# Debt Markets Retort to Mandatory Corporate Social Responsibility[*]

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## Abstract

How do debt markets respond to mandatory corporate social responsibility (CSR)? Using the mandatory CSR rule under the Indian Companies Act 2013 as an identification design, I find that the yield spread increases by 103 basis points for affected firms compared to others. As a result, these firms reduce the issuance amount. Using a structural framework, I show that mandatory CSR diminishes a firm's expected cash flow, which causes the cost of debt to increase. The increased spread shrinks for firms with good governance, business group-affiliated firms, and firms that disclose information on non-government organizations used for dispensing CSR funds.

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**Keywords**: Corporate Social Responsibility (CSR), Debt Markets, Indian Companies Act 2013, Free Cash Flow.

## 1. Introduction

Over decades, scholars across disciplines have proposed and discussed myriad 'objectives' of the firm, including (but not limited to) shareholder value maximization (Berle (1932); Friedman (1970); Jensen and Meckling (1976)), stakeholder theory (Freeman (1984)), long-term firm value maximization (Jensen (2002)), shareholder welfare maximization (Hart and Zingales (2017)), and shareholder wealth maximization with stakeholder interests (Bhagat and Hubbard (2020); Edmans (2020)). One extreme is about shareholder primacy and other is about stakeholder capitalism (or conscious capitalism (Aswani, Bilokha, Cheng, and Cole (2022)). The latter advocates corporate social responsibility (CSR) and have long argued for a socially responsible strategy that includes a wide variety of participants, such as employees, the community, the environment and lenders.[1] According to a recent report by the Global Sustainable Investment Alliance, investments in socially responsible assets increased to 35.3 trillion USD by 2020. Companies' management teams are also embracing this change, as reflected in the PwC Global CEO Survey 2016, which reveals that 64% of CEOs believe CSR is critical to their business rather than being a stand-alone program.

While CSR diverts cash flows from bondholders and stockholders, the argument is that firms should view CSR as a value-enhancing corporate strategy (e.g., Freeman, 1984), as CSR engenders benefits by way of increased goodwill that enhances productivity and firm performance. The net impact on shareholders and bondholders is an empirical issue. Extensive literature has examined the net impact of CSR on stock markets (Flammer (2015); Machiraju and Rajgopal (2017)). However, I focus my analysis on the impact of CSR on bond markets, as the impact of CSR on bondholders can differ from the impact of CSR on stockholders and lends additional insight. The diverting cash flow to CSR activities before interest paid has direct impact on bond holders capital; however even using cash flow from net income for such activities is a threat to future cash flows. Past papers in this area (see Amiraslani, Lins, Servaes, and Tamayo (2022) and Goss and Roberts (2011)) mainly focused on voluntary CSR and examine the channel of CSR's impact on contamparenous cash flows. Current study contribute towards this growing literature at two aspects- First, by providing the causal relation between CSR and bond pricing and second, by showing that CSR impacts bond pricing also through misallocating the capital in activities which hampers future cash flow.

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[1] For details, refer the survey paper Kitzmueller and Shimshack (2012).

The problem with voluntary CSR is of self-selection and, therefore, fails to provide the causal inference of CSR's impact on a firm's behavior or investments. Therefore, to resolve the self-selection and reverse causality issues in analyzing the impact of CSR on debt markets, I use a unique setting in India. The Indian government incorporated clause 135 (henceforth, the CSR rule) in the Indian Companies Act 2013, mandating minimum amounts of CSR spending for profitable firms. The rule imposes that a firm that has either (1) a net worth of at least 83 million USD (about 5 billion Indian rupees (INR)), (2) sales of at least 167 million USD (about 10 billion INR), or (3) a net profit of at least 0.83 million USD (about 50 million INR) is required to spend 2% of their average net profit, calculated over a three-year period, on CSR related activities. The approved CSR activities include hunger and poverty eradication, promoting women's empowerment, furthering environmental sustainability, and contributing to the prime minister's national relief fund. This policy change in India presents a natural setting for examining the causal impact of CSR on bondholders.

The exogenous experiment triggered by the mandate by the Indian government requires firms to use some of their profits (i.e., after they meet all their contractual obligations) to pay for CSR. Arguably, therefore, CSR spending does not directly affect a firm's debt payments. On the other hand, diverting cash flows toward CSR activities can reduce the capital available for future investments. My research design focuses on the tradeoffs in the long-term impacts of CSR. Implicit in the arguments for the positive benefits of CSR is that the beneficial effect for a firm to be seen as socially responsible accrues over the long term as stakeholders perceive firms as doing good. On the other hand, any diversion of funds towards CSR can lead to investment distortions that make long-term cash flows riskier. Examining the impact of mandatory CSR spending on bondholders allows discerning which of these effects dominates. This augments the analysis that examines the impact of mandatory CSR on stockholders.

I obtain data on bond issues by Indian firms in the three years before and after the assented date of 29th August 2013 from the SDC Platinum Fixed-Income Issues database. I ignore all preferred stock issues and bonds with contingent features such as step-up and convertible bonds. I augment the bond issue data with company data from CMIE's ProwessDx database. The ProwessDx database is widely used in studies on Indian markets—for example, see Bertrand,

Mehta, and Mullainathan (2002); Gopalan, Nanda, and Seru (2007); Khanna and Palepu (2000); and Manchiraju and Rajgopal (2017)—to conduct research on large samples of Indian firms. As the main identifier (International Securities Identification Numbering (ISIN)) is missing for many Indian firms in SDC, I first merge SDC with ProwdessDx based on the firm name using the fuzzy matching algorithm and then manually confirmed the matching. I can match data for 183 firms with 2,413 bond issues over the six-year period from 30th August 2010 to 30th August 2016.

Using the difference-in-differences specification, I find that, post-CSR rule, the yield spread of bonds by affected firms increased by 103 basis points compared to bonds of unaffected firms. These results are robust to bond characteristics, firm characteristics, and industry-fixed effects. To confirm these results further, I exercise multi-dimension regression discontinuity design (MRDD) to capture the differential effects of the rule on firms that meet the CSR cutoff to those that miss the CSR cutoff by a small margin. Any CSR effects are likely to be the sharpest between these two sets of firms. I find that the yield and yield spreads for bonds issued by firms that just met the criteria are higher than the yield and yield spreads for bonds that just missed the CSR criteria. The impact of mandatory CSR on yield-spreads is positive and significant. To explore this further, I individually examine the impact of each of the three criteria used to determine whether a firm is subject to the CSR mandate. I find that bonds issued by firms that were subject to mandatory CSR spending based on the individual criteria also had higher yields and yield spreads.

My findings indicate that mandatory CSR has a detrimental effect on the bond market and, therefore, the negative effects of CSR dominate. Mandatory CSR reduces firms' flexibility in using their cash flows to generate future cash flows to meet debt obligations. Such a lack of flexibility has a negative impact on the market's perceptions of bond value, leading to a higher cost of capital for firms. Further, 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 give private benefits to insiders. Thus, mandatory CSR may also exacerbate moral hazard between insider managers and shareholders.

