How do Debt Markets React to Mandatory CSR?[*]
Evidence from the Indian Companies Act 2013

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This paper examines how debt markets price firms' Corporate Social Responsibility (CSR) activities, in a setting where it is not a strategic choice but rather mandated by regulation. Using both a difference-in-difference and a regression discontinuity empirical specification, the paper reports that binding CSR rule increase yield-spreads on bonds by 22 basis points. Firms with a business group affiliation show a reduction in yield spreads and state-owned companies an increase in yield-spreads. The increase in yield-spreads is mitigated by good governance with well governed firms having lower yield-spreads. These findings add to the contribution of Manchiraju and Rajgopal (2017), which reports that such mandatory rules are detrimental to stockholders' wealth.

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Abstract

This paper examines how debt markets price firms' Corporate Social Responsibility (CSR) activities, in a setting where it is not a strategic choice but rather mandated by regulation. Using both a difference-in-difference and a regression discontinuity empirical specification, the paper reports that binding CSR rule increase yield-spreads on bonds by 22 basis points. Firms with a business group affiliation show a reduction in yield spreads and state-owned companies an increase in yield-spreads. The increase in yield-spreads is mitigated by good governance with well governed firms having lower yield-spreads. These findings add to the contribution of Manchiraju amd Rajgopal (2017), which reports that such mandatory rules are detrimental to stockholders' wealth.

1. Introduction

Advocates of Corporate Social Responsibility (CSR) have long argued for a socially responsible strategy that includes broader participants such as employees, community, environment and lenders (see e.g. Freeman (1984), Kim, Park, Wier (2012), Lins, Servaes and Tamayo (2017), Kitzmueller and Shimshack (2012), Benabou and Tirole (2010). While CSR diverts cash flows from bondholders and stockholders, the argument is that firms should view CSR as a value enhancing corporate strategy (see e.g. Freeman (1984) as CSR engenders benefits by way of increased goodwill that enhances productivity and firm performance. Whether CSR is value enhancing or is merely costly social externality, therefore, depends on the benefits relative to the costs. A rich literature has examined the net impact of CSR on stockholders. In this paper, we add to the empirical evidence by examining the impact of exogenously imposed CSR on the bond market.

We focus our analysis on the impact of CSR on the bond markets for multiple reasons. We expect bond markets to be more sensitive to the positive impact of CSR. Simple logic implies that spending on CSR activities reduces resources available to meet obligations to bond holders. However, this may be offset by a rise in cash flow due to the increased goodwill from the firm's involvement in the community. Any such positive impact will first the bond markets, debt being the first claimant on cash flows. CSR may also impact bondholders differently than stockholders. It is plausible that CSR may serve to reduce the volatility of future cash flows resulting in a positive impact on bondholders but negatively impact shareholders. Finally, we add to the literature on the impact of CSR on bond markets in a setting when CSR is exogenously mandated.

That CSR is an important issue can be judged by the emphasis on CSR by corporate leaders and the resources devoted on social investments. The PwC Global CEO Survey 2016 reveals that Ò64% of CEOs believe CSR is core to their business rather than being a stand-alone program. U.S. and European markets had over $8.72 trillion and $11.4 trillion in certified socially responsible assets in 2015 (Social Investment Forum, 2016). Researchers have previously studied the impact of CSR on the bond markets. Oikonomou, Brooks, and Pavelin- (2014) and Cooper and Uzun (2015) examine the impact of CSR on credit ratings and the cost of debt. They find that firms engaging in CSR activities see an increase in credit rating and their cost of debt decreases. Goss and Roberts (2011)similarly find that CSR firms have a lower cost of bank loans as compared

to non-CSR firms. Several issues cloud the interpretation of these results as they primarily examine firms that voluntarily engage in CSR activities. Firms that engage in CSR activities voluntarily are those that expect to benefit from such activities or are profitable enough to have the resources for CSR spending.

To resolve the endogeniety issues in analyzing the impact of CSR on debt markets, we use a unique setting in India. The Indian government incorporated a clause mandating minimum amounts of CSR spending for profitable firms as part of the 2013 Company Act. Provisions in the 2013 Act (henceforth the CSR rule) imposed a *mandatory* requirement that firms meeting specific cutoffs with respect to Net Worth, Sales, and Net Profit spend at least 2% of their profit on CSE related activities. Discussions on the CSR provisions began in 2009 and clauses specific to requiring CSR by profitable firms, were passed by the Lok Sabha in 2012 and was included as Clause 135 of the 2013 Company Act. We therefore designate 2013 as the CSR YEAR, i.e. the year after which CSR was required for Indian firms.\footnote{Appendix A gives more details on the time line of the passage of the Indian Companies Act. Manchiraju and Rajgopal (2017) evaluate the market reaction for announcements at the various dates indicated in the time line and find that 2012 was associated with a significant negative reaction to the passage of the CSR provision in 2012.} The CSR Rule specifies the following cut offs to identify firms subject to minimum CSR spending: the firm should have either (1) a net worth of Indian Rupees (INR) 5 billion (about U.S. $83 million) or more; (2) sales of INR 10 billion (about U.S. $167 million) or more; or (3) a net profit of INR 50 million (about U.S. $0.83 million) or more. Firms meeting this criteria are required to spend 2% of their average net profit, calculated over a three year period, on CSR related activities.[1] The exogenously imposed CSR Rule presents a natural setting for examining the causal impact of CSR on bondholders.

We obtain data on bond issues by Indian firms in the eight year period from 2009 to 2017 from the SDC Platinum Fixed-Income Issues database. We ignore all preferred stock issues and bonds with contingent features such as step-up and convertible bonds. We augment the bond issue

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[1] Approved CSR activities comprises of: (i) eradicating extreme hunger and poverty; (ii) promotion of education; (iii) promoting gender equality and empowering women; (iv) reducing child mortality and improving maternal health; (v) combating HIV, AIDS, malaria and other diseases; (vi) ensuring environmental sustainability; (vii) employment-enhancing vocational skills; (viii) social business projects; (ix) contribution to the Prime Ministers National Relief Fund or any other fund set up by the Central Government or the state governments for socioeconomic development, and relief and funds for the welfare of the scheduled castes, the scheduled tribes, other backward classes, minorities and women; and (x) such other matters as may be prescribed.

data with company data from CMIE's ProwessDx database. The ProwessDx database is widely used in studies on Indian markets, e.g. Bertrand, Mehta, and Mullainathan (2002), Gopalan, Nanda, and Seru (2007)Khanna and Palepu (2000)and Manchiraju and Rajgopal (2017) for conducting research on large sample of Indian firms. As there is no common identifier in between SDC and prowess database, we hand match the two datasets using the name of the firm. We are able to match data for 236 firms with 3,466 bond issues over the nine year period from 2009 to 2017.

We next apply the filters specified by the 2013 companies act to determine whether a firm is affected by the mandatory CSR rules. The dummy variable AFFECTED is set equal to one if a bond is issued by a firm that is affected by the CSR Rule and zero otherwise. Of the three criteria, profit and net worth are the primary determinants of whether a firm is subject to mandatory CSR spending. We find that there are 3,357 bonds issued by firms affected by the mandatory CSR Rule and 109 bonds issued by firms not affected by the rule. We use AFFECTED to isolate the effects of CSR on bond yield-spreads and implement two empirical specifications. First, we use a Regression Discontinuity Design to capture the differential effects of the CSR Rule on firms that just meet the CSR cutoff to those that just miss the CSR cutoff. Any CSR effects is likely to be the sharpest between these two sets of firms. We find that the yield spreads on bonds issued by firms that just meet the criteria is higher than the yield spreads on bonds that just miss the CSR criteria. The impact of mandatory CSR on yield-spreads is positive and significant. Second, we use a Diff-in-Diff approach to examine the impact of the passage of the CSR rule in 2013. Our focus is on the interaction between the variable AFFECTED and the time dummy POSTCSR that is equal to one for bonds issued int he period 2013-2016 and zero for bonds issued in the period 2008-2012. In running our regression, we also control for industry fixed effects. A large percentage of bonds issued in India are by banks and industry fixed effects controls for unobservable characteristics across industries. We also control for bond characteristics, such as bond ratings and maturity, and for firm characteristics. We find that the coefficient on the interaction term AFFECTED and POSTCSR is positive and significant. Both the Regression Discontinuity Design and Diff-in-Diff approaches thus show that yields on bonds are higher in the POSTCSR period for firms affected by the CSR Rule. To explore this further, we individually examine the impact of each of the three criteria used to determine whether a firm is subject to the CSR mandate. We find that bonds issued by firms that are subject to mandatory CSR spending based on the individual criteria also have higher spreads.

