

# Corporate Bond Covenants and Social Responsibility Investment

Guifeng Shi · Jianfei Sun

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**Abstract** This paper examines the effect of corporate social responsibility (CSR) on the number of bond covenants. We find that a high CSR score has a negative association with the number of bond covenants. Moreover, our results are more pronounced for firms with a high bid-ask spread and high agency costs. Our analysis highlights the effect of the good stakeholder relationship on the bond contracts.

**Keywords** Bond covenants · Corporate social responsibility investment

**JEL Classification** G32 · G24 · G12

## Introduction

In bond contracting, covenants are designed to protect the interest of bondholders through forbidding the issuer from undertaking certain activities or requiring the issuer of meeting specific requirements. In the literature, bond covenants are usually considered to have the benefits of reducing information asymmetry and agency costs in bond financing, on the one hand, but bear the costs resulting from negotiation, enforcement and lost of financial flexibility (Smith and Warner 1979), on the other. Literature has documented several determinants of bond covenants: financial leverage (Malitz 1986; Billett et al. 2007), growth opportunities (Billett

et al. 2007; Nash et al. 2003), managerial entrenchment (Chava et al. 2010), and corporate governance (Li et al. 2011). In this paper, we argue that there is another determinant of bond covenants, corporate social responsibility (CSR) investments. Specifically, we find that the intensity of debt covenants, measured as the number of covenants, are significantly lower for firms with higher CSR investments.

CSR can decrease the number of covenants through reputation. Better CSR performance can earn a firm good reputation that would bring firm more benefits such as higher credit ratings, easier borrowing, and better bondholder protection (John and Nachman 1985; Cheng et al. 2014; El Ghouli et al. 2011). CSR may also influence the number of covenants through information. This is because firms with better CSR performance provide more information for outside investors (Dhaliwal et al. 2011; El Ghouli et al. 2011), and better information disclosure can lead to lower capital constraints (Hubbard 1998), a lower cost of capital (Ng and Rezaee 2012), and fewer covenants (Chava et al. 2010). Finally, CSR can affect the number of covenants through risk. High-risk firms are likely to be associated with more covenants (Billett et al. 2007; Demiroglu and James 2010b; Murfin 2012), but better CSR performance would reduce corporate risk (Hong and Kacperczyk 2009; Waddock and Graves 1997). Taking into account all the above, we would expect high CSR investment to be negatively associated with the number of covenants.

Our main findings are as follows. First, for a sample of 2,732 bond issues of 738 US public firms in the period from 1991 to 2010, we find the level of firm CSR investment is significantly associated with the number of total bond covenants. Second, this negative association is significant in all four covenants categories, the investment covenants, the dividend covenants, the subsequent financing covenants, and the event covenants, and is robust to

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G. Shi · J. Sun (✉)  
Antai College of Economics and Management, Shanghai Jiao  
Tong University, 535 Fahu Zhen Rd., Shanghai 200052, China  
e-mail: sunjianfei@sjtu.edu.cn

G. Shi  
e-mail: shigfeng@sjtu.edu.cn

various model specifications. Third, the negative relationship is more pronounced for firms with a high bid-ask spread of traded bonds and for firms with high agency costs.

Our paper contributes to the literature of bond covenants. Many studies show that covenant use is determined by some factors including financial leverage, growth opportunities, managerial entrenchment, and corporate governance (Malitz 1986; Billett et al. 2007; Nash et al. 2003; Chava et al. 2010; Li et al. 2011). We find that CSR might be another factor that can affect the number of covenants. Our paper also contributes to the growing literature about the role of CSR in capital markets. CSR has been shown to result in lower debt ratios (Bae et al. 2011), lower equity financing cost (Dhaliwal et al. 2011; El Ghouli et al. 2011), lower debt financing cost (Goss and Roberts 2011; Oikonomou et al. 2011), more favorable analyst recommendations (Ioannou and Serafeim 2010), and lower analyst forecast error (Dhaliwal et al. 2011). It also leads to higher shareholder returns (Edmans 2011) and less information asymmetry (Hung et al. 2013). Among the above literature, perhaps the most closely related papers are Goss and Roberts (2011) and Oikonomou et al. (2011). Goss and Roberts (2011) find that firms with social responsibility concerns pay between 7 and 18 basis points more than firms that are more responsible in debt financing. Oikonomou et al. (2011) documents that a unit increase (decrease) in aggregate strengths (concerns) can lead to a(n) decrease (increase) in its cost of debt by approximately 21.2 % (56.3 %). In this paper, we show an additional important role of CSR by looking at the impact of CSR on the number of bond covenants.

In this study, we follow previous studies (e.g., Bradley and Roberts 2004; Demiroglu and James 2010b; Murfin 2012) to use the count number of indicators to measure the intensity of debt covenants. The rationalization is that a contract with more covenants can bind more of the borrower's financial ratios and thus give the lender more contingent control. However, to measure the restrictiveness of debt covenants, previous studies suggest that at least two different dimensions, the intensity and the tightness, should be covered (Demiroglu and James 2010b). Different to the intensity gauges, the tightness measurements gauge the initial covenant slack as the distance between the borrower's accounting numbers at the time the contract is written and what is allowable under the covenants specified (e.g., Demiroglu and James 2010b; Panyagometh et al. 2013; Murfin 2012).

The reason why this paper focuses on covenants intensity is because of the limitation of data availability. Bradley and Roberts (2004), Demiroglu and James (2010b), and Murfin (2012) all use data from Dealscan database of loan pricing corporation (LPC). Dealscan provides detailed

information about loan covenants and thus enable them to investigate the covenant tightness dimension. Our paper, however, studies the bond covenants, which is from fixed Income securities database (FISD). FISD does not provide such information to study covenant tightness because it only provides "Yes" or "No" to whether the bond has certain covenant.<sup>1</sup> In this paper, other than the number of covenants, we also use a few more measures as proxies to covenant intensity. The results do not change.

The rest of this article proceeds as follows: "Literature Review and Hypothesis Development" section reviews the previous literature and develops the hypotheses. "Data" section describes the sample and data sources. "Empirical Results" section presents the main empirical setting and results, along with some additional empirical analyses. "Conclusion" section concludes.

## Literature Review and Hypothesis Development

Opportunistic shareholders and managers can hurt bondholder interests through actions like mergers, as well as through many kinds of financial policies such as large dividend payouts, subsidiary borrowings and guarantees, sales of assets, etc. (Chava et al. 2010). To prevent this, one thing bondholders can do is to use covenants to restrict these activities and policies and thus protect themselves. Covenants can reduce agency costs and information asymmetry problems between shareholders or managers and bondholders, resulting in lower corporate financing costs and increased firm values (Smith and Warner 1979; Dichev and Skinner 2002; Bradley and Roberts 2004; Drucker and Puri 2009; Demiroglu and James 2010b).

Literature has documented certain determinants of bond covenants. The first one is financial leverage. Malitz (1986) finds that highly levered issuers are more likely to include restrictive covenants in their bond contracts. Billett et al. (2007) find that the number of covenants increases in financial leverage. The second one is growth opportunities. Nash et al. (2003) evaluate the costs and benefits of restrictive bond covenants. They find that firms with growth opportunities, in order to preserve future flexibility, are less likely to include dividend or debt issuance restrictions in their bond contracts. Billett et al. (2007) also find that the number of covenants increases in growth opportunities. The third one is managerial entrenchment. Chava et al. (2010) study the effects of managerial entrenchment and fraud on different types of covenants.

<sup>1</sup> For example, on Jun 29th, 1993, Boeing issued a bond with offering amount of \$250 million and maturity of 32 years. For this issuing, FISD marked "Y" to "consolidation or mergers (investment covenants)" and "N" to dividend payments (dividend covenants).

They find that managerial entrenchment and fraud influence the use of covenants. The fourth one is corporate governance. Li et al. (2011) investigate the impact of corporate governance mechanisms on the number of covenants. They find that bond contracts have fewer covenants when the board size is larger, board members have more expertise and the firm has more activist shareholders.

While literature has documented the above determinants of bond covenants, there is one determinant that has not been explored, CSR. CSR can affect the number of covenants from the following three ways. The first one is through reputation. A superior CSR performance can stand for the firm's commitment to, and engagement with, stakeholders on the basis of ethical relationships (Jones 1995; Andriof and Waddock 2002). Existing studies view CSR investment as one way to develop a good reputation that can bring more benefits to the firm in the future. A good corporate reputation can make borrowing easier (Cheng et al. 2014), receive higher credit ratings (John and Nachman 1985), protect bondholders better (El Ghouli et al. 2011), and make covenant settings looser (Demiroglu and James 2010a).