Despite the fact that I report increases in the yield and yield spread of the affected firms' post-CSR rule, I do not elaborate on the channel though which it happens. Using a structured model of two stage least square (2SLS) regression, I find that the mandatory CSR rule affected the yield

and yield spread through future free cash flow (FCF). The expenditure of 2% profit on CSR activities declines the FCF, which increases the yield and yield spread.

To examine the differential treatment of the affected firms post-CSR rule, I collect detailed activity-level CSR expenditure data and information on the agencies used for dispensing these expenditures from the National Stock Exchange (NSE) Infobase. This database helped determine whether the affected firms disseminating the information on items such as deviation of CSR expenditure from the required and on agencies (in-house or third party) used for dispensing CSR expenditure.

I extend the 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, I analyze the cross-section of affected firms in these tests. In my first set of extensions, I contrast bonds issued by firms with concentrated shareholdings (bonds issued by firms affiliated with business groups) and bonds issued by government-owned firms. Promoter holdings in India represent the stakes in a firm held by the original founder/promoter of the firm, and many firms have a high fraction of shares held by the original founder. I find that high promoters holding or government ownership increase the yield spread, further implying that such firms are not as efficient in strategically using their mandatory CSR spending, whereas business group-affiliated firms have a lower yield spread. Firms belonging to business groups can coordinate their CSR spending with other firms in the group, thereby maximizing potential benefits. Group affiliation also increases a firm's resources and expertise, allowing it to better manage its CSR spending. In my second set of extensions, I contrast firms with good governance and poor governance. I find that yield spreads are lower for bonds issued by firms that have robust external governance either through a large fraction of independent directors or through appointing BIG4 auditors. These results suggest better governed companies are better able to plan their CSR spending and maximize the strategic benefits of CSR activity.

In summary, my findings are consistent with the idea that CSR reduces the cash available to firms to meet obligations and increases the perceived costs of financial distress. Nevertheless, good governance, group affiliation, and transparency about agencies used for dispensing CSR expenditures mitigate the negative impact of mandatory CSR.

**Contribution**: This paper contributes to the literature on the relationship between CSR and capital markets. My findings augment the results of Manchiraju and Rajgopal (2017), who showed that mandatory CSR activity reduces stockholders' wealth. In addition, unlike Amiraslani et al. (2022), who use voluntary CSR and show no relation between CSR and bond spreads, I provide evidence that when CSR becomes mandatory, the bond spread increases. Dharmapala and Khanna (2018) show that, under the mandatory CSR rule, affected firms pivoted their CSR expenditure around the cut-off. I substantiate their findings by showing a steep discontinuity in yield and yield spread around the cut-off. By showing the role of strong corporate governance and reduction in information asymmetry by disclosing the details on agencies in-house or third party) used for dispensing CSR expenditure, I also contribute to this literatures. The rest of this paper is organized as follows. The next section provides a brief review of the literature. Section 3 describes my data and methodology. Section 4 presents my results, and Section 5 offers the conclusions.

## 2. Relevant Literature

The impact of CSR on the value provided to insiders of a firm has been a subject of much debate in the literature. As CSR diverts the cash flows of a firm to other *stakeholders*, it is a negative externality for shareholders and bondholders. Adam Smith and Milton Friedman find little use for CSR and argue for shareholder primacy and 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) argues that CSR engenders benefits for the shareholders and bondholders indirectly by way of increased goodwill, which 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 create a solution where everyone benefits for both society and the firm.[2] In recent works, Edmans (2020) posits that by investing in stakeholders, a company doesn't have to reduce the investors' slice but rather work on increasing the firm value,

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[2] Kitzmueller and Shimshack (2012) provide a comprehensive survey of research on CSR and its impact for firms and stakeholders.

ultimately benefiting investors. A company may improve working conditions out of genuine concern for its employees, yet these employees become more motivated and productive.

Whether CSR is a solely 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) checked three possibilities: CSR as charity, CSR as investment, and CSR as a signal of a firm's future performance. Using the sample of Russell 1000 firms over the sample period from 2002 to 2010, they report that firms undertake CSR expenditures when they anticipate stronger future financial performance (i.e., CSR is used as a signaling mechanism for a firm's future performance). Martin and Moser (2016) explain the relation between CSR and firm performance through experimental economics. They conducted an experiment with 90 participants, from which they randomly chose groups of five participants. Of this group of five people, one acted as manager, another acted as a current shareholder, and the remaining three acted as potential investors. The reactions of investors were noted when the manager disclosed a report on green investments and details on the level of carbon emissions and other pollutants. They found that potential investors respond more positively to voluntary disclosures of green investments. They also found that managers and shareholders are willing to bear the marginal cost of a project in order to provide societal benefits.

While these studies have intuitive results, it is difficult to infer causality. The level of CSR activity is an endogenous choice of the firm, and it is likely that well-performing firms engage in CSR activity. Therefore, it is hard to disentangle the effect of CSR from the strategic investment behavior of management. Several researchers have tried to resolve the endogeneity issue and the associated reverse causality problems. Flammer (2015) used data on shareholder-sponsored CSR proposals that passed or failed by a small margin of votes at annual meetings as an exogenous shock. She calculated 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 difference-in-differences and regression discontinuity design (RDD) techniques, she found that CSR significantly increases firm performance. Similarly, Lins, Servaes and Tamayo (2017) showed 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 (2013) showed that firms with CSR activities have positive sell-side analysts'

recommendations. Bushee and Noe (2000) showed that CSR firms have higher abnormal returns, and Deng, Kang and Low (2013) showed that they have higher long-term post-acquisition returns.

Researchers have also used mandates on the disclosure of CSR to resolve endogeneity concerns. Chen, Hung and Wang (2017) examined how mandatory CSR disclosure impacts firm performance in China. China made CSR disclosure mandatory for a subset of firms in 2008. Using this as an exogenous shock, the authors examined how CSR activities affect the profitability and social externalities of firms listed on the Shanghai Stock Exchange and Shenzhen Stock Exchange from 2006-2011. They found that treatment firms experience a decrease in return on assets (ROA), return on equity (ROE), and sales revenue and increases in operating costs and impairment charges. On the other hand, the industrial wastewater discharge and the level of $SO_2$ emissions were reduced after the CSR disclosure mandate.

Manchiraju and Rajgopal (2017) used the unique setting of mandatory disclosure in India to examine the impact on shareholder value. Clause 135 of the Indian Companies Act 2013 requires firms that cross any of the three individual thresholds—(1) a net worth of 83 million USD or more, (2) sales of 167 million USD or more or (3) a net profit of 0.83 million USD or more—to spend 2% of their average net profit, on CSR-related activities. The clause was ratified and passed by the Lok Sabha of the Indian Parliament in 2012. Manchiraju and Rajgopal (2017) found a significant negative abnormal return associated with the passage of the CSR rule. The companies that advertise their CSR activity do not have negative abnormal returns. They concluded that mandatory CSR has a negative impact on shareholder value. Using the hand-collected data on CSR expenditure, Dharmpala and Khanna (2018) show that the firms pivot their CSR expenditure around the cut-off i.e., firms initially spending less than 2% increased their CSR activity, large firms initially spending more than 2% reduced their CSR expenditures. Using the same exogenous shock, Rajgopal and Tantri (2022) confirm the finding of Dharmapala and Khanna (2018) that firms that voluntarily engaged in CSR before the mandate reduce their CSR spending afterward. They also suggest that despite increasing advertisement expenditure likely to offset the lost signaling value of voluntary CSR, stock prices and operating performance of former voluntary CSR spenders who qualify under the law decline.

