluded instruments have zero coefficients, confirming the relevance of the instruments for CSR. The Stock-Yogo test statistic of weak instrument is higher than 10 ($F = 13.07$ with 5% critical value at 11.04), suggesting at least one of our instruments is not weak. Results from the second stage show that the coefficient estimate for *High Trust*CSR* is 9.162, statistically significant and of a large magnitude. Results from IV regression after considering the endogeneity of CSR provides further support for H1.

Next, we address the endogeneity concern for *High Trust* in a second IV regression, where we use *Non-Tropical* as the instrument.[11] Societal trust is related to climate because for people to survive in countries with cold climate, trust is critical. Evolution strategy therefore prompts higher societal trust level in countries with cold climate. *Non-Tropical* is a dummy variable that equals 1 if the country is out of a tropical climate zone, and zero otherwise. Since we are interested in the interaction term, *High Trust*CSR*, we have two instruments for the regression: *Non-Tropical* and *Non-Tropical*CSR*. Results from the first stage, which are reported in Column (2), show positive and significant relation between High Trust and instruments and the F-statistic for instrument also strongly reject the hypothesis that coefficient estimates for instruments are zero. Therefore, our instruments are relevant. As climate is likely exogenous and should not influence a firm's long-term credit rating, *Non-Tropical* qualifies as an instrumental variable for *High Trust* by meeting both the relevance and exclusion conditions. Results from the second stage reported in Column (4) show a positive and significant coefficient estimate for *High Trust*CSR*, again of a large magnitude (2.858), providing further support for H1.

5.3 | Value implications and likely mechanism

Past research shows that CSR interacts with country level institutions to influence firm value. Some evidence suggests that CSR fills in certain institutional voids and can substitute for lacking institutions. For example, El Ghoul et al. (2017) present evidence that the value of CSR is more salient at firms in countries with weaker market-supporting institutions and capital markets. Other findings indicate that certain institutional factors provide a boost to CSR's effect on firm value. For example, Putnam (2000) argues that an agent's social capital is more valuable where societal trust is higher.

Lins et al. (2017) find that during crisis, CSR is more valued when the firm is headquartered in a higher trust region. As an informal institutional framework with the highest ranking in the context of Williamson's (2000) four-level analysis, societal trust is likely to interact with CSR and dominate other lower-ranked institutional factors in terms of CSR's value implication.

The opposing views (stakeholder view vs. agency view) of CSR remain an obstacle for a clear prediction of CSR's value implication. By improving the overall trustworthiness of managers' claims, societal trust mitigates the moral hazard concerns due to the lack of observability for all firms' CSR engagement in a certain country. We therefore predict that CSR's value implication is more salient for firms headquartered in countries with higher societal trust.

We examine how societal trust may affect the relation between *CSR* and *Tobin's Q*. Our findings show that after controlling for year, industry, and country fixed effects, the coefficient estimate for *High Trust*CSR* is positive yet insignificant. When we include *Crisis*CSR* as an additional term to the regression equation, the relation between CSR score and Tobin's Q in years with high uncertainty (over the period 2007–2012) is positive and highly significant. Our results thus provide further validation of CSR's "insurance-like" property on firm value, but do not find strong support for societal trust's impact on firm value.

To better identify the mechanism that underlies CSR-credit rating relation and the role of societal trust therein, we examine the impact of societal trust on the relation between CSR and credit default swap (CDS hereafter) spread. CDS contracts are traded among information-rich institutional investors and CDS spreads are market measures of credit risk that are not likely to be subject to conflict of interest concerns raised for credit rating agencies (Frost, 2007). We investigate the impact of CSR performance on credit risk using premiums on 5-year CDS, which are the most liquid CDS contracts. We find that the coefficient of *High Trust*CSR* to be negative and highly significant for the non-US subsample, but insignificant for the overall sample. This is weak evidence that a reduction in credit risk is likely the mechanism for CSR-credit rating relation and the role societal trust plays. They are consistent with previous results where credit rating is the dependent variable and this supports H1.[12]

5.4 | Robustness checks

We report results from an ordered logit model, a conventional approach to credit rating analysis, in Column (1) of Table 7. Because US firms dominate our sample, we re-estimate the effect of high societal trust using subsamples that exclude one country which is expected to have large influence and find that the coefficient estimate for *High Trust*CSR* remains positive and highly significant.[13] For example, results in Columns (2) and (3) show that the CSR effect on credit rating is more salient in countries with above-median societal trust when United States or Japanese firms are excluded from our sample. The economic significance is non-trivial as well: the contribution of CSR to long-term credit rating is about two notches higher in a country with above-median societal trust. We also report the separate effect of individual CSR scores (social and environmental) on long-term credit rating in Columns (4)–(5) and show that higher societal trust is associated with more salient positive effect of both categories of CSR scores.