The second way is through information. When facing uncertainties, investors would rather make their investment decisions on securities that provide more information (Merton 1987). Firms with better CSR performance are more likely to disclose their CSR activities to the market and provide more information for outside investors (Dhaliwal et al. 2011). Increased information disclosure can reduce informational asymmetry between the firm and investors (e.g., Botosan 1997; El Ghouli et al. 2011), leading to lower capital constraints (Hubbard 1998), a lower cost of capital (Ng and Rezaee 2012), and improved market liquidity (Lang et al. 2012) and fewer covenants (Chava et al. 2010).

The third way is through risk. Literature has documented evidence that socially responsible firms are more likely to be less volatile and less risky (Spicer 1978; Orlitzky and Benjamin 2001). CSR may reduce risks in at least the following two categories: litigation risk and financial distress risk. Socially responsible investment may help a firm reduce the litigation risk and costs of litigation. This is easy to see when we consider that new or potential governmental regulations tend to relate to product safety, environmental preservation, and other aspects of social responsibility. Hong and Kacperczyk (2009) find that socially irresponsible firms, or so-called "sin" firms, face higher litigation risks related to lawsuits for environmental pollution, unsafe products, employee benefits, and so forth. Similarly, Waddock and Graves (1997) show that firms with poor corporate social performance sell unsafe products, increasing the chance of future lawsuits. The relationship between CSR and

litigation costs goes beyond production and affects earnings management. Kim et al. (2012) find that firms with high CSR are less likely to manage earnings through both discretionary accruals and real operating activities, and are thus less likely to be the subject of SEC investigations.

CSR may also reduce financial distress risk. Firms with a better CSR performance are less likely to experience financial distress (Goss 2009), have a lower risk of bankruptcy (Jiao and Shi Jiao and Shi 2014), and face significantly lower capital constraints (Cheng et al. 2014). Sharfman and Fernando (2008) find that higher leverage firms with more environmental controls are able to support a higher debt level because of a reduction in bankruptcy risk.

In sum, high CSR leads to lower risk and thus better creditors protection. Since bond covenants are meant to protect creditors from corporate risk, high-risk firms are likely to be associated with more covenants (Billett et al. 2007; Demiroglu and James 2010b; Murfin 2012). Taking into account together with the impact of reputation and information, we would expect high CSR investment to be negatively associated with the number of covenants. Therefore, we propose the following hypothesis:

Hypothesis: The number of a firm's bond covenants is negatively associated with a firm's CSR investment.

## Data

We start building our sample by obtaining CSR data from KLD Research and Analytics, a database widely used in empirical studies (Johnson and Greening 1999; Coombs and Gilley 2005; Chatterji et al. 2009; Benson and Davidson 2010; Jiao 2010; Bae et al. 2011; Kim et al. 2012).<sup>2</sup> The database includes a well-established measure of both stakeholder management and CSR investment, by rating firms with a strength score and a concern score in seven major categories: community, diversity, corporate governance, employee relations, human rights,<sup>3</sup> environ-

<sup>2</sup> Now owned by MSCI ESG Research, KLD is an independent rating agency specializing in assessing corporate social performance for a large sample of publicly traded companies in the US since 1991. It collects information from a variety of sources including company filings and direct communications with the company, governments and other organizations, as well as media, and it rates firms using a proprietary framework of positive and negative indicators.

<sup>3</sup> The category of human rights was added to the KLD database in 1995.

ment, and product.<sup>4</sup> In defining our CSR proxy, we follow the prior literature in using all seven major categories.<sup>5</sup> We then construct a CSR score, measured as total strengths (positive ratings) minus total concerns (negative ratings) in all KLD's seven social rating categories.

It is worth emphasizing that the KLD database is by far the most comprehensive and unbiased database available for ratings that take firms' stakeholders into account. Edmans (2011) and Bae et al. (2011) use *Fortune's* "100 Best Companies to Work For" as a proxy or alternative measure of a firm's treatment of employees, and their results remain unchanged. Alternatively, the *Business Ethics* "100 Best Corporate Citizens" (hereafter 100BCC) ratings can also serve as an alternative proxy for CSR. When we rank firms in the KLD and 100BCC databases based on the scores they receive in each, we find the two rankings to be almost identical. This is not surprising because the ranking criteria are very similar across the two datasets.<sup>6</sup> The biggest difference is that the KLD database covers a much larger sample of firms.

We then match KLD data with bond covenant data from the fixed income securities database (FISD).<sup>7</sup> The bond must be a corporate debenture with issuance, offering date, and covenant information available in FISD, and we exclude bonds with missing covenant information, bonds issued by foreign firms and financial firms, and bonds denominated in foreign currency. For the firm that has multiple bond issuances on the same date, we compute a simple average of all bond characteristics. Finally, we make available data on other bond-specific and firm-specific variables used in regression analyses. This provides us with an initial sample of 2,732 bond issues from 738 firms during the period 1991–2010.

The number of covenants is the key variable. Following Bradley and Roberts (2004) and Chava et al. (2010), we assume that more covenants place greater restrictions on the operations of the issuing firm that are detrimental to the bondholders. We simply treat the number of covenants

included in the debt agreement as a measure of the restrictiveness or strictness, similar to the covenant index constructed by Bradley and Roberts (2004) and Murfin (2012).<sup>8</sup> Following Smith and Warner (1979) and Chava et al. (2010), we place bond covenants into four categories: investment covenants,<sup>9</sup> dividend covenants,<sup>10</sup> subsequent financing covenants,<sup>11</sup> and event covenants.<sup>12</sup> In addition, we calculate the total number of covenants. In the case of subsidiary and parent companies, the covenants of both are considered.

## Empirical Results

### Regression Specification

To capture the relation between bond covenants and CSR, we estimate the following model:

$$\begin{aligned} \# \text{ of Covenants} = & \alpha_0 + \beta_1 \text{CSR} \\ & + \sum_{j=2}^l \beta_j \text{bond characteristics}_j \\ & + \sum_{j=l+1}^m \beta_j \text{firm characteristics}_j \\ & + \sum_{j=m+1}^s \beta_j \text{year dummies}_j + \sum_{j=s+1}^t \beta_j \text{industry dummies}_j + \varepsilon \end{aligned}$$

All else being equal, we expect  $\beta_1$ , the key coefficient of interest, to be negative. Following Chava et al. (2010), the regression is based on bond-year samples.<sup>13</sup>

In the above model, we also control for various characteristics of bond issues: maturity, offering amount, an indicator variable for bonds that are privately placed, and whether they are callable or putable. We also control for bond ratings in the regression.<sup>14</sup> However, one might argue that the bond rating variable may incorporate part, if not

<sup>4</sup> There are five additional dimensions including alcohol, gambling, military contracting, nuclear power, and tobacco. We do not consider these dimensions in constructing CSR score since they are exclusionary screen categories.

<sup>5</sup> We do not exclude corporate governance, comprising transparency and accounting related strength and concerns, as well as compensation and governance structure-related components, although these reflect the conflicts of interest between managers and shareholders. However, our results would remain unchanged if we excluded corporate governance. The results are not reported here but available on request.

<sup>6</sup> The 100BCC uses 3-year KLD averages of standardized values according to the list in 2001. From 2002 to 2004, 100BCC used community, minorities and women, employees, environment, non-US stakeholders, customers. From 2005 to 2007, 100BCC used the same categories as KLD.

<sup>7</sup> FISD provides detailed information on debt securities issued by corporations, US agencies, US Treasury, and foreign issuers.

<sup>8</sup> Bradley and Roberts (2004) explain in details the reason why they examine an aggregate measure of covenant structure for loan contract.

<sup>9</sup> Investment covenants include consolidation or mergers restrictions, indirect investment restrictions, bonds being secured, stock sale restrictions, or direct investment restrictions.

<sup>10</sup> Dividend covenants stipulate whether the bond's indenture restricts dividends and other payments.

<sup>11</sup> Subsequent financing covenants include debt priority restrictions, stock issuance restrictions, subordinate debt restrictions, restrictions on sale and lease obligations.

<sup>12</sup> Event covenants include default-related covenants and stipulate whether the indenture contains a change in control poison put.

<sup>13</sup> The results are similar when we run a regression using firm-years.