All the articles cited above examine the impact on shareholders, but it would also be useful to examine the effect on bondholders. Therefore, I focus on bond markets for several reasons. If firms spend 2% of their profits on CSR, they will have fewer funds available for reinvestment in

the firm, potentially making debt riskier. However, this can be offset, as argued by many researchers, because it engenders goodwill from customers, employees and society. Oikonomou, Brooks, and Pavelin (2014) and Cooper and Uzun (2015) examined the impact of CSR on credit ratings and the cost of debt. They found that if a firm engages in CSR activities, its credit rating increases and its cost of debt decreases. Goss and Roberts (2011) similarly found that CSR firms have a lower cost of bank loans than non-CSR firms. The current study is also close to Amiraslani, et al. (2022), which concludes that generally there is no relation between CSR (proxy as social capital) and bond spreads. However, high-CSR firms, during the 2008-2009 financial crisis, benefited from lower bond spreads. As in the case of studies on the impact of CSR on shareholder value, these studies are subject to the endogeneity problem and reverse causality. Current study explains the causal relation between CSR and debt markets, using the CSR rule in the Indian Companies Act 2013 as an exogenous shock.

**3. Data**

The information on Indian bond issuances is obtained from the SDC Platinum database. As shown in Table 1, there were 6,607 bond issues in the database between January 1, 2010, and December 31, 2016. I exclude from my sample debentures, fixed/straight bonds, secure bond/debentures, subordinate bond/debentures, zero-coupon bond/debentures, preferred stocks and bonds that have contingent features.

I match the issuer names obtained from SDC Platinum to firm names in the Center for Monitoring Indian Economy (CMIE) ProwessDx database. As there is no common identifier between SDC and the ProwessDx database, I match them based on the firm name using a combination of fuzzy matching and manual verification. I am able to match data for 3,737 bond issues. I next eliminate bond issues for which the offer yield to maturity is not reported, which reduces my sample size to 3,281.

The specific date on which the president signed the bill into law after it was passed by the two legislative bodies, the Lok Sabha (Lower House) and the Rajya Sabha (Upper House), was 29th Aug 2013. I narrow my data period to the three years prior to this assented date (referred to as the pre-CSR period) and the three years after the assented date (referred to as the post-CSR period). I eliminate 868 bond issues outside these periods. As Table 1 shows, my final sample comprises 2,413 bonds issued by 183 unique firms.

*3.1. Bond Issues by Affected and Unaffected Firms*

Table 2, Panel A, shows the yearly distribution of the bond issues. There is no monotonic pattern in the number of bond issues each year. Considering the CSR Mandate, which was passed on 29th August 2013, I define the three-year period from 30th August 2010 to 28th August 2013 as the pre-CSR period and the three-year period from 29th August 2013 to 30th August 2016 as the post-CSR period. A total of 1,434 bonds were issued in the pre-CSR period. A total of 979 bonds were issued in the post-CSR period.

Firms are subject to the CSR mandates if they meet any of the following three criteria: (1) a net worth of 83 million USD (about 5 billion INR) or more, (2) sales of 167 million USD (about 10 billion INR) or more or (3) a net profit of 0.83 million USD (about 50 million INR) or more. Therefore, I begin by constructing four continuous variables (R1, R2, and R3) centered on the cutoff threshold for profit, net worth, and sales, respectively, and express them as percentage differences from the cutoff threshold.

$$R1 = \frac{\text{PRETAX INCOME-0.83}}{0.83}$$

$$R2 = \frac{\text{NET WORTH - 83}}{83} \qquad [1]$$

$$R3 = \frac{\text{TOTAL REVENUE-167}}{167}$$

All values are in USD.

I next create a measure M that identifies affected firms based on meeting one of the three criteria as follows: To capture all three criteria under the one construct, I 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 the values for all three individual variables are negative. The measure M is computed as follows:

$$M = \begin{cases} \min(R1, R2, R3) & \text{if } R1 \geq 0, R2 \geq 0, \text{and } R3 \geq 0, \\ \min(R1, R2) & \text{if } R1 \geq 0, R2 \geq 0, \text{and } R3 < 0 \\ \min(R2, R3) & \text{if } R1 < 0, R2 \geq 0, \text{and } R3 \geq 0 \\ \min(R1, R3) & \text{if } R1 \geq 0, R2 < 0, \text{and } R3 \geq 0 \\ \max(R1, R2, R3) & \text{if } R1 < 0, R2 < 0, \text{and } R3 < 0 \end{cases} \qquad [2]$$

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The calculation of *M* is inherently non-linear in that I need to determine the minimum positive value if at least one of the three variables is positive and the maximum negative value if all three variables are negative. The algorithm above selects the minimum positive value if any of the three metrics is positive and switches to the maximum negative value if all three measures are negative.

Using the above metrics, I develop the following four variables to designate firms affected by the CSR rule:

Affected = 1          if M>0, otherwise 0                          [3]
Affected_R1 = 1       if R1>0, otherwise 0
Affected_R2 = 1       if R2>0, otherwise 0
Affected_R3 = 1       if R3>0, otherwise 0

*M* and *Affected* are the primary measures I use to reflect the requirements of the 2013 Act. For robustness, I run my empirical tests using the collective criterion M and the component-specific criteria R1, R2, and R3. Difference-in-differences and RDD tests require that the post-CSR treatment effects are truly exogenous. While managers have discretion regarding reported income, they are unlikely able to simultaneously manipulate the total revenue of the firm, its net worth and its total profit.

Table 2, Panel A, shows data on the total amount of capital raised by bond issuers. The average bond issue by affected firms in 2010 was USD 96 million and peaked at USD 98.595 million in 2014 before falling to USD 77.776 million by 2016. None of the unaffected firms issued bonds in 2010, but the value of bonds issued increased from USD 2.097 million in 2011 to USD 84.247 million in 2016. Surprisingly, the average size of a bond issued by unaffected firms in 2015 and 2016 is greater than that of affected firms.

Table 2, Panel B, shows the distribution of bonds issued by affected/unaffected firms based on the criteria described above. There are 2,352 bonds issued by affected firms and 61 bonds issued by firms not affected by the mandatory CSR spending requirement. There are 3,306 bonds issued by firms affected by the net profit criteria, 2,576 bonds issued by firms affected by the net worth criteria, and 492 bonds issued by firms affected by the sales criteria. Net profit and net worth criteria are the primary criteria for determining whether a firm is subject to mandatory CSR spending.