Our tests on bonds issued by firms subject to the individual criteria rather than the collective criteria also address another important methodological issue. Diff-in-diff and RDD tests assume that the CSR Rule treatment effects, i.e. the sample of treated firms subject to the CSR Rule and the sample of non-treated firms, are truly exogenous. While manager's have discretion on reported income, it is less likely that manager's are able to simultaneously manipulate the total revenue of the firm, its net worth and its total profit. The treatment effect is therefore truly exogenous in our specification.

Our findings indicate that that mandatory CSR has a detrimental effect on the bond market and the negative effects of CSR therefore dominate. Mandatory CSR reduces the flexibility firms have in using their cash flows to meet debt obligations. Such lack of flexibility has a negative impact on the market's perceptions of bond value, leading to a higher cost of capital for firms. Moreover, allowed types of CSR activity benefits society without benefitting the firm. As noted by John, Nair and Senbet (2005), socially conscious investments that generate non-monetizeable benefits to society but are negative NPV for the firm should be rejected by the firm. If such projects are mandated, shareholders and bondholders can lose value. Mandatory CSR may also exacerbate the moral hazard between insider managers and shareholders. In a mandatory CSR environment, firms have to pick from an approved list of acceptable CSR activities to show compliance. Several of the approved avenues for CSR could allow for private benefits to an insiders.[2]

It is plausible that firms that are not subject to the CSR Rule voluntarily engage in CSR activity because CSR spending is optimal. Given the lack of data on CSR spending, we cannot identify and exclude firms that voluntarily engage in CSR activity or examine them separately in our tests. This raises two issues. One, some firms in our treatment sample would have engaged in CSR voluntarily and as such should not experience the negative impact of reduced flexibility. That is, while CSR activity is mandated for treatment firms, the CSR activity matches what would have been optimal anyways. This effect biases against finding significant effects from the tests as designed. Our results are however significant in spite of such confounding issues. Two, the lower credit spreads for some of the bonds issued by firms in the untreated sample could be because of their voluntary CSR activities. Our basic point however continues to hold -- requiring firms to

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[2] Reports in the popular press, e.g. The Economic Times on Oct 21, 2015; The Guardian on Apr 05, 2016; and The Wire on Dec 22, 2018; have alleged that some firms have misused the CSR funds for private and political gain through Trusts that are lightly supervised.

engage in CSR increases bond yield spreads compared to the yield spreads on bonds issued by firms that are not required to engage in CSR activity.

We extend our analysis of yield-spreads by examining the differential impact of the CSR Rule by analyzing carefully constructed subsamples based on shareholder ownership and corporate governance. In addition to comparing affected and unaffected firms, we also analyze the cross-section of affected firms in these tests. In our first set of extensions, we contrast bonds issued by firms that have concentrated shareholding, bonds issued by firms affiliated with business groups), and bonds issued by government owned firms, the government owned. Promoter holdings in India represent the stake in the firm held by the original founder/promoter of the firm and is many firms have a higher fraction of shares held by the original founder. CONC_HLDG is equal to one if the level of promoter holding is greater than 52% the median value for the sample, and zero otherwise. We find that CONC_HLDG does not affect yield spreads for affected firms in the POSTCSR period. The promoters shareholding therefore does not contribute, or ameliorate, the adverse impact of CSR. We use a dummy variable BG, which is equal to one for firms with business group affiliations, to examine the impact of group affiliation. Bonds issued by firms that are affiliated to a business group have lower yields post CSR. Membership in business groups can result in best practices with respect to CSR and also allow the group firms to collaborate on an effective CSR strategy. Finally, we identify bonds issued by government owned firms. We define a dummy variable GOVT_OWNED, which is equal to one if the firm is governed owned. We find that yield spreads are higher in the POSTCSR period for government owned firms. Bonds issued by state owned firms and stand alone firms unaffiliated with a business group, therefore, are negatively affected by the mandatory CSR Rule.

In our second set of extensions, we contrast firms with good governance and poor governance. One measure of good governance is BI, a dummy variable that is equal to one if the bond issuer has above median board independence and zero if the level of board independence is below the median. Firms that have a larger fraction of their directors who are independent are considered to be better governed, with the fraction of independent directors on the board used as a measure of good governance. Another measure of good governance we use is BIG4, which is a dummy variable equal to one for firms that are audited by affiliates of leading multinational auditing firms. Affiliates of large multinational accounting firms have reputational concerns that ensures high quality audits of their clients. Having an affiliate of a multinational firm can,

therefore, improve external monitoring and is a measure of good governance. We find that yield-spreads are lower for bonds issued by firms that have a value one for these metrics, i.e. for better governed firms. These results suggest that better governed companies may be better able to target their CSR spending and maximize the strategic benefits of CSR activity.

In summary, our findings are consistent with CSR reducing the cash available to meet obligations and increases the perceived costs of financial distress. Good governance, and group affiliation mitigates these effects, and suggests that well governed firms may be better able to benefit from the positive effects of CSR activity. One size, thus, does not fit all. Our result augments the results of Manchiraju and Rajgopal (2017) who show that mandatory CSR activity reduces wealth of stockholders.

The rest of the paper is organized as follows. The next section provides a brief review of the literature. Section 3 describes our data and methodology. Section 4 presents our results and Section 5 concludes.

2. Relevant Literature

The impact of CSR on value to insiders of the firm has been a subject of much debate in the literature. As CSR diverts the cash flows of the firm to other *stakeholders* it is a negative externality for shareholders and bondholders. Adam Smith and Milton Friedman find little use for CSR and have argued that firms should only focus on profit maximization. In their view, even CSR that seeks to mitigate the negative effects of business, e.g. pollution, should be left to the government and other institutions. Executives engaging in social activities, therefore, do so at the expense of shareholders.

An alternate stream of thought sees CSR as a strategic activity that can add to firm value. Freeman (1984) and Kitzmueller and Shimshack (2012) argue that, CSR engenders benefits for the shareholders and bondholders indirectly, by way of increased goodwill that enhances productivity and firm performance. If executives engage in CSR activities, they will Do well by doing good. Benabou and Tirole (2010) conclude that CSR, if strategically used, can be a win-win situation for both society and the firm.

Whether CSR is solely a negative externality or if it indeed can result in value increases for shareholders and bondholders is an empirical issue. Researchers have tried to explain the

relation between CSR and firm performance in different settings and through different channels. lys, Naughton and Wang (2015)checks three hypotheses: CSR as charity, CSR as investment, and CSR as signal for firm's future performance. Using the sample of Russell 1000 firms over the sample period from 2002 to 2010, they conclude that firms undertake CSR expenditures when they anticipate stronger future financial performance i.e. CSR is used as a signaling mechanism for firmÕs future performance. Martin and Moser (2016)explain the relation between CSR and firm performance through experimental economics. They conduct an experiment with 90 participants from which they randomly chose groups of 5 participants. Of this group of 5 people, one act as manager, another act as current shareholder, and remaining three act as potential investors. The reaction of investors is noted when the manager discloses a report on green investments and details on the level of carbon emission and other pollutants. They find that potential investors respond more positively to voluntary disclosures of a green investment. They also find that managers and shareholders are willing to bear the marginal cost of the project in order to provide societal benefits.

While these studies have intuitive results, it is difficulty to infer causality. The level of CSR activity is an endogenous choice of the firm and it is likely that it is the well performing firms who engage in CSR activity. It is therefore hard to disentangle the effect of CSR from the strategic investment behavior of the management. Several researchers have tried to resolve the endogeniety issue and the associated reverse causality problems. Flammer (2015) use data on shareholder sponsored CSR proposals that pass or fail by a small margin of votes at annual meetings as an exogenous shock. They calculate the cumulative abnormal returns surrounding the shareholder proposal vote for these proposals to infer the impact of exogenous shocks to CSR on firm performance. Using a difference-in-differences and RDD techniques, they finds that CSR significantly increases firm performance. Similarly, Lins, Servaes and Tmayo (2017) show that firms with CSR activities provided better returns than others at the time of crisis. Studies have also examined the impact of CSR on Analyst recommendations. Albuquerque, Durnev and Koskinen and (2013) show that firms with CSR activities have more positive sell-side analysts' recommendations. Bushee and Noe (2000)show that CSR firms have higher abnormal returns and Deng, Kang and Low (2013) show that they have higher long-term post acquisition returns.

Researchers have also use mandates on the disclosure of CSR to resolve endogeniety concerns. Chen, Hung amd Wang (2017) examines how mandatory disclosure of CSR impacts

firm performance in China. China made CSR disclosure mandatory for a subset of firms from 2008. Using this an exogenous shock, the authors examine how CSR activities affects the firm profitability and social externalities for firms listed on Shanghai Stock Exchange (SSE) and Shenzhen Stock Exchange (SZSE) between 2006-2011. They find that the treatment firms experience a decrease in return on assets (ROA) and return on equity (ROE), sales revenue and increase in operating costs and impairment charges. On the other hand, Industrial waste water discharge and the level of SO2 emission reduced after the CSR disclosure mandate.