<sup>14</sup> The bond rating is the average credit rating of the bond provided by three rating agencies: S&P, Moody's, and Fitch. If the rating of issue is missing, it is replaced by the average credit rating of the issuer or is replaced by the S&P long-term issuer rating from Compustat. We convert the credit rating into the S&P numerical scale as follows: 21-AAA, 20-AA+, 19-AA, 18-AA-, 17-A+, 16-A, 15-A-,

**Table 1** Descriptive statistics of selected variables

Variable	<i>N</i>	Mean	Std. dev.	Bottom 25 %	Median	Top 25 %
Sum of all covenants	2,732	5.35	4.49	2.00	5.00	7.00
Investment covenants	2,732	1.05	1.07	0.00	1.00	1.00
Dividend covenants	2,732	0.40	0.89	0.00	0.00	0.00
Subsequent financing covenants	2,732	3.12	2.33	1.00	4.00	4.00
Event covenants	2,732	0.78	0.82	0.00	1.00	1.00
CSR	2,732	-0.43	2.95	-2.00	-1.00	1.00
Pvt placement	2,732	0.23	0.42	0.00	0.00	0.00
Maturity (year)	2,732	11.60	11.10	7.00	10.00	10.00
Offering amount (\$,M)	2,732	361.20	301.43	200.00	300.00	450.00
Bond rating	2,732	12.29	3.88	9.00	12.67	15.50
Callable	2,732	0.78	0.42	0.00	1.00	1.00
Putable	2,732	0.02	0.14	0.00	0.00	0.00
High agency cost	2,732	0.31	0.46	0.00	0.00	1.00
Assets (\$,M)	2,732	13570.29	35580.04	2045.58	5281.90	13353.60
ROA	2,732	0.04	0.06	0.02	0.04	0.07
Mtb	2,732	3.57	5.77	1.45	2.19	3.69
Tangible ratio	2,732	0.70	0.39	0.39	0.68	0.98
Lev	2,732	0.34	0.15	0.24	0.33	0.42

This table documents some characteristics of the bond-level and firm-level variables based on our samples that are used in at least one of our multivariate tests

ROA, tangible ratio and leverage are winsorized at 1st and 99th percentiles. See Table 8 in Appendix section for variable definitions

all, of the components in the CSR variable.<sup>15</sup> Thus, we estimate the bond rating without the CSR component, by regressing the bond rating on the CSR variable and labeling the error term from this regression as our primary measure of credit ratings in the multivariate analysis. This method is similar to what Klock et al. (2005) do.<sup>16</sup> We also control for a series of firm-specific variables that are likely to be associated with debt contract terms: size, ROA, market-to-book ratio, tangible ratio, and leverage. We use the log of assets as the proxy for size. We measure ROA as net income before extraordinary items divided by total assets. The quality of a firm's investment opportunities and firm's size determine the types of covenants included. Following the literature, we use a logarithm of the market-to-book ratio as a proxy for growth options. Since a high proportion of tangible assets tend to improve borrowing ability, we use

the ratio of tangible-to-total assets (gross PPE divided by total assets). We measure leverage as the total debt divided by total assets. ROA, tangible ratio and leverage are winsorized at the top and bottom 1 % of their distributions. Finally, we address possible industry effect and year effect through the controls of the Fama-French 48 industry dummies and year dummies.<sup>17,18</sup>

### Descriptive Statistics

Table 1 reports descriptive statistics (see Table 8 in Appendix section for variable definitions). The average bond has a total of 5.35 covenants. For investment and subsequent financing covenants, the means are 1.05 and 3.12, respectively, indicating that on average each bond entails more than one covenant covering each of these two categories. In contrast, for dividend and event covenants, the numbers are 0.40 and 0.78, respectively.

Footnote 14 continued

14-BBB+, 13-BBB, 12-BBB-, 11-BB+, 10-BB, 9-BB-, 8-B+, 7-B, 6-B-, 5-CCC+, 4-CCC, 3-CC, 2-C, and 1-D&SD.

<sup>15</sup> Attig et al. (2013) find that CSR strengths and concerns may influence credit ratings and credit rating agencies tend to award relatively high ratings to firms with good social performance. Oikonomou et al. (2011) also find CSR scores lead to improved credit quality.

<sup>16</sup> They regressed the credit ratings on the governance index and labeled the error term from this regression as their measure of credit ratings. Of course, it is possible that the effects of CSR on bond covenants might be subject omitted variable bias.

<sup>17</sup> Our results do not change when we use two-digit SIC industry classification.

<sup>18</sup> We use industry instead of firm fixed effects because of insufficient within-firm-variation over time in CSR scores and because including firm fixed effects would force identification of the CSR-related coefficients from these changes. This point is in a similar vein to one made for the GIM index by Gompers et al. (2003) and Giroud and Mueller (2011).

According to Chava et al. (2010), the vast majority of bonds are senior with a median offering amount of \$250 million and a median maturity of 10 years. In our sample, the bond offering amount is, on average, \$361.20 million, and the average maturity is 11.60 years. The average bond rating is 12.29 (meaning BBB–), with 21 (meaning AAA) being the maximum rating ratio. 23 % of our samples are bonds that are privately placed. 78 % are callable, and 2 % are putable. Firms in our sample have assets averaging \$13,570 million, an average ROA of 0.04, and an average market-to-book ratio of 3.57. The tangible ratio and leverage ratio are 0.70 and 0.34, respectively.

## Regression Analysis

### *The Main Results*

In this section, we examine whether CSR investment is negatively associated with the number of bond covenants. We first divide the entire sample into ten groups by CSR Index, then check the association of mean and median between CSR and the number of covenants (or industry adjusted covenants). Our untabulated results show a decreasing pattern between CSR and bond covenants. In addition, we also calculate the correlation between CSR and raw number of covenants and find it to be  $-0.0657$ , significant at 1 % level. For the correlation between CSR and Industry adjusted number of covenants, the number is  $-0.0638$ , significant at 1 % level.

The Panel A of Table 2 presents the results of five multivariate tests that investigate the association between the number of bond covenants and CSR scores. Each of our dependent variables represents an attempt to capture either a total or one category of bond covenants as defined by Smith and Warner (1979). We use Tobit models in all regressions, with robust standard errors clustered at the firm level, because some bonds in our sample have zero covenants.

What we find is a negative relation between CSR score and the numbers of investment covenants, dividend covenants, subsequent financing covenants and event covenants, indicating that CSR firms issue bonds with fewer restrictions. Not surprisingly, CSR score has a significantly negative association with the total number of bond covenants, also called covenants intensity in the literature (Bradley and Roberts 2004; Demiroglu and James 2010b; Murfin 2012). Thus, we cannot reject our hypothesis that CSR is negatively associated with the number of covenants. Next, we try to examine our results robustness using a few more measures as proxies to covenants intensity.

First, as Smith and Warner (1979) argue (p. 153), “dividend policy and financing policy involve lower monitoring costs. Stockholder use of these policies to ‘hurt’

bondholders involves acts (e.g., the sale of a large bond issue) which are readily observable”. Thus, we expect our results to be more pronounced for dividend and subsequent financing covenants than for investment and event covenants. As we can see in Panel A of Table 2, the coefficients of dividend and subsequent financing covenants are  $-0.216$  and  $-0.090$ . For investment and event covenants, the coefficients are  $-0.061$  and  $-0.021$ . Furthermore, Chow tests show that the former two are significantly lower than the latter two.

Next, we use three more variables to measure the intensity of covenants. The first one is total number of indicators, which is equal to the number of covenant categories in a bond. It takes value of 0, 1, 2, 3, or 4. This also-called covenant intensity index was proposed by Bradley and Roberts (2004) and used in Demiroglu and James (2010b) as well. The higher the total number of indicators, the more restrictive the bond is. We also use debt priority covenants as another measure for restrictiveness of bond covenants. As Chava et al. (2010) point out, restriction on issuers’ ability to change debt priority tends to be used more with riskier bonds. The third measure is indirect investment covenants.<sup>19</sup>

They are used much more frequently in noninvestment grade newly issued bonds, compared with the investment grade newly issued bonds (Chava et al. 2010). Results are reported in Panel B of Table 2. We can see that CSR is negatively associated with all three alternative measures, consistently with the findings in Panel A of Table 2.

In Panel C of Table 2, we add more bond-specific and firm-specific omitted control variables to reinforce the results of Panel A of Table 2. In Column 1 of Panel C, we check whether our results are robust when we control for the cost of debt. Following Shi (2003), Jiang (2008), and Wang and Zhang (2009), we use yield spread as a proxy for cost of debt. Yield spread is defined as the difference between the issue’s offering yield to maturity and the yield on U.S. Treasury bond of comparable maturity on the issuance date (measured in basis points).

Corporate governance and manager entrenchment can also influence the usefulness of bond covenants (Chava et al. 2010). In Column 2 of Panel C, we use the presence of block holders (where a block is defined as 5 % or more

<sup>19</sup> The indirect investment restriction category includes restrictions on transactions with affiliates, fixed charge coverage, maintenance of minimum net worth, restrictions on redesignating subsidiaries, subsidiary fixed charge coverage ratio, and after acquired property clause.

<sup>20</sup> We compute the total institutional ownership as of the quarter prior to bond issuance. The institutional investors include socially responsible (SR) mutual funds, so we do not treat separately the shareholding of SR mutual funds as an omitted variable. The data is from Thomson Financial.