*3.2. Control Variables: Descriptive Statistics*

The dependent variables for this study are *Yield* (measured as the offer yield to maturity), *Yield Spread* (measured as the offer yield to maturity minus a reference Treasury bill rate), and the amount issued (measured as the principal amount issued, scaled by sale). The maturity of reference Treasury bills is based on the frequency of bonds in the sample and their maturity:

$$Maturity_{Ref,Tbill} = \frac{1}{N}\sum(N_i \times Maturity_i) \qquad [4]$$

$Maturity_{Ref,Tbill}$ for the sample is four years, and therefore, the reference treasury bill rate is the interest rate of the treasury bill with four years of maturity.[3] Table 3 presents data on the yield, yield spread, amount issued and other bond and issuer characteristics for the bonds and issuers in the sample. As shown in the table, the means (standard deviation) of *Yield* and *Yield Spread* are 9.558% (1.317%) and 1.876% (1.473%).

Table 3 presents the summary statistics for the control variables used in the analysis: *Size, Leverage, Tobin's Q, Credit Rank,* and *Maturity*. The mean (median) *Yield* of the bond issues is 9.558% (9.550%). The mean (median) *Yield Spread* is 1.876% (1.464%). These data suggest the cost of capital for firms in India is relatively high, but most of it is due to the base level of interest rates in the economy rather than the high credit spreads of bond issuers. *Firm Size*, *Leverage*, and *Tobin's Q* are calculated as the log of total assets, the ratio of long-term debt to total assets, and the ratio of the market value of equity plus the value of long-term debt to the book value of assets, respectively, and are for the lagged fiscal year. All three variables were winsorized at the 1% level. The mean (median) *Tobin's Q* level is 2.218 (1.938), indicating that bond issuers have strong growth potential. *Credit Rank* is a rank for the securities rating grades assigned based on ratings given by different agencies. Three rating agencies (*CARE, ICRA*, and *CRISIL*) dominate the market and rate various corporate securities. ProwessDx provides a composite rating grade that considers ratings from all three rating agencies and ranks the bond in terms of safety in eight categories: highest safety, high safety, moderate safety, adequate safety, inadequate safety, substantial risk, high risk, and default. I convert these rating grades into ranks from 8 (highest safety) to 2 (high

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[3] As an alternative approach, I also determine the reference T-Bill rate by matching the maturity of a bond to the maturity of the Treasury bond. Specifically, if the bond's maturity is one year or less, I use the one-year T-bill rate, if the security's maturity is five years but greater than one year, then I use the five-year treasury rate, and so on. I include perpetual bonds in my sample. As perpetual bonds do not have a maturity, I set the maturity of the bond to 100 years and the corresponding treasury rate to the longest maturity treasury security. The results are robust to the alternate approach of determining the reference Treasury bill rate.

risk) and develop a *Credit Rank* measure.[4] As seen in Table 3, the mean (median) credit rank is 7.465% (7.5%), with a standard deviation of 0.648%. Bond maturity (*Maturity*) is calculated as the difference between the issued year and the maturity year. The mean (median) *Maturity* is 6.598 (3.000) years, suggesting that Indian firms largely issue short-term bonds, with some firms issuing longer-term bonds.

I also create two measures to determine whether an issuer is a good CSR citizen, using data from NSE Infobase on the actual spending and the identification of the agency through which such funding is implemented. Table B1, Panel A (see Appendix B), shows an example of the CSR spending data for the top 10 firms with the highest CSR spending. These firms, such as Reliance Industries Ltd., NTPC Ltd., and Power Finance Corp. Ltd., each spend between $1.714-8.006 million on CSR activities. Table B1, Panel B (see Appendix B), lists the names of the agencies that the top 10 CSR spenders used for disbursing their CSR expenditures. Some firms (e.g., Reliance Industries) use an affiliated NGO entity (i.e., an in-house NGO). Other firms, such as HDFC, use external NGO firms.

Based on the amount of CSR spending and the channel used for this spending, I create two proxies for a firm being a good CSR citizen. *CSR Spend* captures the deviation of actual CSR expenditure from the expected value. This is measured as the ratio of the difference between actual CSR expenditure and the prescribed expenditure, divided by prescribed CSR expenditure per post-CSR. As Table 3, Panel C, shows, the mean (median) ratio of the deviation to the expected CSR spending is about 67% (100%). This clearly implies that the majority of the firms meet the expected CSR expenditure required by law. NSE Infobase also discloses the agencies that firms affected by the CSR mandate have used to channel their CSR efforts during the post-CSR period. I create an indicator variable (*NGO Indicator*) that takes a value of 1 if an issuer discloses the names of the agency involved and a value of 0 if the firm does not disclose details of the NGO they use or if the firm is not affected by the mandate in the post-CSR period.

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[4] I drop the observations if *Credit Rank* is 1 (default). There is only one such observation in my sample, which is for the bond issued by the firm Bhushan Steel.

## 4. Research Design

To examine the effect of post-CSR on a firm's cost of debt, I compare the yield to maturity of affected firms to those of unaffected firms in the pre-CSR and post-CSR periods. I use two comparison approaches: a difference-in-differences approach and an MRDD.

### 4.1. Difference-in-Differences Design

I evaluate the debt market reaction to the CSR rule by examining the changes in the yield and yield spread before and after the CSR rule came into effect. Yield and yield spread can change for unobservable reasons that affect firms that are subject to the CSR mandate and firms that are not. Therefore, I use a difference-in-differences approach to understand the relative yield changes for the two samples of firms using the following regression specification:

$$Y = \alpha + \beta_1 \text{ Affected} + \beta_2 \text{ CSR Rule} + \beta_3 \text{ Affected X CSR Rule} + \gamma \text{ X} + \delta_{Industry} + \epsilon \qquad [5]$$

Here, Y is *Yield*, *Yield Spread, and Amount Issued (scaled by sale)*.

The coefficient of interest is $\beta_3$, the coefficient on the interaction term *Affected X CSR Rule* 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; $\delta_{Industry}$ is industry fixed effects.

For robustness, I also use component-specific measures (*Affected_R1*, *Affected_R2*, and *Affected_R3*) and the respective interaction variables to capture their interaction with the CSR rule.

### 4.2. Multi-Dimensional Regression Discontinuity Design

I also use an RDD to document the effect of the CSR rule on yield-spreads. The RDD technique has been used in prior research—for example, Flammer (2015), Manchiraju and Rajgopal (2017) and Iliev (2010)—for resolving endogeneity concerns. For RDD to work, it is important that the critical value that causes a discontinuity is truly exogenous and cannot be manipulated. As the CSR mandate involves three separate thresholds, it is difficult for firms to manipulate all three to determine whether they fall under the minimum CSR spending requirement.

The inferences 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 and Lemieux, 2010).

My research setting differs from the basic RDD applications listed above in that the mandatory post-CSR relies on more than one rating score to determine treatment status. Therefore, I implement multi-dimensional RDD (MRDD). To estimate the treatment effects under MRDD, I follow the method of Reardon and Robinson (2012). Their methodology is simple, easy to use and reframes the multi-dimensional vector of rating scores into a single dimension for determining treatment status; hence, it ensures minimal loss of data in estimations.