Manchiraju and Rajgopal (2017) use the unique setting of mandatory disclosure in India to examine the impact on shareholder value. Clause 135 of Indian Companies Act 2013 requires firms that cross any of the three individual thresholds -- (1) a net worth of Indian Rupees (INR) 5 billion (about U.S. $83 million) or more; (2) sales of INR 10 billion (about U.S. $167 million) or more; or (3) a net profit of INR 50 million (about U.S. $0.83 million) or more -- have to spend a minimum of 2% of their net profit averaged over three years, on CSR activities. The clause was ratified and passed by the Lok Sabha of the Indian Parliament in 2012 and Manchiraju and Rajgopal (2017) find a significant negative abnormal return associated with the passage of the CSR rule in 2012. While the average impact of CSR on firms that would have and would not have engaged in CSR voluntarily, companies that advertise their CSR activity do not have a negative abnormal return. They conclude that involuntary CSR has a negative impact on shareholder value.

All the articles cited above examine the impact on shareholders, but is useful to examine the effect on bondholders as well. Oikonomou, Brooks, and Pavelin (2014) and Cooper and Uzun (2015) examine the impact of CSR on credit ratings and the cost of debt. They find that if firm engages in CSR activities then their credit rating increases and their cost of debt decreases. Goss and Roberts (2011)similarly find that CSR firms have a lower cost of bank loans as compare to non-CSR firms. As in the case of studies that examine the impact of CSR on shareholder value, these studies are subject to the endogeniety problem and reverse causality.

Our paper extends these studies by examining the cost of debt for Indian firms before and after the passage of the CSR provisions in 2012 and included in the 2013 Companies Act. We focus on the bond markets for several reasons. If firms spend 2% of profit on CSR, it reduces the funds available to pay shareholders and debtholders, thereby making the debt riskier. Any positive impact of CSR would necessarily first impact bondholders when debt is risky. We therefore expect

bond markets to be more sensitive to the positive impact of CSR. CSR may also impact bondholders differently than stockholders. It is plausible that CSR may serve to reduce the volatility of future cash flows resulting in a positive impact on bondholders but negatively impact shareholders. Finally, we add to the literature on the impact of CSR on bond markets in a setting when CSR is exogenously mandated.

Our sample consists of bonds issued by Indian firms for which firm level data is available on Global Compustat. We examine the impact of CSR on bonds issued in the five-year period from 2009 to 2013, the PRECSR period, and the four-year period from 2014-2017, the POSTCSR period. We use a Regression Discontinuity Design that examines firms that are just above and just below the cutoffs for mandatory CSR. We also use a Diff-in-Diff approach to compare the yield on bond issues before and after 2012 for firms affected by the CSR rule and those that are not affected by the CSR rule.

3.   Data

The bond issues data for our study are obtained from the SDC Platinum database. SDC Platinum reports the issue of fixed-income securities by Indian firms in the nine-year period from 2009 to 2017, across several categories. The sample mostly comprises debentures, fixed/straight bonds, secure bond/debentures, subordinate bond/debentures, and zero-coupon bond/debentures. We exclude all issues that are preferred stock issues, bond issues that have contingent features, and when the yield-to-maturity is not reported.

We obtain data on firm fundamentals from the Center for Monitoring Indian Economy (CMIE) ProwessDx database. As there is no common identifier in between SDC and prowess database, we hand match the two datasets using the name of the firm. We are able to match data for 236 firms and 3,466 observations. All the firm fundamentals are from consolidated financial statements data of ProwessDx. Table 1, Panel A, shows the yearly distribution of these observations. Year 2011 saw the largest number of bond issues. There is no monotonic pattern in the number of bond issues each year.

Our focus is on the impact of the CSR provision passed in the Lok Sabha of the Indian Parliament mandating a minimum level of CSR spending. We therefore classify firms as being affected by the CSR Rule in each year. Specifically, we label a firm as AFFECTED by the CSR

rule if during any fiscal year a firm has either (i) a net profit of INR 50 million (about U.S. $0.83 million) or more; (ii) a net worth of Indian Rupees (INR) 5 billion (about $83 million) or more; or (iii) sales of INR 10 billion (about U.S. $167 million) or more.

We construct three variables, R1, R2, and R3, that can be used to determine whether the firm is subject to CSR requirements using the three measures individually. The three variables R1, R2, and R3 are centered around the cutoff threshold for profit, net worth, and sales, respectively, and are expressed as the percentage difference from the cutoff threshold as follows:

$$R1 = \frac{\text{PRETAX INCOME} - 50}{50}$$
$$R2 = \frac{\text{NET WORTH} - 5,000}{5,000} \qquad [1]$$
$$R3 = \frac{\text{TOTAL REVENUE} - 10,000}{10,000}$$

with all values specified in INR millions.

To capture the requirements under the 2013 Company Act, we create a measure M that is equal to the minimum positive value of R1, R2, or R3, if at least one of the three variables is positive and is the maximum value if all three individual variables R1, R2, and R3 are negative. %Our algorithm to calculate the minimum positive value of the R1, R2, and R3, or the maximum negative value if all three are negative, allows for one or more of the variables to be negative. We calculate M as follows:[3]

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[3] The calculation of M is inherently non-linear in that we need to determine the minimum positive value if at least one of the three variables R1, R2, R3 is positive and the maximum negative value if all three variables are negative. The algorithm reliably ignores all negative value if at least one of the measures is positive, allowing for the minimum positive value to be selected, and switches to the maximum negative value if all three measures are negative.

$$M = \begin{cases} \min(R1, R2, R3) & \text{if } R1 \geq 0 \ \& \ R2 \geq 0 \ \& \ R3 \end{cases}$$

$$\begin{array}{ll}
\min(R2, R3) & \text{if } R1 \geq 0 \ \& \ R2 \geq 0 \ \& \ R3 \leq 0 \\
\min(R1, R3) & \text{if } R1 \geq 0 \ \& \ R2 \geq 0 \ \& \ R3 \leq 0 \\
R2 & \text{if } R1 \geq 0 \ \& \ R2 \leq 0 \ \& \ R3 \leq 0 \\
R2 & \text{if } R2 \geq 0 \ \& \ R1 \leq 0 \ \& \ R3 \leq 0 \\
R3 & \text{if } R3 \geq 0 \ \& \ R1 \leq 0 \ \& \ R2 \leq 0 \\
\max(R1, R2, R3) & \text{if } R1 \geq 0 \ \& \ R2 \leq 0 \ \& \ R3 \leq 0
\end{array}$$

≥ 0

M =

Min \left\{1/R1, 1/R2, 1/R3 \right\}} \hspace{0.25in} if R1 < 0   R2 < 0   R3 < 0

% \frac{1} {Max \left\{1/R1, 1/R2, 1/R3\right\}} \hspace{0.25in} otherwise

% \end{array}

% \right .

%\end{equation}

%

%\noindent All four variables, M, R1, R2, and R3, are continuous variables.

We calculate M as follows:

\begin{equation}

M = \left\{

\begin{array}{ll}

min(R1,R2,R3) if R1\geq 0   R2\geq 0   R3 \geq 0

min(R1,R2) if R1\geq 0   R2 \geq 0   R3 < 0

min(R2,R3) if R1 < 0   R2 \geq 0   R3 \geq 0

min(R1,R3) if R1\geq 0   R2 <0   R3 \geq 0

R1 if R1 \geq 0   R2 < 0   R3< 0

R2 if R1 < 0   R2\geq 0   R3 < 0

R3 if R1 < 0   R2 < 0   R3 \geq 0

max(R1,R2,R3) if R1 < 0   R2 < 0   R3 <0

All four variables, M, R1, R2, and R3, are continuous variables.

The critical cutoff value for all four binding score measures, M, R1, R2, and R3, is equal to zero. We therefore develop the following 4 variables to designate firms affected by the 2013 Company Act. AFFECTED that takes a value of 1 if M>0, AFFECTED_R1 that takes a value of 1 if R1>0, AFFECTED_R2 that takes a value of 1 if R2>0, and AFFECTED_R3 that takes a value of 1 if R3>0.

M and AFFECTED are our primary measure to reflect the requirements of the 2013 Act. For robustness, we run our empirical tests using the collective criterion M and the component specific criteria R1, R2, and R3. Diff-in-diff and RDD tests require that the CSR Rule treatment effects are truly exogenous. While manager's have discretion on reported income, it is ulikely that manager's are able to simultaneously manipulate the total revenue of the firm, its net worth and its total profit.