**Table 2** Tobit regression of CSR and number of bond covenants

Panel A: main results based Tobit regression					
	Sum of all covenants	Investment covenants	Dividend covenants	Subsequent financing covenants	Event covenants
CSR	-0.228*** (-7.261)	-0.061*** (-5.754)	-0.216*** (-7.039)	-0.090*** (-4.972)	-0.021* (-1.832)
Pvt placement	-12.647*** (-32.598)	-3.361*** (-22.015)	-5.452*** (-16.172)	-6.492*** (-35.577)	-2.416*** (-27.387)
Log (maturity)	0.052 (0.454)	-0.005 (-0.165)	0.038 (0.264)	0.044 (0.657)	0.050 (1.084)
Log (offering amount)	0.551*** (3.239)	0.151*** (3.038)	0.067 (0.472)	0.277*** (2.997)	0.102** (1.983)
Residuals of credit rating	-0.557*** (-11.450)	-0.137*** (-8.749)	-0.547*** (-16.373)	-0.190*** (-7.283)	-0.121*** (-8.616)
Callable	0.490** (2.103)	-0.026 (-0.361)	0.401 (1.235)	0.349** (2.478)	0.102 (1.088)
Putable	0.325 (0.721)	0.170 (1.344)	-0.409 (-0.667)	0.045 (0.167)	-0.024 (-0.156)
High agency cost	0.017 (0.098)	-0.013 (-0.223)	0.006 (0.044)	-0.024 (-0.254)	0.060 (1.134)
Size	-0.705*** (-6.148)	-0.175*** (-4.781)	-0.362*** (-3.995)	-0.304*** (-4.810)	-0.179*** (-5.082)
ROA	2.411 (1.412)	-0.116 (-0.202)	1.702* (1.715)	1.116 (1.253)	0.599 (1.308)
Log (Mtb)	-0.110 (-0.749)	-0.035 (-0.794)	-0.206** (-2.062)	-0.034 (-0.429)	-0.047 (-1.018)
Tangible ratio	-0.411 (-1.269)	-0.169* (-1.649)	-0.179 (-0.754)	-0.183 (-0.937)	-0.075 (-0.820)
Lev	0.111 (0.146)	-0.042 (-0.180)	0.165 (0.338)	-0.077 (-0.184)	-0.087 (-0.376)
# of obs.	2,732	2,732	2,732	2,732	2,732
Pseudo R <sup>2</sup>	0.224	0.296	0.453	0.266	0.298
Panel B: restrictiveness of covenants					
	Total number of indicators	Debt priority covenants	Indirect investment covenants		
CSR	-0.034*** (-3.907)	-0.136*** (-4.353)	-0.186*** (-7.001)		
Pvt placement	-3.815*** (-38.733)	-4.980*** (-16.803)	-4.706*** (-14.986)		
Log (maturity)	0.016 (0.445)	-0.004 (-0.032)	0.073 (0.550)		
Log (offering amount)	0.154*** (3.380)	0.148 (1.070)	0.428*** (3.073)		
Residuals of credit rating	-0.111*** (-8.551)	-0.360*** (-10.554)	-0.465*** (-15.040)		
Callable	0.123* (1.654)	0.306 (1.133)	0.267 (0.862)		
Putable	-0.020 (-0.190)	-0.584 (-1.285)	-0.060 (-0.119)		
High agency cost	0.009 (0.175)	-0.174 (-1.315)	-0.003 (-0.027)		
Size	-0.144*** (-4.498)	-0.201** (-2.158)	-0.366*** (-4.709)		
ROA	0.320 (0.609)	0.645 (0.656)	1.245 (1.407)		
Log (Mtb)	-0.015 (-0.369)	-0.159* (-1.658)	-0.134 (-1.586)		
Tangible ratio	-0.091 (-1.124)	-0.129 (-0.515)	-0.075 (-0.392)		
Lev	-0.032 (-0.155)	0.058 (0.117)	-0.162 (-0.383)		
# of obs.	2,732	2,732	2,732		
Pseudo R <sup>2</sup>	0.352	0.285	0.420		



Table 2 continued

Panel C: add more control variables		The dependent variable is the total number of bond covenants	
CSR	-0.216*** (-4.382)	-0.197*** (-6.000)	-0.189*** (-5.727)
Bond yield spread	0.155 (0.563)		-0.208*** (-4.386)
Institutional ownership		-0.228 (-0.478)	0.147 (0.557)
Blockholders		-0.166 (-0.884)	0.221 (0.369)
GIM index		-0.121*** (-3.407)	-0.127 (-0.490)
KZ score			-0.124*** (-2.889)
Pvt placement	-9.549*** (-14.815)	-9.903*** (-23.509)	0.126 (0.826)
Log (maturity)	0.335* (1.910)	-0.010 (-0.097)	-9.901*** (-23.661)
Log (offering amount)	0.246 (1.275)	0.275* (1.810)	-0.011 (-0.108)
Residuals of credit rating	-0.532*** (-6.016)	-0.447*** (-7.948)	0.265* (1.726)
Callable	-0.532* (-1.865)	0.351* (1.657)	-0.430*** (-7.374)
Putable	0.408 (0.719)	0.042 (0.111)	0.348 (1.641)
High agency cost	-0.596** (-2.254)	-0.117 (-0.657)	0.043 (0.113)
Size	-0.501*** (-3.912)	-0.719*** (-6.180)	-0.123 (-0.692)
ROA	-1.785 (-0.937)	0.564 (0.291)	-0.721*** (-6.234)
Log (Mtb)	0.198 (0.892)	-0.408** (-2.520)	0.923 (0.464)
Tangible ratio	-0.560 (-1.263)	-0.278 (-0.774)	-0.408** (-2.525)
Lev	-1.184 (-1.271)	1.009 (1.279)	-0.232 (-0.643)
# of obs.	705	2,085	0.576 (0.696)
Pseudo R <sup>2</sup>	0.201	0.194	2,085
			0.194

This table presents the association between CSR and the number of bond covenants by Tobit regression analysis. See Table 8 in Appendix section for variable definitions

The dummies for industry and year fixed effects are included (as well as constant) but not reported, and *t* values are calculated using robust standard errors and presented in parentheses

Statistical significance at the 10, 5, and 1 % level is indicated by \*, \*\*, and \*\*\*, respectively



ownership) and the percentage of shares held by institutional investors for one quarter prior to the bond issuing date as proxies for external monitoring.<sup>20</sup> In Column 3 of Panel C we add the governance index from Gompers et al. (2003) as a proxy for internal monitoring.<sup>21</sup>

The anecdotal evidence suggests that only large firms with enough resources and financial slack are likely to undertake CSR investment, and that less constrained firms spend more on CSR (Hong et al. 2012). Accordingly, financial slack may be an omitted variable since it enhances CSR investment and affects bond contracts. Following Baker et al. (2003) and Hong et al. (2012), in Column 4 we use the KZ score as an initial measure of financial slack, constructing a KZ score for each firm-year such that firms with lower values are identified as having more financial slack.<sup>22</sup> In Column 5 of Panel C, we control all five omitted variables.

For all the above regressions in Panel C of Table 2, we can see that CSR is significantly negatively associated with the number of covenants. Our main results hold.

We use the Fama–MacBeth method to address the time-series clustering of independent variables stemming from the limited changes in a firm's CSR scores over time. Fama–MacBeth regressions, along with Newey–West corrections, impose a structure on the fixed effects such that they are a linear function of the CSR scores. Our untabulated analysis shows the robustness of our results using this alternative estimation method.

Since some subcategories of CSR may be correlated with credit rating, so another way, rather than orthogonalization, to solve the possible correlation between CSR and the raw credit rating is to take out these subcategories and re-calculate the new CSR score using the rest. First, as Klock et al. (2005) argue, at least one subcategory of CSR, GOV, would be correlated with credit rating. Second, COM (community) might be correlated with the credit rating as well, because not only does COM measure several givings or contributions that would take away some earnings (e.g., 1.5 % of net earnings before tax) of the firm, but also collect information about whether the firm has been involved in major tax disputes involving Federal, state,

local or non-U.S. Government authorities. Therefore, we exclude GOV and COM and sum up the rest five subcategories to get CSR5 and re-estimate the model. Our untabulated results show that with CSR5 and raw credit ratings (and other controls) as independent variables, the coefficients of CSR5 are negative, significant at 10 % level, for the total number of covenants, investment covenants, and dividend covenants.

#### *Analysis Based on Individual KLD Ratings Categories*

Although the main results suggest a negative association between the total CSR score and the number of bond covenants, it is natural to ask whether some stakeholders are more important than others in the eyes of the bondholders, or whether all individual KLD rating categories are treated equally by bondholders. Prior studies (e.g., Turban and Greening 1997; Mattingly and Berman 2006; Jiao 2010; Kim et al. 2012) examine both aggregated and disaggregated subscores from KLD data as a proxy for CSR. Following the literature, we replace aggregated CSR net scores with individual KLD ratings categories, that is, qualitative issue areas defined by KLD as community (COM), governance (GOV), diversity (DIV), employee relations (EMP), environment (ENV), human rights (HUM) and product (PRO). We use a net score for each category by subtracting total concerns from total strengths in order to investigate the relation between these six CSR categories and number of bond covenants.