In Columns (6)–(7), we report separate results for investment and non-investment grade firms.[14] The coefficient on the interaction term *High Trust*CSR* is positive and significant, and of a large magnitude (1.058), for the subsample of investment grade firms only. For the non-investment grade firms, the coefficients on *CSR* and *High Trust*CSR* are both negative and insignificant. These results continue to support H1 for investment grade firms, but suggest that after controlling for other factors, credit rating agencies do not reward CSR at non-investment grade firms with a better credit rating.[15] Societal trust does not seem to help the speculative grade firms either. We contemplate two possible explanations: First, the confounding effect on credit rating due to CSR concerns and CSR strengths has a differential effect on investment and speculative grade firms. Second, as a non-financial factor, CSR should be secondary to financial factors when credit rating agencies grant the rating.[16] There may be other mechanisms in play with respect to the relation between long-term credit rating and CSR for issuers with different levels of creditworthiness. This should be a promising field for further research.

TABLE 7 Robustness tests

VARIABLES	(1) Ordered Logit	(2) No US	(3) No Japan	(4) Social Score	(5) Env. Score	(6) Investment Grade	(7) Speculative Grade
CSR_{t-1}	−0.802*	−0.764	−0.738*	−0.533	−1.087**	−0.758*	−0.018
	(−1.855)	(−1.946)	(−1.686)	(−1.398)	(−2.647)	(−1.944)	(−0.026)
High Trust	4.441***	14.479**	2.772***	9.329***	10.513**	7.762*	−1.279
	(2.631)	(2.543)	(3.608)	(2.104)	(2.194)	(1.752)	(−1.063)
High Trust * CSR_{t-1}	1.688***	2.049***	1.572***	1.438***	1.877***	1.058**	−0.220
	(3.683)	(5.001)	(3.652)	(3.675)	(4.689)	(2.577)	(−0.346)
Financial variables controlled	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Macro variables controlled	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SE Clustered by	Firm	Country & Year	Country & Year	Country & Year	Country & Year	Country & Year	Country & Year
Observations	8897	4008	7999	8896	8896	6786	2109
Adjusted R-squared		0.662	0.663	0.653	0.650	0.503	0.488
Psuedo R-squared	0.219						

The dependent variable is S&P's long-term issuer credit rating. All models control for year, industry (measured by SIC2), and country fixed effects. Column (2) is for a sample without US firms and Column (3) is for a sample without Japanese firms. Columns (4) and (5) respectively report social and environmental CSR score effect for the overall sample. Columns (6) and (7) are for subsamples of investment and speculative grade bond issuing firms. *Trust* is country level societal trust based on the most recent wave of the World Values Survey, and *High Trust* is a dummy variable that takes the value 1 if *Trust* is above median and 0 otherwise. The sample covers the period 2002–2014. Refer to Table A3 in the Appendix for detailed explanations of other variables. Robust *t*-statistics are calculated after clustering at both country and year levels and are reported in parentheses.

*, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

6 | DISCUSSION AND CONCLUDING REMARKS

We investigate why credit rating agencies do not always reward good CSP even though they include environmental, social, and stakeholder relationship-related risk factors in credit rating criteria. We suggest that moral hazard concerns due to asymmetric information plays an important role and that credit rating agencies will value CSR more when moral hazard concerns are mitigated. We identify high country level societal trust as an important factor that mitigates moral hazard concerns.

Using a comprehensive global sample over the period of 2002–2014, we test two alternative hypotheses with respect to the role societal trust plays in the relation between CSR and long-term credit rating. We show that the positive association between CSR and credit rating is more salient for firms domiciled in countries with higher societal trust. Our findings help reconcile the very mixed empirical evidence documented for global samples.