Table 1, Panel B, shows the distribution of bonds issued by Affected/Unaffected firms based on the criteria described above. There are 3,357 bonds issued by AFFECTED firms and 109 bonds issued by firms not affected by the mandatory CSR spending requirement. We examine the three individual criteria as well. There are 3,306 bonds issued affected by the Net Profit criteria, 2,576 bonds issued by firms affected by the Net Worth criteria, and 492 firms affected by the sales criteria. It is clear, therefore, that the profit and net worth criteria are the primary criteria for determining whether a firm is subject to Mandatory CSR spending.

We also note that the CSR Rule was passed in the year December 2012 and subsequently included in the 2013 Indian Company Act. We therefore label the period from 2009 to 2013 as the PRECSR period and the period from 2014 to 2017 as the POSTCSR period. A total of 2,035 bonds were issued in the PRECSR period, of which 1,352 bonds were issued by AFFECTED firms. A

total of 1,431 bonds were issued in the POSTCSR period, of which 2,005 bonds were issued by AFFECTED firms

The dependent variables for this study is the yield spread, defined as the offer yield to maturity minus a reference treasury bill rate. In determining the appropriate benchmark treasury rate, we match the maturity of the bond to the maturity of the treasury bonds Specifically, if the bond's maturity is 1 year or less, we use 1-year T-bill rate, if securityÕs maturity is 5 years but greater than 1 year then we use 5-year treasury rate\footnote{We include perpetual bonds in our sample. As perpetual bonds do not have a maturity, we set the maturity of the bond to be 100 years and the corresponding treasury rate to be that of the longest maturity treasury security.}. Table 2 presents data on the yield-spread and other bond and issuer characteristics for the bonds and issuers in our sample. As shown in the table, the mean (standard deviation) of yield spread is 2.17% (1.985%).

The control variables used for this study are SIZE, LEVERAGE, TOBIN_Q, CREDIT RANK, and MATURITY. Firm size, leverage, and Tobin_Q are calculated as log of total assets, ratio of long term debt to total assets, and ratio of market value to book value and are for the lagged fiscal year. All three variables are winsorized at the 1% level. CREDIT_RANK, is a rank for securities rating grade assigned based on ratings given by different rating agencies. In India, mainly three rating agencies, CARE, ICRA, and CRISIL dominates the market and provides the ratings to various corporate securities. IProwessDx provides a Òrating gradeÓ, that ranks the bond in terms of safety, in eight steps: Highest Safety, High Safety, Moderate Safety, Adequate safety, Inadequate Safety, Substantial Risk, High Risk, and Default. We convert these rating grades into ranks from 8 (Highest Safety) to 2 (High Risk) and develop a CREDIT_RANK measure.\footnote{We We drop one firm from the sample, issued by Bhushan Steel, from our sample.} As seen in Table 2, CREDIT_ANK is available for 3,037 firms. The average credit rank is 7.479% with a standard deviation of 0.641%. Bond maturity is calculated as difference between issued year and maturity year. The mean(median) maturity is 7.879 (3.000) years, suggesting that Indian firms largely issue short-term bonds, with some firms issuing long-term bonds.

4.   Research Design

To examine the effect of CSR rule on firmÕs cost of debt, we compare the yield to maturity of AFFECTED firms to those of UNAFFECTED firms in the PRECSR and POSTCSR period. We use two approaches to make the comparison, a Diff-inDiff approach and a Regression Discontinuity Design (RDD).

4.1   Diff-in-Diff Design

We use a diff-in-diff specification around the CSR Year, year 2013. We capture the impact of the passage of the law using the following regression specification:

$$\text{Yield Spread} = \alpha + \beta_1 \text{ AFFECTED} + \beta_2 \text{ POSTCSR} + \beta_3 \text{ AFFECTED X POSTCSR } +$$
$$\gamma \text{ X} + \text{INDUSTRY FIXED EFFECTS} + \epsilon$$

Of interest is β_3, the coefficient on the interaction term AFFECTED X POSTCSR, that captures the impact of the exogenous imposition of a minimum level of CSR expenditure. X represents the set of firm and bond level controls in the regression.

For robustness, we also use component specific measures AFFECTED_R1, AFFECTED_R2, and AFFECTED_R3 and interaction variables to capture their interaction with POSTCSR.

4.2   Regression Discontinuity Design

We also use a regression discontinuity design (RDD) to document the effect of CSR rule on yield-spreads The RDD technique has been used in various studies in accounting and finance (see e.g.Flammer (2015), Manchiraju and Rajgopal (2017) and Iliev (2010) for resolving the different endogeniety concerns. RDD is applicable in our case as it is difficult for firms to manipulate three different thresholds used to determine whether they fall under the minimum CSR spending requirement.

The inference drawn under an RDD approach are considered to be credible because the assignment of individuals in treatment and control groups is ``as good as randomized'' given that individuals cannot precisely control the assignment variable near the exogenously determined cutoffs Lee amd Lemieux (2010).

Our research setting differs from the basic RDD applications listed above, in that the mandatory CSR rule relies on more than one rating score to determine treatment status. We, therefore, implement multivariate RDD (MRDD). To estimate the treatment effects under MRDD, we follow the binding-score regression discontinuity method of Reardon and Robinson (2012). Their methodology is intuitively simple and easy to use and reframes the multidimensional vector of rating scores into a single dimension for determining treatment status, and hence ensures minimal loss of data in estimation.

We fit the following model using zero as the critical value of the binding score.

$$\text{Yield Spread} = \alpha + F(M) + \gamma\, X + \epsilon$$

We use the overall criteria M as the binding score in our regressions. We also use the individual components R1, R2, and R3 as alternate metrics for robustness. Firms to the right of the cutoff score of zero are AFFECTED by the mandatory CSR rule whereas firms to the left of zero are UNAFFECTED. A discontinuity in YIELD_SPREAD at the cutoff captures the impact of the exogenously imposed mandate for minimum CSR spending.

To implement MRDD we use RDPLOT and RDROBUST command in STATA Calonico, Cattaneo, Farrell amd Titiunik (2017) using M as the binding score variable. The RDPLOT command generates the plots and RDROBUST tabulates the results. We run MRDD regressions for full sample and for sample before and after CSR rule, controlling for other covariates, with Epanechnikov weighting scheme, and a bandwidth of 10 in both the left and right side of the cut-off point, $M=0$. Our results are robust to other choices in these parameter values.

5. Empirical Results

In this section we discuss the results of our diff-in-diff regressions and our RDD regressions.

5.1 Base Results

Table 3 shows the results for diff-in-diff regressions. Eight models are presented. Columns 1-4 presents results when controlling only for whether firms are affected by the CSR Rule, the post-

CSR rule period from 2013-2017, and the interaction term between whether firms are affected and the post CSR rule period. Column 1 uses the overall metric AFFECTED that uses the three criteria depending on net worth, and sales, as the metric for determining whether the firm is affected by the CSR Rule. Columns 2-4 present the case when the individual measures alone are used to determine whether firms are affected by the CSR rule. In these regressions we replace the variable AFFECTED with AFFECTED_R1, AFFECTED_R2, and AFFECTED_R3, respectively. POSTCSR is set equal to one for the post CSR period. All the regressions are run with industry fixed effects based on the Fama-French 30 industry classifications. Models 5 through 8, augment the regressions in Models 1-4 with control variables.

We find that the coefficient on POSTCSR is negative in all models, but is significant in only three of the eight models. This suggests that yield spreads are somewhat lower for bonds issued after 2013, i.e. in the period from 2014-2017. The coefficient on the AFFECTED measures are also negative but are significant only models 1, 3, and 4, i.e. in the regressions without controls for bond and firm characteristics. As firms that meet the criteria for the CSR Rule are large and profitable, it is not surprising that the yields are somewhat lower for AFFECTED firms, but the variation is explained by bond and firm characteristics. The interaction variables between AFFECTED and POSTCSR, our variable of interest that captures the impact of exogenously imposed CSR activity, is positive and statistically significant in seven of the eight models. Thus the impact of the CSR Rule is robust to using the overall measure M or the individual components R1, R2, or R3, in determining whether firms are affected by the CSR Rule and with and without controls. The magnitude of the coefficient vary and reflect the variations in the sample of firms that would be affected by the CSR Rule using these alternate specifications. Using the criteria for mandatory CSR as specified by the 2013 Company Act, i.e. firms are subject to mandatory CSR if at least one of the measures is positive, we find that yield-spreads increase by 0.22% or 22 basis points for firms affected by the CSR Rule in the POSTCSR period. The result is consistent with mandating CSR expenditure reduces future cash flows and higher perceived costs of financial distress.

The table also shows the sign and significance of the control variables. Bonds issued by larger firms have lower credit spreads as large firms are likely to have larger future cash flows and have have more assets that can serve as collateral. Interestingly bonds issued by firms that have higher leverage have lower spreads. This is perhaps because firms with higher leverage have

greater debt capacity. The coefficient on CREDITRANK is negative and significant. As expected, higher rated firms have lower spreads.