Then we re-estimate the Tobit regressions. Table 3 shows the results for the total number of bond covenants as dependent variable.<sup>23</sup> We find that six out of seven subscores (except for PRO) are negatively and significantly associated with the total number of bond covenants. Note that the coefficients of DIV, EMP, and ENV are all significant at 1 % level, that of GOV is significant at 5 % level, and those of COM and HUM are significant at 10 % level.

#### *Analysis Based on Total Strengths and Concerns*

In Table 2, we compute CSR by subtracting KLD concerns from KLD strengths. One concern is that KLD's strengths and concerns lack convergent validity and hence should not be used jointly. The empirical results of Mattingly and Berman (2006) indicate that "social concerns" is not simply the converse of "social strengths" and vice versa. Furthermore, aggregating social strengths and weaknesses might generate countervailing effects and hide some important

<sup>21</sup> The score is obtained from the IRRC database and is available for the years 1990, 1993, 1995, 1998, 2000, 2002, 2004, and 2006 during the sample period. For intermediate years, we always use the score from the latest available year.

<sup>22</sup> Our method of computing KZ scores is identical to that used by Baker et al. (2003) and Hong et al. (2012); we construct the KZ Score for each firm-year as linear combinations using five variables (cash flow, cash dividend, cash balances, book leverage and Tobin's Q). For brevity's sake, we omit the detailed description of the construction of KZ scores. We winsorize the five components of the index at 1 %. Cash holding is a critical indicator for CSR investing, and is included in the KZ score. When we treat cash holding as a separate control variable, the results are similar to those for KZ scores.

<sup>23</sup> The results (not reported) are similar when the dependent variables are the numbers of investment covenants, dividend covenants, subsequent financing covenants, and event covenants.

**Table 3** Relation between CSR and number of bond covenants by individual KLD ratings categories

	The dependent variable is the total number of bond covenants													
COM	-0.198*	(-1.732)												
GOV		-0.270**	(-2.336)											
DIV			-0.424***	(-5.932)										
EMP				-0.259***	(-3.074)									
ENV					-0.414***	(-5.204)								
HUM						-0.488*	(-1.944)							
PRO								-0.139	(-1.162)					
Pvt placement	-12.595***	(-32.192)	-12.598***	(-32.212)	-12.675***	(-32.586)	-12.599***	(-32.204)	-12.627***	(-32.393)	-12.900***	(-33.116)	-12.597***	(-32.148)
Log (maturity)	0.007	(0.057)	0.014	(0.121)	0.025	(0.215)	0.036	(0.307)	0.007	(0.064)	-0.005	(-0.034)	0.011	(0.090)
Log (offering amount)	0.587***	(3.347)	0.581***	(3.326)	0.537***	(3.173)	0.619***	(3.508)	0.585***	(3.337)	0.550***	(3.046)	0.577***	(3.300)
Residuals of credit rating	-0.471***	(-10.385)	-0.473***	(-10.368)	-0.503***	(-11.047)	-0.480***	(-10.350)	-0.498***	(-10.971)	-0.505***	(-10.471)	-0.471***	(-10.045)
Callable	0.547**	(2.345)	0.551**	(2.352)	0.469**	(2.076)	0.473**	(2.026)	0.527**	(2.274)	0.572**	(2.138)	0.541**	(2.308)
Puttable	0.363	(0.837)	0.320	(0.705)	0.364	(0.838)	0.387	(0.884)	0.387	(0.850)	0.514	(1.037)	0.334	(0.750)
High agency cost	0.081	(0.445)	0.088	(0.482)	0.050	(0.279)	0.067	(0.367)	0.028	(0.154)	0.046	(0.233)	0.076	(0.416)
Size	-0.814***	(-7.329)	-0.874***	(-8.020)	-0.564***	(-4.716)	-0.818***	(-7.283)	-0.865***	(-8.012)	-0.878***	(-7.566)	-0.851***	(-7.748)
ROA	0.450	(0.266)	0.758	(0.443)	1.072	(0.639)	1.049	(0.615)	0.765	(0.458)	0.469	(0.267)	0.573	(0.336)
Log (Mtb)	-0.225	(-1.489)	-0.264*	(-1.721)	-0.142	(-0.942)	-0.224	(-1.463)	-0.163	(-1.089)	-0.201	(-1.252)	-0.231	(-1.524)
Tangible ratio	-0.581*	(-1.740)	-0.580*	(-1.713)	-0.501	(-1.542)	-0.543	(-1.601)	-0.487	(-1.494)	-0.601*	(-1.729)	-0.616*	(-1.835)
Lev	0.678	(0.862)	0.772	(0.975)	0.301	(0.381)	0.641	(0.798)	0.416	(0.544)	0.679	(0.829)	0.744	(0.939)
# of obs.	2,732		2,732		2,732		2,732		2,732		2,498		2,732	
Pseudo R <sup>2</sup>	0.218		0.219		0.222		0.219		0.221		0.223		0.218	

This table presents the associations between each KLD rating category and the use of bond covenants

The regression method is Tobit. The dependent variable is the total number of bond covenants. The independent variables, COM, GOV, DIV, EMP, ENV, HUM, PRO, are categories of KLD ratings that represent community, governance, diversity, employee relations, environment, human rights and product, respectively. See Table 8 in Appendix section for definitions of other variables

The dummies for industry and year fixed effects are included (as well as constant) but not reported, and *t* values are calculated using robust standard errors and presented in parentheses. Statistical significance at the 10, 5, and 1 % level is indicated by \*, \*\*, and \*\*\*, respectively

**Table 4** Relation between CSR and number of bond covenants by total strengths and total concerns

Panel A: KLD total strength scores (STR)					
	Sum of all covenants	Investment covenants	Dividend covenants	Subsequent financing covenants	Event covenants
STR	-0.228*** (-5.606)	-0.052*** (-4.178)	-0.228*** (-4.209)	-0.095*** (-4.142)	-0.033*** (-2.465)
Pvt placement	-12.645*** (-32.447)	-3.361*** (-21.870)	-5.525*** (-16.281)	-6.493*** (-35.542)	-2.418*** (-27.458)
Log (maturity)	0.034 (0.293)	-0.011 (-0.331)	-0.017 (-0.122)	0.037 (0.562)	0.049 (1.047)
Log (offering amount)	0.589*** (3.431)	0.161*** (3.216)	0.092 (0.629)	0.292*** (3.153)	0.104*** (2.030)
Residuals of credit rating	-0.522*** (-11.084)	-0.126*** (-8.105)	-0.527*** (-16.250)	-0.178*** (-7.123)	-0.121*** (-9.017)
Callable	0.461** (2.020)	-0.030 (-0.417)	0.423 (1.316)	0.335** (2.439)	0.096 (1.024)
Putable	0.371 (0.851)	0.183 (1.475)	-0.176 (-0.260)	0.063 (0.242)	-0.017 (-0.110)
High agency cost	0.057 (0.317)	-0.001 (-0.022)	0.083 (0.645)	-0.009 (-0.099)	0.062 (1.192)
Size	-0.500*** (-3.945)	-0.133*** (-3.257)	-0.211** (-2.343)	-0.215*** (-3.043)	-0.143*** (-3.404)
ROA	1.338 (0.796)	-0.445 (-0.786)	1.026 (1.105)	0.709 (0.806)	0.557 (1.227)
Log (Mtb)	-0.129 (-0.859)	-0.044 (-0.976)	-0.230** (-2.258)	-0.039 (-0.477)	-0.043 (-0.935)
Tangible ratio	-0.322 (-0.979)	-0.156 (-1.464)	-0.135 (-0.555)	-0.140 (-0.716)	-0.052 (-0.570)
Lev	0.025 (0.033)	-0.033 (-0.139)	0.143 (0.284)	-0.129 (-0.311)	-0.129 (-0.559)
# of obs.	2,732	2,732	2,732	2,732	2,732
Pseudo R <sup>2</sup>	0.222	0.292	0.447	0.266	0.298
Panel B: KLD total concern score (CON)					
	Sum of all covenants	Investment covenants	Dividend covenants	Subsequent financing covenants	Event covenants
CON	0.140*** (2.858)	0.055*** (3.360)	0.123*** (2.932)	0.041 (1.497)	-0.007 (-0.514)
Pvt placement	-12.605*** (-32.188)	-3.366*** (-21.677)	-5.660*** (-15.620)	-6.469*** (-35.311)	-2.409*** (-27.321)
Log (maturity)	0.014 (0.117)	-0.015 (-0.450)	0.018 (0.132)	0.028 (0.421)	0.045 (0.957)
Log (offering amount)	0.569*** (3.244)	0.152*** (3.049)	0.135 (0.916)	0.285*** (3.018)	0.107** (2.071)
Residuals of credit rating	-0.478*** (-10.507)	-0.118*** (-8.072)	-0.495*** (-14.872)	-0.157*** (-6.344)	-0.112*** (-8.549)
Callable	0.545** (2.310)	-0.011 (-0.149)	0.509 (1.603)	0.369*** (2.604)	0.108 (1.134)
Putable	0.346 (0.782)	0.176 (1.393)	-0.207 (-0.316)	0.055 (0.206)	-0.016 (-0.102)
High agency cost	0.054 (0.299)	-0.008 (-0.126)	0.051 (0.379)	-0.006 (-0.066)	0.068 (1.283)
Size	-0.953*** (-8.324)	-0.257*** (-6.790)	-0.562*** (-6.181)	-0.391*** (-6.200)	-0.186*** (-5.526)
ROA	0.805 (0.475)	-0.496 (-0.875)	0.516 (0.538)	0.425 (0.481)	0.395 (0.860)
Log(Mtb)	-0.216 (-1.433)	-0.060 (-1.344)	-0.291*** (-2.660)	-0.079 (-0.977)	-0.061 (-1.311)
Tangible ratio	-0.673** (-2.004)	-0.252** (-2.393)	-0.408* (-1.655)	-0.280 (-1.409)	-0.091 (-1.000)
Lev	0.801 (1.012)	0.159 (0.678)	0.797 (1.529)	0.192 (0.450)	-0.023 (-0.100)
# of obs.	2,732	2,732	2,732	2,732	2,732
Pseudo R <sup>2</sup>	0.219	0.291	0.434	0.263	0.297