Our study contributes to the debate on CSR value by zooming in on the effect of unobservable managerial intentions that underlie CSR efforts. Partly due to its non-observability, the two opposing views on CSR value—the stakeholder view (Freeman, 1984; Hillman & Keim, 2001) versus agency view (Cheng et al., 2013; Friedman, 1971; Jensen & Meckling, 1976)—have divergent assumptions on the underlying managerial intentions. As a social pattern with the highest ranking as discussed in Williamson's (2000) four-level analysis, societal trust dominates other lower-level institutional factors and supports credit rating agencies' higher valuation of CSR in certain countries.

Because our findings are based on a sample of large and reputable firms covered by ASSET4, which is also dominated by US domiciled firms, we need to be careful in generalizing our findings to all firms. For example, there are very few firms with very low credit ratings in our sample, so that we cannot provide insights over the role of societal trust for CSR activities in this group of firms. We also note that the more salient effect of societal trust is only for investment grade firms and it is important to explore how credit rating agencies weight non-financial CSR versus financial factors. Furthermore, firms with credit ratings tend to use more leverage (Faulkender & Petersen, 2006), so the economic significance of the CSR effect on credit ratings that we document in this study may be smaller for firms that are not rated. As additional data become available, it will be interesting to investigate whether our results are more generally applicable. Finally, as the Paris Agreement—a legally binding international treaty on climate change—was adopted by many countries in 2015, it will be interesting to explore its impact on the role of societal trust that we document in this study.

NOTES

[1] In 2015, immediately after Netflix announced its one full year paid parental leave policy, Amazon and Microsoft made similar improvements to their policies. Disney provides millions of dollars in conservation grants to protect wildlife. More recently, Verizon Communications vowed to increase generating or buying renewable energy over time, and Mondelez International (which makes Oreo cookies) turned to recyclable wrappers to be friendlier to the environment.

[2] We include a summary of empirical work that documents the differential relationship between CSR and credit rating in Appendix Table A1.

[3] Our sample period starts in 2002, when the ASSET4 database initiated, and ends in 2014, a year before the adoption of the Paris Agreement, which is a legally binding international treaty on climate change. This enables an assessment of CSR activities' relation with credit rating when CSR activities remained activities that transcended legal requirement.

[4] The correlation coefficients between the proxies for societal trust are reasonably high, at about 61%.

[5] Stellner et al. (2015) study a sample of firms from 12 Eurozone countries, Menz (2010) investigate a sample of 498 corporate bonds, and Edmans et al. (2014) examine a sample of 552 firms from 14 countries. The majority of other previous studies focus on US firms. Our sample also has a balanced representation of countries with the two major legal origins (common law and civil law countries) while other samples are dominated by countries with one legal origin. Please refer to Appendix A1 for a summary of the past studies.

[6] We also include industry and year distribution of our sample in Appendix Table A2.

[7] Appendix Table A3 presents the definition of the variables.

[8] The question reads: Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people? A response is coded as 1 if a survey participant reports that most people can be trusted and 0 otherwise.

[9] Not all countries in our sample have reported their answers to the WVS survey for the "trust"-related question.

[10] We thank the reviewer for pointing out this issue.

[11] We thank an anonymous referee for the suggestion of instrumenting for societal trust.

[12] The CDS results are not included to save space. We consider alternative stories and show that neither leverage, financial constraints, nor corporate governance drive our findings. All the nontabulated results are available upon request.

[13] We conduct more robustness checks: (1) using subsamples of firms to ensure that our results are not driven by a single country; (2) using different clustering of standard errors and finer industry controls (SIC4), and (3) controlling for time-varying fixed effects. Our results continue to hold for all three proxies for societal trust.

[14] We thank an anonymous referee for their suggestions.

[15] Our results are consistent with Oikonomou et al. (2014) and Ge and Liu (2015) for investment grade firms. Whereas these studies also find that very low-graded bonds benefit from proactive involvement in CSR, our sample has only 55 out of a total of 9933 observations that are based on very lowly rated firms (CCC+ or worse). Lack of a reasonable sample size of very lowly-rated firms prevents us from testing the relation between CSR and long-term credit rating for this group.