The economic significance of the CSR Rule can be examined by adding the coefficients on POSTCSR (-0.825) and the interaction term (1.046), which is equal to 0.221. While there is a general decline post 2013, perhaps reflecting robust economic growth in India, the offsetting effects of mandatory CSR spending increases the cost of capital by 22 basis points.

The 22 basis point increase in yield spreads indicates the significant causal economic effect of mandated CSR. Earlier studies have shown that voluntary CSR can have positive effects on bond markets, but such studies are subject to endogeniety and reverse causality issues. Our empirical design resolves these econometrics issues and allow us to examine the value impact on the bond markets of CSR spending.

Our findings indicate that that mandatory CSR has a detrimental effect on the bond market. While the mandate for CSR spending targets firms that are large and profitable, the lack of flexibility has a negative impact on the market's perceptions of the firms ability to meet its obligations to debt holders.

Our findings indicate that that mandatory CSR has a detrimental effect on the bond market. The mandate for CSR spending targets firms that are large and profitable, but the lack of flexibility reduces the cash flows available to the firm to meet debt obligations. Such lack of flexibility has a negative impact on the market's perceptions of bond value, leading to a higher cost of capital for firms. Mandatory CSR also exacerbates the moral hazard between insider managers and shareholders. Firms have to pick from an approved list of acceptable CSR activities, which could allow for private benefits to the insider manager. It is also plausible that all allowed types of CSR activity benefits society without benefitting the firm. As noted by John, Nair and Senbet (2005), socially conscious investments that generate non-monetizeable benefits to society but are negative NPV for the firm should be rejected by the firm. If such projects are mandated, shareholders and bondholders can lose value.

We next examine the importance of the 2013 Company Act by using a regression discontinuity framework. Given that in the post CSR period, there is an exogenously imposed criteria for mandating a minimum CSR expenditure, we expect to see a discontinuity around the scale measures centered around zero. That is indeed what we find. Table 4 and Figure 1 present

results and plots for the binding score MRDD. As Table 4 shows, the coefficient on the RDD variable, POSTCSR, is positive and highly statistically significant. Figure 1 shows the RDD plots. As Panel A of the figure shows, there is discontinuity at $M=0$ in the overall sample. Yield-spreads for bond issued by firms that just meet the CSR criteria are higher than the yield-spreads for firms that just miss the criteria. Panel B and Panel C show similar RDD plots for bond issues in the PRECSR period and POSTCSR period respectively. As shown in these panels, the increased spreads and discontinuity at $M=0$ only exists in the POSTCSR period when the CSR mandate kicks in and not in the PRECSR period. Our RDD tests thus also confirm that yield-spreads increased after the passage of the CSR rule.

5.2   *Extensions*

We augment our base specification with subsample analysis to more fully capture the impact of the CSR Rule. We extend our base case analysis to consider whether ownership structure of bond issuers impact on bond yield-spreads. We also examine the impact of corporate governance features on yield-spreads. Both ownership structure and good governance can impact on the strategic use of CSR spending to maximize potential benefits.

The extensions we examine also serve another purpose. As Table 1, Panel B shows, the sample of bonds sold by firms that are not affected by the CSR Rule is relatively small, only 109 of the total 3,466 bond issues are sold by firms not affected by the CSR Rule. We therefore compare subsamples of bonds sold by AFFECTED firms classified by exogenous variation in order to confirm our results and examine the cross-sectional characteristics of AFFECTED firms that impact on bond yield-spreads.

5.2.1   *Ownership Structure*

We develop three measures to capture the differences in ownership structure across firms. One, we define a dummy variable CONC_HLDG, which is equal to one if the shareholding of the firm's promoters\footnote{Founders of Indian firms are designated as promoters of the firm. Promoters

of Indian firms tend to hold a large fraction of shares, even after the firm goes public.} is greater than the median promoter holdings in the sample.

Two, we develop a dummy variable GOVT_OWNED, which is equal to one if either the central Indian government or the governments of individual states have an equity stake in the firm.

Three, we develop a dummy variable BG, which is equal to one if the firm is affiliated with a business group. Group ownership can bring professional management and best practices all their affiliate, improving corporate governance at member firms.   Group affiliation can also impose costs on firms because of potential agency problems between shareholders representing the group and non-group shareholders. Such intra-shareholder agency concerns are, however, less relevant to the impact of CSR on debt markets. We argue therefore that group membership should allow firms to better deal with the externalities imposed by the CSR Rule. To examine the impact of group membership, we therefore use a dummy, BG, that is equal to 1 if the firm is affiliated with a business group, and otherwise zero.

Our base results show that mandatory CSR spending increases yield-spreads as the direct reduction in cash flows is greater than perceived benefits from strategically targeting CSR spending. However, firms can differ in the ability to utilize their CSR spending strategically. We explore such cross-sectional differences by examining the impact of CONC_HLDG, and GOVT_OWNED, and BG variables.

We run two sets of models. In our first set, we use all data and examine the coefficient on a triple interaction terms between AFFECTED, POST CSR, and CONC_HLDG/Govt_Hldg/BG. In our second set of models, we use only bonds issued by AFFECTED firms and examine the interaction terms between AFFECTED and CONC_HLDG/GOVT_OWNED/BG.   Table 5 presents the results of our tests. Columns 1-3 present models for the full sample and Column 4-6 present results when only using AFFECTED firms. As before, we use several control variables and industry fixed effects. We find that the coefficient in the triple interaction terms differ for the different ownership measures.   The coefficient on the triple interaction term when using CONC_HLDG is insignificant suggesting the promoter holdings are not an important determinant on how debt markets react to the mandatory CSR Rule. The coefficient on the triple interaction term with GOVT_OWNED is positive and significant and suggest that state owned firms are not as efficient in strategically using their mandatory CSR spending. The coefficient on the triple

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interaction term with BG is negative and significant. Firms belonging to business group can coordinate their CSR spending with other firms in the group maximizing potential benefits. Group affiliation also increases the resources and expertise fo better manage the CSR spending of the firm. The table also shows that the coefficients on the dummies CONC_HLDG/GOVT_OWNED/BG and the coefficients on the interaction term between POSTCSR and CONC_HLDG/GOVT_OWNED/BG in Models 4-6 are similar in sign and significance as the corresponding variables in Models 1-3 and confirm the ownership effects within the set of firms subject to the mandatory CSR Rule.

The coefficients on the interaction term AFFECTEDxPOSTCSR in models 1-3 captures the impact of the CSR Rule on affected firms compared to unaffected firms as before. The coefficients on the treatment dummy and treatment period is in the range 0.959%-1.29%, indicating a significant increase in yield-spreads in firms affected by the CSR Rule. Models 4-6 only consider AFFECTED firms and, therefore, the coefficient on POSTCSR captures both the trend in the interest rates and the impact of the CSR Rule. The coefficient on POSTCSR in models 4-6 and the sum of the coefficients on POSTCSR and the interaction term AFFECTEDxPOSTCSR in models 1-3 are similar in magnitude. The results in models 4-6 also indicate that firms affected by the CSR Rule see and increase in yield-spreads.

The results for the other control variables are similar to our base case results.

5.2.2   Corporate Governance

We next examine the impact of corporate governance on the role of the CSR Rule on yield-spreads. Firms with good corporate governance can be expected to more strategically utilize the publicity value of CSR spending, even mandated CSR spending. We therefore expect that firms that better governed firms mitigate the overall negative impact of the mandatory CSR Rule.

To examine this hypothesis, we consider two measures of good corporate governance. The first measure relates to the degree of board independence. A board composed largely of independent directors is considered to be an indicator of better corporate governance. We therefore create a dummy BI that is equal to 1 if the fraction of the board that is independent, is above the median for the sample. Next we examine the impact of the quality of the firm's auditors.

We develop a dummy variable, BIG4, that is equal to one if the auditing firm is an affiliate of multinational auditing firms Deloitte Touche, PWC, E Y or KPMG and is otherwise zero. Foreign firms are not allowed to conduct auditing business in India due to the norms of the 1949 Chartered Accountants Act and these firms therefore conduct business through their affiliates. We determine the affiliations based on disclosure on company websites. BIG4 is one for bonds issued by firms audited by the following accounting companies:

Affiliates of Deloitte	Touche: C. C. Chokshi Co., S. B. Billimoria Co, A. F. Ferguson Co, Fraser Ross, MCA Co P. C. Hansotia and Deloitte Haskins Sells.
Affiliates of KPMG	Bharat S. Raut Co, SRBC CO., SRB ASSOCIATES.
Affiliates of PWC	Price Waterhouse Co, Lovelock Lewes, Dalal Shah.
Affiliates of Ernst Young	S.R. Batliboi Co, S.R. Batliboi Associates

Table 6 presents the results our our tests. Columns 1 and 2 present models that use the entire sample of bond issues and Columns 3 and 4 present models that only examine bonds sold by AFFECTED firms. Columns 1 and 3 use BI as the proxy for good governance and Columns 2 and 4 use BIG4 as the proxy for good governance, respectively. All regressions are run with control variables and industry fixed effects. As shown in the table, the coefficient in the triple interaction term between AFFECTED, POSTCSR and BI/BIG4 is -0.785%/-0.456% and are statistically significant. Similarly, the coefficients on POSTCSR and BI/BIG4 in Models 4-6 are -0.769%/-0.458% and are also statistically significant. These results are consistent with the hypothesis that good governance ameliorates the negative impact of mandated CSR expenditure. These results are consistent with the hypothesis that good governance ameliorates the negative impact of mandated CSR expenditure.