This table presents the associations between total strengths and total concerns of KLD ratings and the use of bond covenants

The regression method is Tobit. The independent variables, STR and CON, are measured as positive CSR and negative CSR score by aggregating seven strengths and seven concerns of community, governance, diversity, employee relations, environment, human rights and product, respectively. See Table 8 in Appendix section for definitions of other variables

The dummies for industry and year fixed effects are included (as well as constant) but not reported, and *t* values are calculated using robust standard errors and presented in parentheses

Statistical significance at the 10, 5, and 1 % level is indicated by \*, \*\*, and \*\*\*, respectively

differences (Mattingly and Berman 2006; Goss and Roberts 2011; Kim et al. 2012). For instance, suppose both firm X and Y have the same aggregated CSR net score, one. But firm X has six strength scores and five concern scores, and firm Y has one strength score and zero concern scores. The two firms undoubtedly demonstrate different social behavior, but aggregating the strengths and concerns kills the distinction (Chatterji et al. 2009). Therefore, to account for the possibility that CSR strengths and weaknesses impact bond covenants differentially, we re-run all the Tobit regressions in Table 2 using the strength and concern scores separately instead of using the net scores.

Table 4 shows the results. In Panel A, the coefficients of STR (KLD total strength scores) are significant and negative for the regression of all four categories of bond covenants as well as total covenants, indicating that the higher the KLD strength score, the lower the number of bond covenants. Panel B of Table 4 shows the results for KLD total concerns. We find positive and significant coefficients on CON (KLD total concern scores) for the regressions of two categories of bond covenants (investment covenants and dividend covenants) and total covenants, while there is an insignificant association between CON and each of the other two categories of bond covenants. In general, the results reported in Table 4 are consistent with those in Table 2, as the strength scores are associated with fewer bond covenants and the concern scores are associated with more bond covenants.

### Endogeneity

In this section, we gauge the robustness of results by exploring the causality between the CSR scores and bond covenants. It is possible that firms whose bond issues include fewer covenants choose to invest more in CSR. One way to address this issue is to regress the changes in covenants on the changes in CSR and controls. This is similar to Klock et al. (2005). Results are reported in Panel A of Table 5. For changes in the total number of covenants, the coefficient of changes in CSR is  $-0.103$ , significant at 5 % level. Results are also similar for dividend and subsequent financing covenants. For investment and event covenants, the coefficients are insignificant. In summary, our main results still hold by regressing the changes in covenants on the changes in CSR and controls.

Another way of addressing this is to use the instrumental variable method, if the instruments are uncorrelated with the error terms and are sufficiently correlated with the endogenous elements of the variable of interest. To run 2SLS regressions, we need to find an instrument variable for the CSR scores. Similar to what El Ghoul et al. (2011) do, we use the industry-year average CSR as the instrument. We construct the instrumental variable for industry-

year average using all available data from KLD database, and then merge this variable with our whole sample, i.e., the IV variable was constructed out of sample. The regression results are reported in Panel B of Table 5. We present the first stage regression results in Column 1. Notice that the coefficient of the instrument variable is 1.071, significant at 1 % level. The  $F$  value in the first stage regression is 32.68, which is higher than the approximate cutoff of 10 for weak instruments suggested by Stock and Yogo (2005). Columns 2 to 6 report the second stage regression of 2SLS. For the total number of covenants, the coefficient of predicted CSR is  $-0.192$ , significant at 1 % level. Results are also similar for investment, dividend, and subsequent financing covenants. For event covenants, the corresponding coefficient is negative but insignificant. In addition, both Hausman and Durbin–Wu–Hausman tests show that we cannot reject the null hypothesis and indicate that the endogeneity concern is not substantiated. In this section, we attempt to address endogeneity issues using the above two methods. We also recognize that both bond covenants and CSR being choice variables may still be possible.

### Additional Robustness Tests

We perform a few additional robustness tests, which for brevity are not reported here. First, prior research suggests that the level of CSR may vary according to industry characteristics (Waddock and Graves 1997; McWilliams and Siegel 2001). Therefore, in order to make our proxies for CSR more comparable across industries, we replace the dependent variable with adjusted CSR scores for the industry median in each year. The results corroborate our findings in Table 2, suggesting that industry effects in CSR scores are not driving our results.

Second, the results also hold when we re-estimate our main regression after dropping all observations for which the CSR score equals zero and/or the number of covenants equals to zero. This former takes into account the possibility that KLD might not evaluate scores for some firms and reports zeros instead, or that the firms have zero CSR performance (Statman and Glushkov 2009). The latter considers the case that most zero-covenant bonds are private placements and thus different from publicly issued bonds. The results would not change.

Third, we restrict our sample to three time periods. Beginning with 1991, KLD STATS provides a table of data with a collection of approximately 650 companies comprised by the Domini 400 Social Index and S&P 500 with one record for each company and columns indicating membership of each index. Beginning in 2001, KLD expanded its coverage universe to include all companies on the Russell 1000. In 2003, KLD added full coverage of the

**Table 5** Relation between CSR and number of bond covenants

Panel A: Tobit regressions of changes in CSR and number of bond covenants					
	$\Delta$ Sum of all covenants	$\Delta$ Investment covenants	$\Delta$ Dividend covenants	$\Delta$ Subsequent financing covenants	$\Delta$ Event covenants
ACSR	-0.103** (-2.043)	-0.014 (-0.949)	-0.041*** (-3.648)	-0.050* (-1.934)	0.002 (0.196)
APvt placement	-7.991*** (-40.729)	-1.787*** (-31.983)	-1.148*** (-25.873)	-3.827*** (-38.213)	-1.229*** (-31.185)
ALog (maturity)	-0.148 (-1.067)	-0.047 (-1.198)	-0.013 (-0.406)	-0.079 (-1.115)	-0.009 (-0.324)
ALog (offering amount)	0.410*** (2.504)	0.134*** (2.885)	0.054 (1.457)	0.157* (1.883)	0.064* (1.953)
AResiduals of credit rating	-0.147** (-2.139)	-0.019 (-0.982)	-0.067*** (-4.299)	-0.027 (-0.757)	-0.034** (-2.494)
ACallable	0.326 (1.349)	0.059 (0.853)	0.066 (1.199)	0.148 (1.195)	0.054 (1.120)
APutable	0.424 (0.866)	0.066 (0.475)	0.131 (1.186)	0.134 (0.536)	0.092 (0.940)
ΔHigh agency cost	0.010 (0.054)	-0.030 (-0.597)	-0.004 (-0.107)	0.005 (0.060)	0.038 (1.085)
ASize	-0.745** (-2.294)	-0.087 (-0.945)	-0.105 (-1.426)	-0.446*** (-2.695)	-0.106 (-1.629)
AROA	1.305 (0.799)	-0.213 (-0.457)	0.364 (0.985)	0.968 (1.161)	0.186 (0.567)
ALog (Mtb)	-0.262 (-1.472)	-0.122** (-2.415)	-0.038 (-0.948)	-0.089 (-0.984)	-0.012 (-0.334)
ΔTangible ratio	-1.052 (-1.196)	-0.061 (-0.243)	-0.007 (-0.036)	-0.579 (-1.288)	-0.405** (-2.293)
ALev	-0.101 (-0.089)	-0.136 (-0.422)	-0.270 (-1.058)	0.115 (0.199)	0.191 (0.841)
# of obs.	1,232	1,232	1,232	1,232	1,232
Pseudo R <sup>2</sup>	0.599	0.475	0.376	0.569	0.480

Panel B: 2SLS tests on the endogeneity between predicted CSR and bond covenants.