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

$$Y = \alpha + F(M) + \gamma X + \epsilon \qquad [6]$$

Here, Y is *Yield* or *Yield Spread*. In the RD setting, there are two underlying relationships between Y and X, represented by E[Y (M>0)| X ] and E[Y (M<0)| X ]. However, by definition of the RD design, all individuals to the right of the cutoff (M=0) are exposed to treatment and all those to the left are denied treatment. Therefore, I only observed E[Y (M>0)| X ] to the right of the cutoff and E[Y (M<0)| X] to the left of the cutoff. I am interested in a discontinuity at cut-off, which can be computed as follows:

$$\text{Discontinuity at cut-off} = \lim_{h\downarrow 0} E[Y \mid X, M = 0 + \varepsilon] - \lim_{h\uparrow 0} E[Y \mid X, M = 0 - \varepsilon] \qquad [7]$$
$$= E[Y (M>0) - Y (M<0) \mid X, M = 0].$$

This is the average treatment effect at the cutoff (M=0), and h is the length of the bandwidth. The selection of the bandwidth h creates a trade-off between bias and precision. A wider bandwidth allows more data points to be included farther away from the cut-off (e.g., Imbens and Lemieux, 2008; Lee and Lemieux, 2010). Thus, for fitting a high-order polynomial, more data points may help capture non-linearities in the data more precisely in a flexible way. However, as I include more data away from the cut-off, I run the risk of including the effects of other events taking place away from the cut-off. To maintain the balance between precision and bias, I study discontinuity by running a quadratic polynomial regression that fits, in narrow bands (h=10) around the cut-off, one polynomial each on the left and the right of the cut-off, which in my case is M (=0).

I use the overall criteria M as the binding score in my regressions. I also use the individual components R1, R2, and R3 as alternate metrics for robustness. Firms to the right of the cut-off score of 0 are affected by the mandatory CSR rule, whereas firms to the left of 0 are unaffected. Discontinuity in yield spread at the cutoff captures the impact of the exogenously imposed mandate for minimum CSR spending.[5]

## 5. Empirical Results

In this section, I discuss the results of my difference-in-differences and RDD regressions. I first analyze the impact of the mandate, focusing only on the differences in the yield and yield spread before and after the introduction of the CSR act. I next evaluate the impact of the mandatory CSR requirement when including the full set of controls.

*5.1. Offer Yield to Maturity*

Table 4 shows the results for difference-in-differences regressions for the offering yield on the bonds in my sample. Eight models are presented. Panel A presents the results when controlling only for the post-CSR period and the interaction term between whether firms are affected and the post-CSR period. Column (1) uses the overall metric *Affected*, which uses the three criteria depending on net worth, profit, and sales, for determining whether the firm is affected by CSR rule. Columns (2)-(4) present the case when the individual measures alone are used to determine whether firms are affected by the post-CSR period. In these regressions, I replace the variable *Affected* with *Affected_R1*, *Affected_R2*, and *Affected_R3*. *CSR Rule* is equal to 1 for the post-CSR period and is equal to 0 in the pre-CSR period. All the regressions are run with industry-fixed effects based on the Fama-French 49 industry classifications.

Panel B augments the regressions in Panel A by including control variables. As in Panel A, Column (1) uses the overall metric *Affected* and in Columns (2)-(4), I replace *Affected* with the component metrics *Affected_R1*, *Affected_R2*, and *Affected_R3*. Again, all the regressions are run with industry-fixed effects based on the Fama-French 49 industry classification.

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

I find that the coefficient on *CSR Rule* was negative in all models. This suggests that yield spreads are somewhat lower for bonds issued after 29th Aug 2013 (post-CSR rule). The coefficients of the *Affected* measures are mostly negative, except for in Model 4 in Column A, where the sign on *Affected_R3* is positive and significant. It is not surprising that firms affected by the CSR mandate have a lower yield than unaffected firms, as affected firms are likely to be large and profitable and, therefore, have lower yields. However, my results also suggest that the variation in yields is only partially explained by bond and firm characteristics. The interaction variables between *Affected* and *Post-CSR*, my variable of interest that captures the impact of exogenously imposed CSR activity, is positive and statistically significant in all eight models. Thus, the impact of the *Post-CSR* is robust when using the overall measure M or the individual components R1, R2, or R3, in determining whether firms are affected by *Post-CSR*, both with and without controls. The magnitude of the coefficient varies and reflects the variations in the sample of firms that would be affected by *Post-CSR* 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), I find that *Yield* increases for firms affected by *Post-CSR* in the post-CSR period. This result is consistent with the notion that mandating CSR expenditures reduces future cash flows and increases the 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 large future cash flows and sufficient 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 *Credit Rank* is negative and significant. As expected, higher-rated firms have lower spreads.

### 5.2. Yield Spread

Another variable of interest is *Yield Spread*, defined as the difference between the offer yield to maturity (*Yield*) minus a reference Treasury bill. While I controlled for firm characteristics, interest rate variations within the pre- and post-CSR periods may affect the overall offering yield. Table 5 presents the results for the difference-in-differences regressions for *Yield Spread*.

The results for *Yield Spread* largely mimic the results for the Offering Yield. I find that the coefficients on the interaction variable between *CSR Rule* and *Affected* are positive and significant

in all regressions, suggesting that firms affected by the CSR mandate have higher yield spreads in the post-CSR period than in the pre-CSR period.

The economic significance of the *CSR Rule* can be examined by the coefficient on the interaction term (1.030), which is equal to 103 basis points. While there is a general decline after 2013, perhaps reflecting robust economic growth in India, the offsetting effects of mandatory CSR spending increased the cost of capital by 103 basis points.

The 103 basis-point increase in yield spread indicates the significant causal economic effect of the mandated CSR. Earlier studies have shown that voluntary CSR can have positive effects on bond markets, but such studies are subject to endogeneity and reverse causality issues. The empirical design in current study resolves these econometrics issues and enables an examination of the value impact on the bond markets of CSR spending.

These findings indicate 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 firms to meet their debt obligations. Such a 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 give private benefits to the insider manager. It is also plausible that all allowed types of CSR activity benefit 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 net present value (NPV) for the firm should be rejected by the firm. If such projects are mandated, shareholders and bondholders can lose value.

*5.3. Endogeneity Analysis: Mandatory CSR and Capital Expenditure*

Notwithstanding the intuitive results, the above analysis poses an interesting puzzle. The CSR mandate requires firms to spend 2% of their *reported profits* (i.e., their reported net income after paying all liabilities). Therefore, the mandate does not negatively affect a firm's ability to pay its debt obligations. Inherently, firms that are subject to the mandate are able to pay their debt obligations. Therefore, the question arises of why bondholders are negatively affected.

I argue that the impact of CSR spending on debt arises from the long-term effects of diverting firm cash flows to claimants outside the firm. Using a portion of earnings to spend on CSR reduces the amount available to make value-enhancing investments. If firms slow future

investments, it can lead to a reduction in future cash flows available to cover future contractual payments to debtholders.[6]

To investigate this possible channel by which CSR spending can affect yield spreads, I run a two-stage structural model. The first stage models the impact of the CSR mandate on future cash flows, and the second stage examines the impact of the predicted future free cash flow (FCF) on bond yields and spreads. The future FCF is computed as

$$FCF_{t+1} = Log \frac{(NOPAT_{t+1} - I_{t+1})}{AT_{t+1}}$$

Here, *NOPAT* is net operating profits after taxes, *I* is investment, and *AT* is total assets. All these measures are at t+1.