As in Table 5, the coefficient on the interaction term AFFECTEDxPOSTCSR captures the impact of the CSR Rule on affected firms. The coefficient is positive and statistically significant, consistent with our base case results. The sum of the coefficients on POSTCSR and the interaction term AFFECTEDxPOSTCSR in columns 1-2 is similar in magnitude and significance as the coefficient on POSTCSR in models 3 and 4, confirming the increase in yield-spreads in regressions

using only AFFECTED firms. The results for the other control variables are similar to our base case results.

In summary, our results indicate that the cost of debt capital is higher for firms affected by mandatory CSR rule and complements Manchiraju and Rajgopal (2017) findings focused on the equity market.

6 Conclusions

The debate on the rationale for corporation actions classified as corporate social responsibility activities has become a focal point among corporations, policy makers, and academics. In this paper, we examine the impact of CSR on yield-spreads and our analysis contributes to better understand the broader impact of CSR. Our empirical tests use bond data on Indian firms. The Indian Parliament passed the 2013 Company Act which mandated a minimum 2% CSR spending for firms that were considered to be profitable, or have large levels of sales or have high net worth. CSR spending by Indian firms post 2013, therefore, is not a strategic choice of management, but is mandated by regulation. Thus unique setting allows us to examine the causal impact of CSR spending without running into endogeniety or reverse causality issues.

We use diff-in-diff analysis and regression discontinuity models to examine the impact of CSR spending on bond yield-spreads. Our diff-in-diff analysis shows that the interaction variable between a dummy variable that indicates whether a firm meets the criteria for mandatory CSR spending and the time period over which the rule is in effect, has a positive and significant coefficient. Our regression discontinuity analysis shows a positive and significant jump in yield spreads from firms that just meet the criteria for mandatory spending compared to firms that just miss the criteria.

Our findings indicate that that bond yield-spreads increased after 2013, by about 22 basis points, for firms subject to the CSR rule. The negative effects of CSR on bond markets can arise for several reasons. The mandate for CSR spending targets firms that are large and profitable, but the lack of flexibility reduces the cash flows available to the firm to meet debt obligations. Such lack of flexibility has a negative impact on the market's perceptions of bond value, leading to higher yield spreads. Mandatory CSR also exacerbates the moral hazard between insider managers and shareholders. Firms have to pick from an approved list of acceptable CSR activities, several of which allows for private benefits to the insider manager. It is also plausible that all allowed

types of CSR activity benefits society without benefitting the firm. Socially conscious investments that have social benefits that cannot be monetized can be negative NPV and reduce firm value.

Our results also reveal that good governance mitigates the negative effects of mandatory CSR requirements as well-governed firms can target CSR spending more strategically such that the positive effects of CSR ameliorate the increased costs arising from a reduction in the cash flows available to pay off debt. Our study implies that any mandatory approach to community commitment by firms is costly and any regulations designed to promote CSR should offer ample flexibilities in implementations.

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Event # 1 Aug 3, 2009	Event # 2 Aug 31, 2010	Event # 3 Feb 28, 2011	Event # 4 Dec 14, 2011	Event # 5 Jun 26, 2012	Event # 6 Dec 18, 2012	Event # 7 Aug 8, 2013	Event # 1 Aug 29, 2013
Introduction of the Company's Bill 2009 in the Lok Sabha	For the first time, Standing Committee on Finance inserts the notion of Mandatory CSR in its report	Bowing to corporate pressure, the Ministry of Corporate Affairs announces that it is considering making CSR voluntary and not mandatory	Government eventually goes ahead with the mandatory CSR and introduces a revised Company's Bill in the Lok Sabha	Standing Committee on Finance endorses the bill with no new changes relating to mandatory CSR	The Companies Bill 2012, containing mandatory CSR clause, is passed in the Lok Sabha	The Companies Bill 2012 is passed in the Rajya Sabha	The President signs the bill and it is enacted

Event 1:   The Companies Act introduced in the Lok Sabha (the lower house of the Indian parliament) on August 3, 2009 as the Companies Bill, 2009. The Bill in its original form had no CSR clause.

Event 2:   The 2009 version of the Bill referred to the Parliamentary Standing Committee on Finance, which submitted its report on August 31, 2010. The Finance Committee introduced the notion of mandatory CSR in its report. Anecdotal evidence and reports in the popular press suggest that the Finance Committee, perhaps anticipating popular backlash that might result from a progressive pro-business bill, inserted several new clauses to make the bill more pro-development.

Event 3:   On account of protests from industry, the Ministry of Corporate Affairs announced on February 28, 2011 that it is considering making only the disclosure, as opposed to the actual spending, of CSR mandatory.

Event 4:   The Ministry of Corporate Affairs resisted pressure from corporate houses and went ahead with the mandatory CSR rule. Keeping in view the recommendations made by the Finance Committee, a revised Bill was prepared and the original Bill was withdrawn. The new Bill was introduced in the Lok Sabha on December 14, 2011. The Bill was again referred to the Finance Committee as certain new provisions, which had not been referred earlier to the committee, were included in this new Bill.

Event 5:   The Finance Committee submitted its report on June 26, 2012.

Event 6:   The Lok Sabha subsequently approved the Bill on December 8, 2012 and labeled it as the Companies Bill, 2012.

Event 7:   The Companies Bill, 2012 was then considered and approved by the Rajya Sabha (the upper house of the Indian parliament) on August 8, 2013 as The Companies Bill, 2013.

Event 8:   Following the President's assent, The Companies Bill, 2013 become law on August 29, 2013.

Appendix B: Variable Definition and Description

VARIABLE	DEFINITION
YIELD	The bond's yield to maturity as reported by SDC Platinum
YIELD_SPREAD	Maturity matched Indian Treasury Interest Rate
MATURITY	Bond maturity
CSR_Year 2013	The year of the passage of the Indian Company Act
PRECSR	Dummy variable, equal to 1 if year $<$ 2014
POSTCSR	Dummy variable, equal to 1 if year is greater than or equal to 2013, otherwise 0.
R1	Is the percentage difference between the firm's PRETAX INCOME and INR 50 million
R2	Is the percentage difference between the firm's Total Equity value and INR 5 billion
R3	Is the percentage difference between the firm's Total Revenue and INR 10 billion
M	The minimum positive value of R1, R2 and R3 if at least one of the is positive or the maximum value if R1, R3, R3, are all negative
AFFECTED_R1	Dummy variable, equal to 1 if R1 $>$ 0, otherwise 0
AFFECTED_R2	Dummy variable, equal to 1 if R2 $>$ 0, otherwise 0
AFFECTED_R3	Dummy variable, equal to 1 if R3 $>$ 0, otherwise 0
AFFECTED	Dummy variable, equal to 1 if M $<$ 0, otherwise 0
SIZE	Logarithm of total assets
LEVERAGE	Ratio of long term debt to total assets
%ROA	Return on assets is the ratio of net income to total assets
TOBINQ	Mkt Value of Equity / (Mkt Value of Equity + Book Value of LT Debt)
BI	Dummy variable, equal to 1 if the fraction of independent directors is higher than the sample median
BIG4	Dummy variable, equal to 1 if the auditor of the firm aligned with Deloitte, E Y, PWC, or KPMG
BG	Dummy variable, equal to 1 if the firm is aligned with a business group, otherwise 0
CONC_HLDG	Dummy Variable, equal to 1 if promoter holding is greater median holding in the sample, otherwise 0
GOVT_OWNED	Dummy variable, equal to one if the firm is government owned, otherwise 0