CSR					
	Sum of all covenants	Investment covenants	Dividend covenants	Subsequent financing covenants	Event covenants
IV	1.071*** (15.354)				
Predicted CSR					
Pvt placement	-0.309*** (-3.415)	-0.192*** (-3.236)	-0.065*** (-3.611)	-0.208*** (-3.289)	-0.018 (-0.712)
Log (maturity)	0.220** (2.198)	-12.669*** (-31.966)	-3.381*** (-21.647)	-5.696*** (-16.035)	-2.417*** (-27.088)
Log (offering amount)	-0.130 (-1.603)	0.037 (0.314)	-0.007 (-0.217)	0.023 (0.164)	0.048 (1.021)
Residuals of credit rating	-0.300*** (-5.905)	0.561*** (3.196)	0.150*** (2.994)	0.101 (0.680)	0.103** (2.000)
Callable	-0.127 (-0.680)	0.498** (2.115)	-0.138*** (-8.483)	-0.562*** (-14.228)	-0.120*** (-7.501)
Puttable	-0.292 (-0.860)	0.349 (0.772)	-0.027 (-0.368)	0.507 (1.622)	0.105 (1.110)
High agency cost	-0.192 (-1.387)	0.033 (0.184)	0.176 (1.399)	-0.227 (-0.326)	-0.020 (-0.130)
Size	0.530*** (3.816)	-0.734*** (-6.411)	-0.013 (-0.218)	0.057 (0.434)	0.063 (1.179)
ROA	6.796*** (5.073)	2.045 (1.141)	-0.175*** (-4.797)	-0.357*** (-3.670)	-0.182*** (-4.794)
Log (Mtb)	0.293** (2.420)	-0.140 (-0.906)	-0.098 (-0.168)	1.840* (1.646)	0.575 (1.186)
Tangible ratio	0.786*** (3.056)	-0.449 (-1.370)	-0.035 (-0.759)	-0.218** (-1.964)	-0.050 (-1.068)
Lev	-1.810*** (-2.775)	0.285 (0.360)	-0.171 (-1.625)	-0.156 (-0.641)	-0.079 (-0.824)
# of obs.	2,732	2,732	2,732	2,732	2,732
Adjusted/pseudo R <sup>2</sup>	0.465	0.219	0.290	0.435	0.297
F value	32.68			0.263	

This table presents results testing the endogeneity issues between CSR and bond covenants. Panel A examines changes in all variables and Panel B uses 2SLS tests to address the endogeneity between predicted CSR and bond covenants. The instrument variable for CSR is the industry-year average CSR. See Table 8 in Appendix section for other variables definitions. The dummies for industry and year fixed effects are included (as well as constant) but not reported, and *t* values are calculated using robust standard errors and presented in parentheses. Statistical significance at the 10, 5, and 1 % level is indicated by \*, \*\*, and \*\*\*, respectively

**Table 6** Information asymmetry, CSR and bond covenants

	Sum of all covenants	Investment covenants	Dividend covenants	Subsequent financing covenants	Event covenants
CSR	-0.159*** (-4.572)	-0.040*** (-4.045)	-0.106*** (-10.091)	-0.071*** (-2.989)	-0.019 (-1.243)
High bid-ask spread	1.154*** (6.327)	0.325*** (5.844)	1.048*** (15.282)	0.314*** (2.906)	0.150* (1.801)
CSR* high bid-ask spread	-0.093** (-2.003)	-0.040** (-2.476)	-0.207*** (-14.381)	-0.016 (-0.632)	0.013 (0.697)
Pvt placement	-3.829*** (-2.874)	-0.916*** (-2.891)	-0.121 (-1.094)	-2.424*** (-3.065)	-0.620 (-1.370)
Log (maturity)	-0.530*** (-4.465)	-0.140*** (-3.697)	-0.294*** (-8.576)	-0.192** (-2.465)	-0.017 (-0.294)
Log (offering amount)	0.667*** (3.506)	0.192*** (3.554)	-0.072*** (-11.544)	0.288** (2.310)	0.191*** (2.684)
Residuals of credit rating	-0.444*** (-8.232)	-0.102*** (-5.982)	-0.654*** (-52.071)	-0.150*** (-4.792)	-0.112*** (-5.559)
Callable	0.280 (1.581)	-0.049 (-0.940)	0.392*** (5.282)	0.224* (1.714)	-0.061 (-0.611)
Puttable	0.494 (1.502)	0.078 (0.708)	0.182*** (2.606)	0.121 (0.629)	0.162 (0.845)
High agency cost	-0.160 (-0.930)	0.019 (0.292)	-0.350*** (-6.291)	-0.118 (-1.255)	0.021 (0.323)
Size	-0.639*** (-5.594)	-0.133*** (-3.450)	-0.298*** (-31.790)	-0.276*** (-3.693)	-0.301*** (-6.361)
ROA	1.342 (0.797)	-0.160 (-0.248)	0.479 (1.489)	1.145 (1.073)	0.032 (0.050)
Log (Mtb)	-0.132 (-0.783)	-0.014 (-0.288)	-0.094* (-1.876)	-0.045 (-0.478)	-0.142* (-1.934)
Tangible ratio	-0.510 (-1.331)	-0.205* (-1.787)	-1.278*** (-15.995)	-0.155 (-0.596)	-0.115 (-0.906)
Lev	0.325 (0.418)	-0.105 (-0.431)	-1.368*** (-7.436)	0.347 (0.715)	0.069 (0.214)
# of obs.	1,472	1,472	1,472	1,472	1,472
Pseudo R <sup>2</sup>	0.161	0.183	0.510	0.143	0.285

This table presents the impact of interaction of bid-ask spread and CSR on the covenants. High bid-ask spread, the measure of information asymmetry, is dummy and defined based on the median of the average gross bid-ask spread on the issuer's bond traded on the market, which is obtained from FISD database. See Table 8 in Appendix section for definitions of other variables. The dummies for industry and year fixed effects are included (as well as constant) but not reported, and  $t$  values are calculated using robust standard errors and presented in parentheses. Statistical significance at the 10, 5, and 1 % level is indicated by \*, \*\*, and \*\*\*, respectively.

**Table 7** Agency cost, CSR and bond covenants

	Sum of all covenants	Investment covenants	Dividend covenants	Subsequent financing covenants	Event covenants
CSR	-0.199*** (-5.735)	-0.054*** (-4.561)	-0.185*** (-4.879)	-0.076*** (-3.617)	-0.021 (-1.574)
High agency cost	-0.051 (-0.291)	-0.027 (-0.470)	-0.095 (-0.653)	-0.057 (-0.613)	0.058 (1.073)
CSR* high agency cost	-0.106** (-2.206)	-0.023 (-1.321)	-0.089* (-1.736)	-0.053** (-1.969)	-0.003 (-0.168)
Pvt placement	-12.652*** (-32.663)	-3.361*** (-22.039)	-5.450*** (-16.175)	-6.494*** (-35.655)	-2.416*** (-27.403)
Log (maturity)	0.055 (0.483)	-0.005 (-0.151)	0.039 (0.274)	0.045 (0.685)	0.050 (1.089)
Log (offering amount)	0.559*** (3.268)	0.153*** (3.068)	0.074 (0.518)	0.281*** (3.027)	0.102** (1.981)
Residuals of credit rating	-0.557*** (-11.479)	-0.137*** (-8.756)	-0.547*** (-16.421)	-0.190*** (-7.307)	-0.121*** (-8.621)
Callable	0.491** (2.115)	-0.025 (-0.346)	0.430 (1.333)	0.349** (2.487)	0.102 (1.088)
Puttable	0.316 (0.701)	0.168 (1.336)	-0.334 (-0.539)	0.040 (0.148)	-0.024 (-0.159)
Size	-0.703*** (-6.120)	-0.175*** (-4.754)	-0.364*** (-4.048)	-0.302*** (-4.784)	-0.179*** (-5.081)
ROA	2.260 (1.322)	-0.150 (-0.261)	1.610 (1.613)	1.039 (1.163)	0.595 (1.298)
Log (Mtb)	-0.115 (-0.785)	-0.036 (-0.816)	-0.213** (-2.123)	-0.037 (-0.460)	-0.047 (-1.023)
Tangible ratio	-0.395 (-1.220)	-0.166 (-1.611)	-0.181 (-0.764)	-0.175 (-0.896)	-0.075 (-0.817)
Lev	0.119 (0.155)	-0.039 (-0.166)	0.207 (0.420)	-0.073 (-0.174)	-0.087 (-0.374)
# of obs.	2,732	2,732	2,732	2,732	2,732
Pseudo R <sup>2</sup>	0.224	0.296	0.454	0.267	0.298

This table presents the impact of interaction of analyst coverage and CSR on the covenants. High agency cost is a dummy variable that equal one when a firm has high free cash flow and low Tobin's Q in the industry. See Table 8 in Appendix section for definitions of other variables. The dummies for industry and year fixed effects are included (as well as constant) but not reported, and *t* values are calculated using robust standard errors and presented in parentheses

Statistical significance at the 10, 5, and 1 % level is indicated by \*, \*\*, and \*\*\*, respectively

Russell 3000. Therefore, we re-estimate our main regression in three time periods: 1991–2000, 2001–2010, and 2003–2010. The results are similar to those in Table 2.