Table 7 shows the results of this test. Column (1) of Panel A shows that the coefficient of the interaction variable, *Affected X CSR Rule*, is negative and highly significant, implying that the cash flows for affected firms decrease significantly relative to unaffected firms in the post-CSR rule period when compared to the pre-CSR rule period. Column (2) shows that the coefficient of $FCF_{t+1}$ (fitted value) is also negative and highly significant, implying that the increased capital expenditure due to the CSR rule has a negative impact on cash flow, which, in turn, leads to an increase in yield spreads. Therefore, I conclude that even if CSR expenditure is part of profits, the negative impact on cash flows leads to higher credit spread.

*5.4. Regression Discontinuity Analysis*

I next examine the importance of the 2013 Company Act by using a regression discontinuity framework. Given that there is an exogenously imposed criteria for mandating a minimum CSR expenditure in the post-CSR period, I expect to see a discontinuity around the scale measures centered on zero. That is indeed what I find. Table 6 and Figure 2 present the results and plots for the binding score MRDD. As Table 6 shows, the coefficient on the RDD variable, post-CSR, is positive and highly statistically significant. Figure 1 shows the RDD plots. As Panel A of the figure shows, there is a discontinuity at M=0 in the overall sample. Yield spreads for bonds

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[6] Anecdotally, firms used CSR funds to invest in land and buildings and designate them as charitable spending (e.g., to support schools). This expenditure was perceived as an attempt by firms to retain funds that would have otherwise gone to outside stakeholders. Such activity led to a change in the CSR rules requiring that assets created using CSR funds should be transferred to a charitable company or a public authority, restricting a firm from directing CSR funds to benefit the firm rather than have social impact. https://www.business-standard.com/article/companies/companies-can-t-hold-capital-assets-created-with-csr-funds-experts-121012900026_1.html

issued by firms that just meet the CSR criteria are higher than the yield spreads for firms that just missed the criteria. Panel B and Panel C show similar RDD plots for bond issues in the pre-CSR period and post-CSR period, respectively. As shown in these panels, the increased spreads and discontinuity at M=0 only exist in the post-CSR period. Thus, the RDD test also confirm that yield spreads increased after the CSR rule was implemented.

## 6. Robustness Tests

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

The extensions I examine also serve another purpose. As Table 1, Panel B, shows, the sample of bonds sold by firms that are not affected by the post-CSR is relatively small; only 61 of 2,413 bond issues were sold by such firms. Therefore, I compare the subsamples of bonds sold by affected firms classified by exogenous variation in order to confirm my results and examine the cross-sectional characteristics of affected firms that impact bond yield spreads.

*6.1. Supply Side Impact: Impact of Mandatory CSR on the Amount Issued*

Next, I examine the impact of the CSR rule on the supply side (i.e., how affected and unaffected firms changed their behavior in raising debt from the market compared to the pre-rule period). It is crucial to investigate this matter because although the debt market punished the affected firms by increasing the yield spread, it is possible that affected firms inculcated this perception *ex-ante* and, therefore, raised less debt from the market. Table 6 provides the results of this test. The dependent variable is the scaled issue amount. Column (1) reports the regression results for the amount issued using *Affected* as the metric to indicate firms subject to the CSR rule. The coefficient of *Affected X CSR Rule* is -0.144 and marginally significant at 10%. These results imply that, compared to unaffected firms, the firms affected by the CSR rule reduced the amount of debt issued by 14.4%. Columns (2)-(4) report the results of firms affected by sales, net worth, or profits (i.e., when using *Affected_R1, Affected_R2, and Affected_R3*, respectively as metrics) to indicate firms that are affected by the CSR rule. My results are similar for each of these metrics. The results for control variables are as expected and in line with past literature.

*6.2. Balanced Sample: Nearest Neighbor Matching*

For a robustness check, I also report the results for a balanced sample, as a skewed distribution of observations for affected and unaffected bonds could influence the results. Following Larcker and Watts (2019), Flammer (2021), Aswani and Rajgopal (2022), and others, I use the nearest neighbor matching algorithm to match affected and unaffected bonds based on bond- and firm-level characteristics. Table 9 shows the results for a balanced sample. Panel A reports the distribution of affected and unaffected bonds in the pre- and post-rule periods. There are 28 affected bonds and seven unaffected bonds in the pre-CSR rule sample.

Similarly, there are 58 affected bonds and 21 unaffected bonds in the post-CSR rule sample. Panel B compares the co-variates between affected and unaffected bonds in the balanced sample. The t-statistics show that the sample is balanced in terms of *Tobin's Q, Maturity,* and *Credit Rank*. Lastly, Panel C reports the difference-in-differences results for the balanced sample, the coefficient of *Affected X CSR Rule* for *Yield* and *Yield Spread* are 2.404 and 1.277. Both are significant at 5%. These results confirm that debt holders demand higher yields from affected firms than from unaffected firms. I also examine the amount of debt issued by affected versus unaffected firms. I find that amount of debt issued by affected firms reduced post-CSR rule, but the coefficient is insignificant.

*6.3. CSR Spending Channel*

I find that there is heterogeneity in the yield spread of affected firms' post-CSR rule, and I believe it is due to opaqueness in CSR expenditure disbursement. To test this supposition, I gather data from the NSE Infobase on actual CSR spent, expected CSR, and information on agencies (in-house and third-party) used to pay for CSR expenditures. I use this data to compute *NGO Indicator* and *Amount Spent*. *NGO Indicator* is a dummy variable that takes a value of 1 if a firm provides information on the agency used to disburse CSR expenditure and otherwise takes a value of 0.[7] *Amount Spent* is the difference between the expected amount to be spent and the actual amount spent, scaled by the amount expected. Columns (1)-(3) of Table 10 show how the disclosure of information about NGOs impacts *Yield*, *Yield Spread*, and amount issued. The negative and significant coefficient of *NGO Indicator X Affected* implies that a firm gets a rebate in the debt market

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[7] I assign a value of 0 to *NGO Indicator* if NSE Infobase data are available but the names of direct (incumbent) and indirect (third-party) agencies are missing. However, if the NSE Infobase data are not available for the observations in the main sample, I do not include those observations in this analysis.

if it provides information about the NGOs used to distribute CSR expenditure. Furthermore, such firms issue more debt compared to others. [8]

Columns (4)-(6) show the regression results for *Amount Spent.* The results suggest that a firm that deviates from the expected CSR expenditure is punished by the debt market more than others. This implies that the capital market believes if a firm is affected by the CSR rule, then it should behave like a good CSR citizen.

*6.4 Shifting the CSR Rule to Commencement Date: Placebo Test*

The enactment date and commencement date are different. Therefore, an argument arises about whether the selection of date influences my results. To mitigate such concerns, I show that the results are immune to such changes (i.e., using the commencement date in spite of the enactment date. The results for this test are provided in Table 11. The coefficient of *CSR Rule (Comm.) x Affected* in Column (2) is 1.402, and it is significant at 5%. This implies that *Yield Spread* increases by 1.4% for bonds of affected firms relative to their unaffected counterparts. I find the same results for *Yield* (Column (1)) and amount issued (Column (3)).