(continued) VARIABLE	DEFINITION
AFFECTED_x_POSTCSR	Dummy variable, equal to 1 if AFFECTED is 1 and POSTCSR is 1, otherwise 0.
AFFECTED_R1x_POSTCSR	Dummy variable, equal to 1 if AFFECTED_R1 is 1 and POSTCSR is 1, otherwise 0.
AFFECTED_R2xPOSTCSR	Dummy variable, equal to 1 if AFFECTED_R2 is 1 and POSTCSR is 1, otherwise 0.
AFFECTED_R3xPOSTCSR	Dummy variable, equal to 1 if AFFECTED_R3 is 1 and POSTCSR is 1, otherwise 0.
AFFECTEDxPOSTCSRxBI	Dummy variable, equal to 1 if AFFECTED is 1 POSTCSR is 1 and BI is 1, otherwise 0.
AFFECTEDxPOSTCSRxBG	Dummy variable, equal to 1 if AFFECTED is 1, POSTCSR is 1 and BIG4 is 1, otherwise 0.
AFFECTEDxPOSTCSRxGOVT_OWNED	Dummy variable, equal to 1 if AFFECTED is 1, POSTCSR is 1, and GOVT_OWNED is 1, otherwise 0.
AFFECTEDxPOSTCSRxCONC_HLDG	Dummy variable, equal to 1 if AFFECTED is 1 POSTCSR is 1 and CONC_HLDG is 1, otherwise 0.
POSTCSRxBI	Dummy variable, equal to 1 POSTCSR and BI is 1, otherwise 0; for AFFECTED firms only
POSTCSRxBG	Dummy variable, equal to 1 if POSTCSR is 1 and BIG4 is 1, otherwise 0; for AFFECTED firms only
POSTCSRxGOVT_OWNED	Dummy variable, equal to 1 if POSTCSR is 1 and GOVT_OWNED is 1, otherwise 0; for AFFECTED firms only
POSTCSRxCONC_HLDG	Dummy variable, equal to 1 if POSTCSR is 1 and CONC_HLDG is 1, otherwise 0; for AFFECTED firms only

Table 1: Distribution of Bond Issuers by Year and Affected by CSR Mandate

This table presents data on the distribution of bond issues over the period from 2009 to 2017 in our sample. Pane A presents the distribution of bond issues by year. Panel B presents the number of bonds issued by firms that met the cut-off criteria for mandatory CSR in the period before the law went into effect and in the period after.

Panel A: Bond Issues by Year

Year	#Bonds	Percent
2009	289	8.34%
2010	367	10.59%
2011	460	13.27%
2012	615	17.74%
2013	304	8.77%
2014	326	9.41%
2015	307	8.86%
2016	421	12.15%
2017	377	10.88%
TOTAL	3,466	100%

Panel B: Unaffected/Affected Distribution

AFFECTED	PERIOD PRE	PERIOD POST	TOTAL
0	30	79	109
1	2,005	1,352	3,357
TOTAL	2,035	1,431	3,466

Table 2: Descriptive Statistics

This table presents gives descriptive statistics of the Indian bond firms that issued the 3,446 bond issues. All variables are winsorized at the 1% level.

Variable	#Obs	Mean	Median	StdDev	Min	Max
YIELD SPREAD	3,466	2.174	1.485	1.985	0.111	8.200
SALES	3,466	2121.056	1,103.833	2443.321	0.364	8656.865
PROFIT	3,466	264.200	176.602	264.961	-109.483	774.837
NET WORTH	3,466	1835.733	1190.933	1736.816	-71.045	5188.324
TOTAL ASSETS	3,466	8.774	8.874	1.484	3.330	11.685
TOBIN_Q	3,466	2.303	2.004	1.382	0.409	6.018
LEVERAGE	3,428	0.509	0.554	0.252	0.022	0.899
MATURITY	3,466	7.879	3.000	16.706	0.000	100.000
CREDIT_RANK	3,037	7.479	7.615	0.641	2.000	8.000

Table 3: Bond Yields and the CSR Rule: Difference-in-Difference Regressions

This table shows results of a Difference-in-Difference specification on the determinants of the yield for bonds issued by firms affected/un-affected by the mandatory CSR rule. Columns 1-4 in Panel A present results using only Affected and its components, CSR Rule and their interaction. Columns 1-4 in Panel B present results when including the full set of firm and bond control variables. Columns 1 and 5 present results when using all three possible criteria, i.e. profit, net worth, and sales, to determine whether a firm is subject to mandatory CSR spending. The remaining columns present results when using the three criteria individually. All regressions are run with industry fixed effects using Fama-French 30 Industry classification. Standard errors in parentheses. The superscripts, ***,**, and * represent coefficients that are significant at the 1%, 5%, and 10% respectively.

Panel A

VARIABLES	(1) Yield	(2) Yield	(3) Yield	(4) Yield
CSR Rule	-1.465***	-1.332***	-1.163***	-1.013***
	(0.295)	(0.245)	(0.103)	(0.070)
Affected	-0.361			
	(0.257)			
Affected x CSR Rule	0.525*			
	(0.299)			
Affected_R1		-0.527**		
		(0.211)		
Affected_R1 x CSR Rule		0.380		
		(0.249)		
Affected_R2			-0.703***	
			(0.068)	
Affected_R2 x CSR Rule			0.352***	
			(0.116)	
Affected_R3				-0.541***
				(0.062)
Affected_R3 x CSR Rule				0.208**
				(0.095)
Constant	9.958***	10.117***	10.095***	9.859***
	(0.255)	(0.208)	(0.056)	(0.042)
Observations	3,405	3,407	3,407	3,407
R-squared	0.258	0.259	0.283	0.278
Industry	Yes	Yes	Yes	Yes

Panel B

VARIABLES	(1) Yield	(2) Yield	(3) Yield	(4) Yield
CSR Rule	-1.946***	-1.802***	-1.193***	-1.051***
	(0.351)	(0.271)	(0.103)	(0.067)
Affected	-0.417			
	(0.309)			
Affected x CSR Rule	1.063***			
	(0.354)			
Affected_R1		-0.593***		
		(0.223)		
Affected_R1 x CSR Rule		0.920***		
		(0.274)		
Affected_R2			-0.085	
			(0.081)	
Affected_R2 x CSR Rule			0.353***	
			(0.115)	
Affected_R3				0.371***
				(0.078)
Affected_R3 x CSR Rule				0.257***
				(0.088)
Size	-0.166***	-0.148***	-0.155***	-0.243***
	(0.029)	(0.028)	(0.032)	(0.031)
Tobin's Q	-0.108***	-0.110***	-0.112***	-0.097***
	(0.018)	(0.018)	(0.018)	(0.018)
Leverage	0.339**	0.360***	0.407***	0.750***
	(0.132)	(0.131)	(0.129)	(0.138)
Years of Maturity	0.006***	0.006***	0.006***	0.007***
	(0.001)	(0.001)	(0.001)	(0.001)
Credit Rank	-0.604***	-0.621***	-0.592***	-0.640***
	(0.044)	(0.045)	(0.044)	(0.044)
Constant	16.071***	16.200***	15.506***	16.164***
	(0.485)	(0.465)	(0.405)	(0.405)
Observations	2,975	2,978	2,978	2,978
R-squared	0.404	0.406	0.406	0.414
Industry	Yes	Yes	Yes	Yes

Table 4: Bond Yield-Spreads and the CSR Rule: Difference-in-Difference Regressions

This table shows results of a Difference-in-Difference specification on the determinants of the yield-spread for bonds issue by firms affected/un-affected by the mandatory CSR rule. Columns 1 presents results when using all three possible criteria, i.e. profit, net worth, and sales, to determine whether a firm is subject to mandatory CSR spending. The remaining columns present results when using the three criteria individually. All regressions are run with industry fixed effects using Fama-French 30 Industry classification. Standard errors in parentheses. The superscripts, ***,**, and * represent coefficients that are significant at the 1%, 5%, and 10% respectively.

VARIABLES	(1) Yield Sprd	(2) Yield Sprd	(3) Yield Sprd	(4) Yield Sprd
CSR Rule	-0.963*	-0.683	-0.415**	0.016
	(0.566)	(0.435)	(0.166)	(0.108)
Affected	-0.829*			
	(0.498)			
Affected x CSR Rule	1.159**			
	(0.569)			
Affected_R1		-0.673*		
		(0.358)		
Affected_R1 x CSR_Rule		0.882**		
		(0.441)		
Affected_R2			-0.116	
			(0.130)	
Affected_R2 x CSR_Rule			0.732***	
			(0.185)	
Affected_R3_neo				-0.128
				(0.127)
Affected_R3 x CSR_Rule				0.288**
				(0.143)
Size	-0.134***	-0.131***	-0.169***	-0.131***
	(0.047)	(0.045)	(0.052)	(0.050)
Tobin's Q	0.040	0.038	0.034	0.042
	(0.028)	(0.028)	(0.028)	(0.029)
Leverage	-0.519**	-0.535**	-0.502**	-0.498**
	(0.213)	(0.210)	(0.207)	(0.223)
Years of Maturity	0.003	0.003	0.003	0.003
	(0.002)	(0.002)	(0.002)	(0.002)
Credit Rank	-0.366***	-0.378***	-0.346***	-0.362***
	(0.071)	(0.072)	(0.071)	(0.072)
Constant	6.889***	6.808***	6.315***	6.070***
	(0.781)	(0.748)	(0.650)	(0.656)
Industry	Yes	Yes	Yes	Yes
Observations	2,975	2,978	2,978	2,978
R-squared	0.058	0.060	0.063	0.060

Table 5: Bond Yield-Spreads and the CSR Rule: Regression Discontinuity Results

This table presents results for the Regression Discontinuity design. All variables are winsorized at the 1% level. Superscripts ***, ** and * respectively denote statistical significant at the 1%, 5%, and 10% levels.