[16] This may be a reason why previous studies present mixed empirical evidence on the relation between credit rating and CSR. See Appendix A1 in the manuscript for a literature review.

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APPENDIX

TABLE A1 Literature summary of study of credit rating and CSR

Authors & Journal	Sample	Credit Rating measure	CSR measure	Relation
Menz, Journal of Business Ethics, 2010	Europe, 16,957 issues from 498 US bonds, 2004–2007	Bond credit spread from Merrill Lynch Non-Financial Corporate Bond Index	Corporate Sustainability Assessment of Sustainable Asset Management Research (SAM)	Weakly Negative and No
Goss & Roberts, Journal of Banking & Finance, 2011	US, 3996 bank loans, 1991–2006	Bank loan spread from Dealscan	KLD STATS	Weakly Negative
Attig, El Ghoul, Guedhami, and Suh; Journal of Business Ethics, 2013	US, 11662 firm-year obs from 1585 firms, 1991–2010	Issuer credit rating from S&P, 8 categories	MSCI ESG STATS (formerly KLD)	Positive
Oikonomou, Brooks, and Pavelin, Financial Review, 2014	US, 3240 issues from 742 firms, 1992–2008	Corporate bond spread and bond credit ratings from S&P	KLD STATS	Negative (spread), Positive (rating)
Jiraporn, Jiraporn, Boeprasert, Chang, Finanicial Management, 2014	US, 2516 firm-years, 1995–2007	Issuer credit rating from S&P, 22 categories	KLD STATS	Positive
Ge and Liu; Journal of Accounting and Public Policy, 2015	US, 4260 issues from 2317 firms, 1992–2009	Bond issue credit ratings	KLS STATS	Positive
Stellner, Klein, Zwergel; Journal of Banking & Finance, 2015	12 EMU 12 countries, 872 bond issues	Bond issue ratings by S&P	ASSET4 ESG company rating from Thomson Reuters	Weakly Positive
Hoepner, Oikonomou, Scholtens, and Schroder; Journal of Business Finance and Accounting, 2016	28 countries, 470 loan agreements, 2005–2012	Bank loan spread	Oekom research	No

TABLE A2 More sample statistics

Panel A. Sample distribution by industry

Fama & French 12 Industries	Obs.	Percent	Mean Company Credit Rating	Mean CSR Scores
Consumer Non-Durables	800	8.05%	14.49	0.65
Consumer Durables	361	3.63%	14.65	0.74
Manufacturing	1514	15.24%	14.02	0.70
Oil, Gas, and Coal Extraction	830	8.36%	13.75	0.56
Chemicals and Allied Products	648	6.52%	15.04	0.76
Business Equipment (Computers, Software)	945	9.51%	13.80	0.62
Telephone and Telephone Transmission	731	7.36%	13.96	0.59
Utilities	1018	10.25%	15.22	0.66
Wholesale, Retail, and Allied Services	1031	10.38%	13.83	0.55
Healthcare, Medical Equipment, and Pharmaceuticals	561	5.65%	15.39	0.60
Other	1494	15.04%	13.72	0.58

Panel B. Sample distribution by year

Year	Obs	Percent
2003	436	4.39%
2004	450	4.53%
2005	720	7.25%
2006	864	8.70%
2007	758	7.63%
2008	814	8.19%
2009	923	9.29%
2010	1000	10.07%
2011	1029	10.36%
2012	1042	10.49%
2013	1038	10.45%
2014	859	8.65%