*6.5. Ownership Structure*

I develop three measures to capture the differences in ownership structure across firms. First, I define a dummy variable (*Conc_Hldg*), which is equal to 1 if the shareholding of the firm's promoters[9] is greater than the median promoter holdings in the sample; otherwise 0. Second, I develop another dummy variable (*Govt_Owned*), which is equal to 1 if either the central Indian government or the governments of individual states have an equity stake in the firm; otherwise 0. Lastly, I develop a third dummy variable (*BG*), which is equal to 1 if the firm is affiliated with a business group. Group ownership can bring professional management and best practices to all their affiliates, 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, however, do not substantially impact CSR on debt markets. Therefore, I argue that group membership should allow

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[8]  I keep unaffected bonds in the analysis because some unaffected firms issue disburse CSR expenditure through the NGOs and firms provide information about it.

[9]  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.

firms to better deal with the externalities imposed by CSR. Thus, to examine the impact of group membership, I use *BG*.

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

I run two sets of models. In the first set of tests, I use all data and examine the coefficient on triple interaction terms between *Affected, CSR Rule*, and *Conc Hldg/Govt Owned/BG*. In my second set of models, I use only bonds issued by affected firms and examine the interaction terms between *Affected* and *Govt Owned/BG*. Table 12 presents the results of these tests. Columns (1)-(3) present the models for the concentration holding variable (*Conc_Hldg)*, Columns 4-6 present the results for the government owned variable (*Govt-Owned),* and Columns 7-9 present the results for the business group affiliates (*BG*). As before, I use several control variables and industry-fixed effects. I find that the coefficient in the triple interaction terms differs for the different ownership measures. For *Yield Spread*, the coefficient on the triple interaction term is positive and significant for high concentration holding (*Conc_Hldg*) and government ownership *(Govt_Owned)*, suggesting that such firms are not efficient in strategically using their mandatory CSR spending. The coefficient on the triple interaction term with *BG* is negative and significant. Firms belonging to business groups can coordinate their CSR spending with other firms in the group, thus maximizing their potential benefits. Group affiliation also increases the resources and expertise to better manage the CSR spending of the firm. The table also shows the coefficients on the dummies *Conc_Hldg*/*Govt Owned/BG* and the coefficients on the interaction term between *CSR Rule* and *Affected.* The latter coefficient is in line with the main results of the paper.

The coefficients on the interaction term *Affected X CSR Rule* in Models 1-3 capture the impact of the CSR rule on affected firms compared to unaffected firms as before. The coefficients on the treatment dummy (*Affected*) and treatment period (*CSR Rule*) range from 0.959-1.290%, indicating a significant increase in the yield-spreads of firms affected by the CSR rule. Models 4-6 only consider affected firms; therefore, the coefficient of *CSR Rule* captures both the trend in the interest rates and the impact of the CSR rule. The coefficient on *CSR Rule* in Models 4-6 and the sum of the coefficients on *CSR Rule* and the interaction term *Affected X CSR Rule* in Models 1-3

are similar in magnitude. The results in Models 4-6 also indicate that firms affected by the CSR rule experience increased yield spreads. The results for the other control variables are similar to my base case results.

*6.6. Corporate Governance*

I next examine the impact of corporate governance on the role of the CSR rule on yield-spreads. Firms with good corporate governance are expected to more strategically utilize the publicity value of CSR spending, including mandated CSR spending. Therefore, I expect that well-governed firms mitigate the overall negative impact of mandatory CSR.

To examine this hypothesis, I 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 an indicator of good corporate governance. Therefore, I create a dummy variable (*BI*) that is equal to 1 if the fraction of the board that is independent exceeds the median for the sample; otherwise 0. Next, I examine the impact of the quality of the firm's auditors. I develop another dummy variable (*BIG4*) that is equal to 1 if the auditing firm is an affiliate of multinational auditing firms Deloitte Touche, PWC, E &Y or KPMG and is otherwise 0. Foreign firms are not allowed to conduct auditing business in India due to the norms of the 1949 Chartered Accountants Act; therefore, these businesses conduct business through affiliates. I 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 13 presents the results of these 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. 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*, *CSR Rule* and *BI/BIG4* is -0.785%/-0.456%, which is statistically

significant. Similarly, the coefficients on *CSR Rule* and *BI/BIG4* in Models 4-6 are -0.769%/-0.458%, which are also statistically significant. 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 *Affected X CSR Rule* captures the impact of the CSR rule on affected firms. The coefficient is positive and statistically significant, consistent with my base case results. The sum of the coefficients on *CSR Rule* and the interaction term *Affected X CSR Rule* in Columns (1) and (2) is similar in magnitude and significance to the coefficient on *CSR Rule* 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 my base case results.

## 7. Conclusions

The debate on the rationale for corporation actions classified as CSR activities has become a focal point among corporations, policymakers, and academics. Existing studies largely focus on the impact of CSR on stock markets. In this paper, I examine the impact of CSR on bond offering yields and yield-spreads to better understand the broad impact of CSR. My empirical tests use bond data on Indian firms. The Indian Parliament passed the 2013 Company Act, which mandated a minimum of 2% CSR spending for firms that are considered profitable or that have large levels of sales or high net worth. CSR spending by Indian firms after 2013, therefore, is not a strategic choice made by managers but is mandated by regulation. This unique setting allows us to examine the causal impact of CSR spending without running into endogeneity concerns.

I use difference-in-differences analysis and regression discontinuity models to examine the impact of CSR spending on bond yields and yield-spreads. 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. My regression discontinuity analysis shows a positive and significant jump in yields and yield spreads from firms that just meet the criteria for mandatory spending compared to firms that just miss the criteria. These findings indicate that bond yield-spreads increased after 2013 (by about 103 basis points) for firms subject to the mandate. 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 diverting cash flows to outside claimants reduces funds for future profitable investments and can affect future cash flows. The reduction in future cash flows makes debt riskier,

leading to bondholders requiring higher yields on new issues. Mandatory CSR also exacerbates the moral hazard between insider managers and shareholders, which can be ameliorated by disclosures on how firms disburse CSR funds. It is also plausible that all allowed types of CSR activity benefit society without benefitting the firm. Socially conscious investments that have social benefits that cannot be monetized can be negative NPV and reduce firm value. These results reveal that good governance mitigates the negative effects of mandatory CSR requirements, as well-governed firms can target CSR spending more strategically.

This study implies that any mandatory approach to CSR by firms is costly for stockholders and bondholders. But it is important to note that my analysis is from the firm's perspective. It is entirely plausible that CSR activity benefits society without benefitting the firm. As noted by John, Nair and Senbet (2005), socially conscious investments can generate non-monetizeable benefits to society but can be negative-NPV projects for the firm. If mandated CSR leads to firms investing in such projects, society may benefit, but shareholders and bondholders will lose value. Much more research is needed to incorporate the benefits to society and explain the net impact of CSR.