Sample Period	Method	Coef.	Std. Err.	z	P $>$ z	[95% Conf. Interval]	
Full Sample	Conventional	1.172**	0.555	2.111	0.035	0.084	2.260
PRECSR	Conventional	-4.219**	1.974	-2.137	0.033	-8.089	-.3495
POSTCSR	Conventional	1.60***	0.543	2.948	0.003	0.536	2.665

Table 6: Effect of Ownership Structure

This table shows results of a Difference-in-Difference specification on the determinants of the yield-spread for bonds issue by firms affected/un-affected by the mandatory CSR rule and classified by the safety rank of the bond. Columns 1 and 3 present results for bonds that are the safest and have the highest rating by ProwessDx. Columns 2 and 4 present results for bonds where the firms is owned by the government. Column 1 and 2 present results when using both Affected and Un-affected firms. Column 3 and 4 present results when using only the Affected firms. All regressions are run with industry fixed effects using Fama-French 30 Industry classification. Standard errors in parentheses. The superscripts, ***,**, and * represent coefficients that are significant at the 1%, 5%, and 10% respectively.

| VARIABLES	Yield Spread	Yield Spread	Yield Spread	Yield Spread	Yield Spread	Yield Spread
POSTCSR	-0.829	-0.846	-0.844	0.311***	0.109	0.450***
	(0.565)	(0.562)	(0.564)	(0.115)	(0.0796)	(0.153)
AFFECTED	-0.645	-0.674	-0.737			
	(0.498)	(0.495)	(0.497)			
AFFECTED xPOSTCSR	1.149**	0.959*	1.291**			
	(0.578)	(0.567)	(0.580)			
CONC_HLDG	0.00879			-0.00915		
	(0.0996)			(0.101)		
GOVT_OWNED		0.292**			0.297**	
		(0.133)			(0.133)	
BG			-0.237*			-0.254**
			(0.124)			(0.126)
AFFECTEDxPOSTCSR xCONC_HLDG	-0.171					
	(0.146)					
AFFECTEDxPOSTCSR xGOVT_OWNED		0.689***				
		(0.186)				
AFFECTED xPOSTCSRxBG			-0.302*			
			(0.173)			
POSTCSRx GOVT_OWNED				-0.158		
				(0.147)		
POSTCSRx CONC_HLDG					0.699***	
					(0.186)	
POSTCSRxBG						-0.310*
						(0.174)
SIZE	-0.115**	-0.143***	-0.107**	-0.108**	-0.126**	-0.088*
	(0.0458)	(0.0459)	(0.0459)	(0.0515)	(0.0514)	(0.0515)
TOBINQ	-0.002	0.084***	0.047	-0.002	0.086***	0.049*
	(0.0273)	(0.0301)	(0.0291)	(0.0275)	(0.0303)	(0.0294)
LEVERAGE	-0.391**	-0.114	-0.178	-0.349	-0.0271	-0.0855
	(0.197)	(0.198)	(0.200)	(0.214)	(0.215)	(0.218)
MATURITY	0.00349	0.00231	0.00250	0.00390	0.00268	0.00282
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
CR	-0.393***	-0.463***	-0.422***	-0.381***	-0.463***	-0.426***
	(0.0663)	(0.0661)	(0.0661)	(0.0724)	(0.0723)	(0.0723)
Constant	6.752***	7.162***	6.962***	5.941***	6.282***	6.045***
	(0.718)	(0.715)	(0.723)	(0.606)	(0.604)	(0.611)
Sample	Full	Full	Full	Affected	Affected	Affected
Observations	2978	2978	2978	2922	2922	2922
R-squared	0.027	0.039	0.032	0.023	0.036	0.029

Table 7: Effect of Corporate Governance

This table shows results of a Diff-in-Diff specification of the yield-spread for bonds issue by firms affected/un-affected by the mandatory CSR rule and classified by the issuers governance characteristics. We use two governance dummies, BI that is equal to one if the firm has above median Board Independence or otherwise zero and BIG4 that is equal to one is the firm is audited by one of the four multinational auditing firm or otherwise zero. Columns 1 and 3 present results when using BI, Columns 2 and 4 present results when using BIG4, respectively. Columns 1 2 present results when using the full sample. Columns 3 and 4 present results when using only AFFECTED firms. All regressions are run with industry fixed effects using Fama-French 30 Industry classification. Standard errors in parentheses. The superscripts, ***,**, and * represent coefficients that are significant at the 1%, 5%, and 10% respectively.

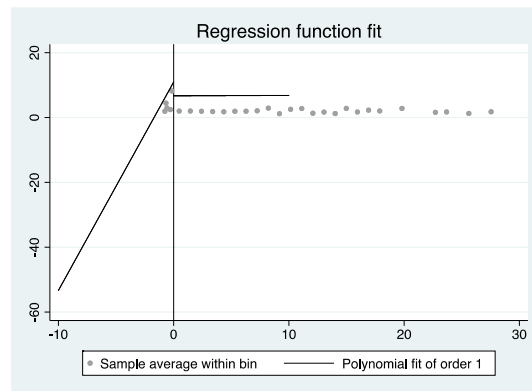| VARIABLES	Yield Spread	Yield Spread	Yield Spread	Yield Spread
POSTCSR	-0.811	-0.934*	0.698***	0.371***
	(0.561)	(0.564)	(0.107)	(0.0901)
AFFECTED	-0.651	-0.702		
	(0.494)	(0.496)		
AFFECTED xPOSTCSR	1.516***	1.306**		
	(0.570)	(0.570)		
BI	0.003		-0.0142	
	(0.0934)		(0.095)	
BIG4		-0.115		-0.110
		(0.098)		(0.099)
AFFECTED xPOSTCSRxBI	-0.785***			
	(0.146)			
AFFECTED xPOSTCSRxBIG4		-0.456***		
		(0.149)		
POSTCSR xBI			-0.769***	
			(0.147)	
POSTCSR xBIG4				-0.458***
				(0.150)
SIZE	-0.128***	-0.109**	-0.119**	-0.097*
	(0.046)	(0.046)	(0.051)	(0.051)
TOBINQ	0.059**	0.0259	0.060**	0.0257
	(0.028)	(0.028)	(0.028)	(0.028)
LEVERAGE	-0.366*	-0.403**	-0.312	-0.342
	(0.194)	(0.195)	(0.210)	(0.211)
MATURITY	0.0020	0.0022	0.0025	0.0026
	(0.0023)	(0.0024)	(0.002)	(0.002)
CreditRank	-0.432***	-0.449***	-0.425***	-0.445***
	(0.0655)	(0.0662)	(0.0715)	(0.072)
CONSTANT	7.018***	7.175***	6.211***	6.300***
	(0.716)	(0.718)	(0.605)	(0.609)
Sample	Full	Full	Affected	Affected
Observations	2978	2978	2922	2922
R-squared	0.04	0.034	0.038	0.031

Figure 1: Regression Discontinuity Plots

This figure shows the regression discontinuity plots for the yield on bonds in the PRECSR period 2009-2013 and the POSTCSR period from 2014-2017. Firms to the right of the cutoff value 0 subject to mandatory CSR spending and firms to the left of the cutoff value 0 are not subject to the mandate. Panel A presents the plot for the full sample period, Panel B presents the plot for the PRECSR period and Panel C presents the plot for the POSTCSR period.

Panel A: Full Sample
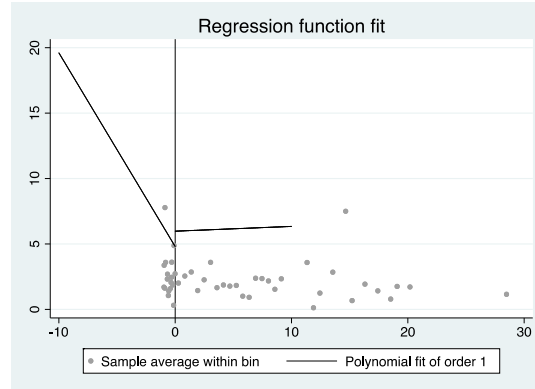
Panel B: Pre CSR Period.

Panel B: Post CSR Period