### Information Asymmetry and Agency Problems

We show that high CSR leads to a lower number of bond covenants. Now we examine whether this negative association would be more pronounced for firms with high information asymmetry and for firms with high agency costs. After obtaining the gross bid-ask spread from the FISD database, we calculate the average bid-ask spread on the issuer's bond as traded on the market.<sup>24</sup> We classify firms with above (below) the median bid-ask spread in our sample as having high (low) information asymmetry. Table 6 shows the association between CSR and bond covenants. For the first three columns of Table 6, the coefficients on the interaction variables between the high bid-ask spread indicators and CSR scores are negative and significant, suggesting that our results on total covenants, investment covenants, and dividend covenants in Table 2 are more pronounced for firms with high bid-ask spread of traded bonds.

We repeat this procedure for agency costs. Following Chen et al. (2012), we define high agency cost as a dummy variable that equals one when a firm has high free cash flow (higher than industry median) and low Tobin's Q in the industry lower (lower than industry median). Table 7 reports the results. For the first, third, and fourth columns of Table 7, the coefficients on the interaction term are negative and significant, suggesting that our results on total covenants, dividend covenants, and subsequent financing covenants in Table 2 are more pronounced for firms with high agency costs.

### Conclusion

This article examines whether CSR investment affects a firm's bond covenants. We contend that, *ceteris paribus*, high CSR firms should have fewer bond covenants than low CSR firms. Using a sample of 2,732 bond-level observations of US firms from 1991 to 2010 and

controlling for other bond-specific, firm-specific determinants as well as industry and year fixed effects, we find that firms with higher CSR scores enjoy less restrictions and more financial flexibility without more covenants when they issue bonds. Furthermore, we find that CSR investment in the categories of community, governance, diversity, employee relations, environment, and human rights is significantly related to number of bond covenants. In addition, the strengths score is associated with fewer bond covenants, whereas the concerns score is associated with more bond covenants. Thus, having both more strengths and fewer concerns contributes to less bond restriction. We find that these results are robust to a variety of specifications and tests addressing endogeneity issues. Our results are even more pronounced for firms with high bid-ask spread of traded bonds and high agency costs.

The demonstrated effect of CSR in reducing information asymmetries in bond contracts suggests an incentive for firms to adjust their levels of CSR investment in order to benefit from this effect when they look for debt financing. There may be some offsetting costs preventing firms from adjusting the CSR investment, and these costs must be compared with the costs of firm–bondholder conflict and be considered in a firm's decision-making. There is also the possibility that other channels play a similar role to CSR in mitigating the firm–bondholder conflict. Therefore, it is worth exploring the tradeoffs between different types of costs and investigating substitute or complementary relations among different channels, keeping in mind the important implications for practitioners and policy makers.

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### Appendix

See Table 8.

<sup>24</sup> FISD provides details on bond acquisitions and bond disposals (sales, redemptions) since 1995 by insurance companies. Some of our observations being lost, we end up with a sample of 1,472.



**Table 8** Variables definitions

Variable	Descriptions
Sum of all covenants	Sum of all covenants equals the total number of investment covenants (including merger covenants), dividend covenants, subsequent financing covenants, and event covenants a bond has
Investment covenants	Investment covenants include restrictions on consolidation or mergers, indirect investment, securing the bond, stock sales, and direct investment. Indirect investment restriction category includes restrictions on transactions with affiliates, fixed charge coverage, maintenance of minimum net worth, restrictions on redesignating subsidiaries, subsidiary fixed charge coverage ratio, and after acquired property clause (that mandates that the property acquired after the current debt issue is sold would be included in the current issuers mortgage)
Dividend covenants	Dividend covenants restrict dividends and other payments
Subsequent financing covenants	Subsequent financing covenants include debt priority restrictions, stock issuance restrictions, subordinate debt restrictions, and restrictions on sale and lease obligations. The debt priority restriction category includes restrictions on funded debt, indebtedness, liens, and senior debt issuance of parent and subsidiary firms. The stock issuance restriction category includes restrictions on issuance of stock and preference stock of parent and subsidiary firms. The subordinate debt restriction category includes subordinate debt issuance, net earnings test, leverage test, subsidiary borrowings, subsidiary guarantees, subsidiary leverage test, and the negative pledge covenant (i.e., the issuer cannot issue secured debt unless it secures the current issue on a pari passu basis)
Event covenants	Event covenants include restrictions falling under default-related event and restriction on the change in control poison put. The default-related event restriction category includes cross default, cross acceleration, rating decline trigger put, and declining net worth covenant
Total number of indicators	Total number of indicators is equal to the number of covenant categories in a bond. It takes value of 0, 1, 2, 3, or 4
Indirect Investment covenants	The indirect investment covenants category includes restrictions on transactions with affiliates, fixed charge coverage, maintenance of minimum net worth, restrictions on redesignating subsidiaries, subsidiary fixed charge coverage ratio, and after acquired property clause (that mandates that the property acquired after the current debt issue is sold would be included in the current issuers mortgage)
Debt priority covenants	Debt priority covenants include restrictions on funded debt, indebtedness, liens, and senior debt issuance of parent and subsidiary firms
CSR	The CSR score is formed by subtracting each firm's concern score from its strength score. The strength score is the points a firm receives on the community, corporate governance, diversity, employee relations, human rights, environment, and product strength measures in the KLD database, while the concern score is the points on the community, corporate governance, diversity, employee relations, human rights, environment, and product concern measures
Bond yield spread	The difference between the issue's offering yield to maturity and the yield on U.S. Treasury bond of comparable maturity on the issuance date (in basis points)
Pvt placement	Dummy when the issue is privately placed (rule 144A) debt
Log (maturity)	Log of maturity (year) of debt
Log (offering amount)	Log of issue offering amount of debt
Credit rating	Credit rating is the average credit rating of the bond provided by three rating agencies in FISD database: S&P, Moody's, and Fitch. If the rating of issue is missing, it is replaced by the average credit rating of the issuer or is replaced by S&P long-term issuer rating from Compustat. We use the residual of bond rating on CSR variables in regression. We convert the credit rating into a numerical scale as follows: 21-AAA, 20-AA+, 19-AA, 18-AA-, 17-A+, 16-A, 15-A-, 14-BBB+, 13-BBB, 12-BBB-, 11-BB+, 10-BB, 9-BB-, 8-B+, 7-B, 6-B-, 5-CCC+, 4-CCC, 3-CC, 2-C, and 1-D&SD
Callable	Dummy variable equals one if the bond is callable, and zero otherwise
Putable	Dummy variable equals one if the bond is putable, and zero otherwise
High agency cost	Dummy variable equals one when a firm has high free cash flow and low Tobin's Q in the industry
Size	Log of total assets.
ROA	Net income before extraordinary items (Compustat #18) divided by total assets
Log (Mtb)	log(Compustat #199*Compustat #25/data60). Missing market-to-book values are replaced with the sample average
Tangible ratio	Gross PPE (Compustat #7) divided by total assets
Lev	Total debt (Compustat #9 + Compustat #34) divided by total assets (Compustat #6)
Institutional ownership	Institutional holdings equal to the number of shares held by institutions divided by shares outstanding in the quarter prior to the bond issuance
Blockholders	One if there is at least one financial institution that holds over 5 % of a firm's outstanding shares as of the quarter prior to the bond issuance, and zero else

**Table 8** continued

Variable	Descriptions
GIM index	GIM-index equals to the sum of 24 anti-takeover provisions from the IRRC database and is available for the years 1990, 1993, 1995, 1998, 2000, 2002, 2004, and 2006. For intermediate years, we use the GIM-index from the most recent year
KZ score	Following Baker et al. (2003) and Hong et al. (2012), the KZ score is constructed for each firm-year as linear combinations using five variables (cash flow, cash dividend, cash balances, book leverage and Tobin's Q)

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