TABLE A3 Definitions of variables

Variable Name	Definition	Source
Credit rating/Credit risk related:		
Lt rating	Issuer long-term credit rating; Company credit rating; Following Klock et al. (2005), we convert long-term credit rating to numbers from 1(D) to 22(AAA).	Capital IQ
Sovereign cr rating	Sovereign credit rating	Capital IQ
CDS5	Premium on 5-year credit default swap contracts	Bloomberg
Related to CSR and Corporate Governance:		
CSR	Firm corporate social responsibility rating; (social + env)/2	ASSET4, calculated
CSR2	Firm corporate social responsibility rating; (social + env+cgov)/3; corporate governance added	ASSET4, calculated
High CSR	Takes 1 if CSR score is above 0.50, else 0	ASSET4, calculated
Social	Firm CSR rating related to social issues	ASSET4
Env	Firm CSR rating related to environmental issues	ASSET4
CGOV	Firm corporate governance rating	ASSET4
External shock related		
Fin crisis	Takes 1 if the year is in the US financial crisis period (2007–2009), else 0	
Fin crisis2	Takes 1 if the year is in the US financial crisis period (2007–2009), else 0	
Crisis	Takes 1 if the year is in the US financial crisis period (2007 to 2009) or the European sovereign debt crisis period (2010 to 2012), else 0	
Crisis2	Takes 1 if the year is in the US financial crisis period (2007–2009) or the European sovereign debt crisis period (2010–2012), else 0	
Sovereign downgrade	Takes 1 if the country's sovereign credit rating is downgraded in the current year by S&P, else 0	Capital IQ
Sovereign downgrade2	Takes 1 if the country's sovereign credit rating is downgraded in the current or the previous year by S&P, else 0	Capital IQ

TABLE A3 (Continued)

Variable Name	Definition	Source
Country-level Societal Trust		
Trust	Fraction of people who answer "Most people can be trusted"; Country trust index is constructed from the most recent wave survey	World Value Survey (WVS); from 4th to 6th wave
High Trust	Takes 1 if a country trust index is higher than the overall median country trust index	World Value Survey (WVS); from 4th to 6th wave
CPI	Corruption perception index; the higher the index, the less corrupt is the country; calculated as the original CPI divided by 100 so that the highest CPI has a score of 1	Transparency International
High CPI	Takes 1 if a country CPI index is higher than the overall median country CPI index	Transparency International
Media Freedom	Takes 1 if a country has full media freedom, else 0.	Freedom House
Company's financial variables:		
LogTA	Log (total assets) in US$ and inflation adjusted using 2010 as the base year	Compustat
Leverage	Long-term debt over total assets	Compustat
ROA	Ib/TA(total assets)	Compustat
Sale growth	Sales' growth rate; [sale(t)/sale(t − 1)] − 1	Compustat
R&D intensity	R&D expenditure/total assets, treat missing R&D as 0	Compustat
Missing R&D	Takes 1 if R&D is missing, else 0	Compustat
CAPX intensity	Capital expenditure/total assets	Compustat
FA/TA	Net fixed assets/total assets	Compustat
Cash/TA	Cash and equivalents/total assets	Compustat
CF/TA	Cash flow / total assets; Cash flow is calculated as (oibdp + dp)	Compustat
Current ratio	Current assets/current liabilities	Compustat
EBIT/Int	[Earnings before interest and tax (EBIT)/interest expenses]/100; interest coverage ratio	Compustat

(Continues)

TABLE A3 (Continued)

Variable Name	Definition	Source
Debt/EBITDA	Debt / Earnings before interest, tax, depreciation, and amortization (EBITDA)	Compustat
Neg Debt/EBITDA	Takes 1 if Debt/EBITDA < 0, else 0	Compustat
Market beta	Market beta is calculated using the past 24 month returns and Fama & French market factor	Datastream
Idiosyncratic risk	Firms' specific idiosyncratic risk	Datastream
Tobin's Q	(Total assets − book value of common equity + market value of common equity)/total assets	Compustat
Macroeconomic variables:		
Maturity spread	10-year U.S. T-Bond Yield–3-month U.S. Treasury bill yield	Federal Reserve H.15 Report
Credit spread	10-year U.S. T-Bond Yield–AAA corporate bond yield	Federal Reserve H.15 Report
Mktcap/GDP	Annual market capitalization/GDP	World Bank
Private credit/GDP	Annual domestic private credit provided by banks/GDP	World Bank
Inflation	Annual inflation rate, measured by GDP deflator	World Bank
GDP per capita	Annual GDP per capita in 1,000 US$, inflation adjusted using 2010 as the base year	World Bank
Other country factors:		
Legal origin	Legal regime of a country, common law or civil law are most common legal origins	Liang and Renneboog (2017)
Stakeholder Orientation	Average rank score of the Employment law, Social security laws, Collective relation laws, and human rights laws	Dhaliwal et al. (2012)
Anti-director Index	Captures the power of shareholders to sue corporate directors and describes corporate governance strength in a country	La Porta, et. al. (1997); Spamann (2010)