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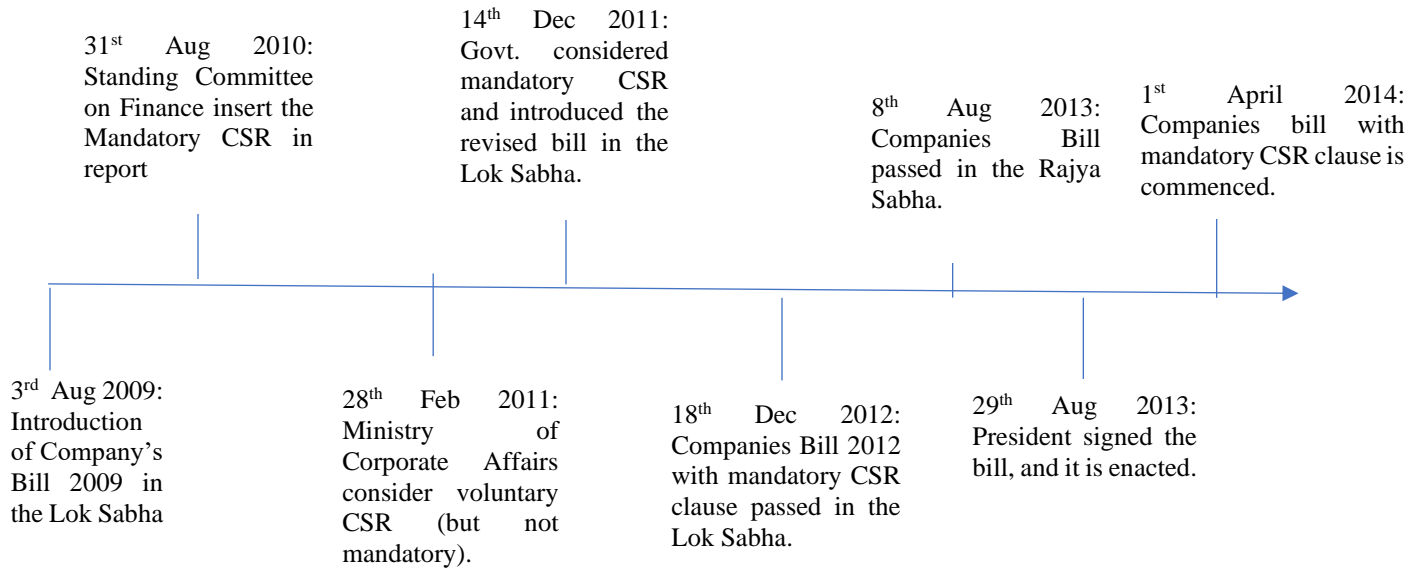
**Figure 1:** Timeline of the corporate social responsibility (CSR) rule implementation. This figure describes the events around the adoption of the CSR rule. The rule is discussed in section 135 of the Indian Companies Act 2013.

**Figure A**: Bond Yield    **Figure B**: Yield Spread
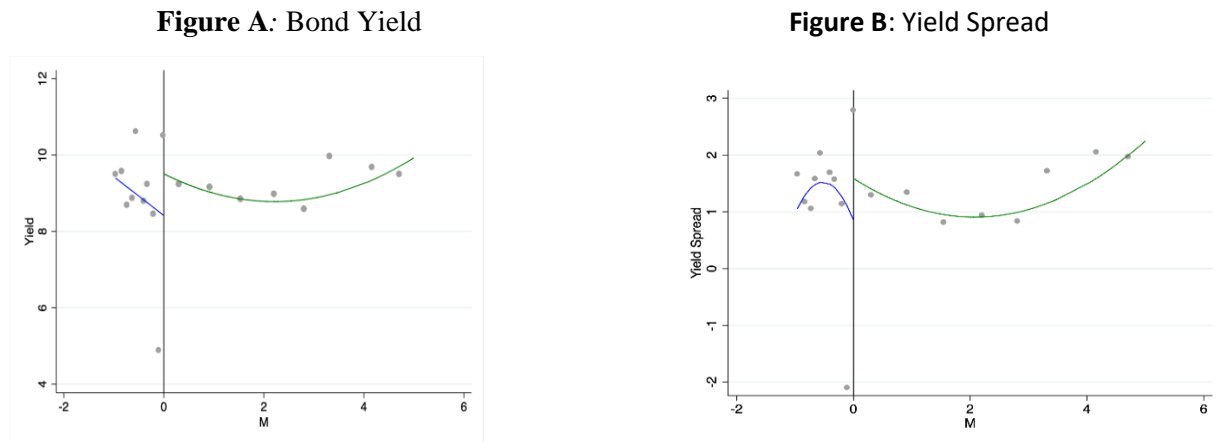


**Figure 2**: RDD Plots for *Yield* and *Yield Spread* post-enactment of corporate social responsibility (CSR) rule. These figures show the results of multi-dimensional regression discontinuity design (MRDD) in the post-CSR rule period. Figure A shows the MRDD graph of bond yield between affected and unaffected firms post-CSR rule. Figure B shows the MRDD graph of yield spread between affected and unaffected firms post-CSR rule. Refer to Appendix A for the detailed definitions of variables.

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**Table 1**: Sample Selection

This table reports the filtering criteria used to reach the sample data. The source of Indian bond data is SDC Platinum.

| Filtering Criteria | Issues |
|---|---|
| Number of Indian bonds issued between 1st Jan 2010 and 31st December 2016. | 6,607 |
| Manual matching with the Prowess CMIE Database. | 3,737 |
| Missing 'Offer Yield to Maturity' | 3,281 |
| Issued between 30th Aug 2010 and 31st Aug 2016 | 2,413 |

**Table 2**: Bond Issue Sample

This table reports the distribution of bond issuances. Panel A reports the yearly distribution of bond issuances and their average value (in USD) based on affected and unaffected firms. Panel B reports the distribution of bonds before and after the enactment of the corporate social responsibility (CSR) rule by affected and unaffected firms.

**Panel A**: Amounts Issued (Mean) by Affected and Unaffected Firms by Year

This panel reports the amount issued through bonds by affected and unaffected firms. Amounts issued are in million USD.

|  | (1) | (2) | (3) |
|---|---|---|---|
| Calendar Period | Number | Affected | Unaffected |
| 30$^{th}$ Aug 2010 – 31$^{st}$ Dec 2010 | 112 | 96.032 | - |
| 1$^{st}$ Jan 2011 – 31$^{st}$ Dec 2011 | 460 | 76.405 | 42.097 |
| 1$^{st}$ Jan 2012 – 31$^{st}$ Dec 2012 | 615 | 53.555 | 12.955 |
| 1$^{st}$ Jan 2013 – 31$^{st}$ Dec 2013 | 304 | 89.133 | 56.120 |
| 1$^{st}$ Jan 2014 – 31$^{st}$ Dec 2014 | 326 | 98.595 | 31.937 |
| 1$^{st}$ Jan 2015 – 31$^{st}$ Dec 2015 | 307 | 91.651 | 124.263 |
| 1$^{st}$ Jan 2016 – 29$^{th}$ Aug 2016 | 289 | 77.776 | 84.247 |
|  | 2,413 |  |  |

**Panel B**: Distribution of Bonds Issued Before and After the CSR Rule

This panel reports the 2x2 matrix of the number of affected and unaffected bonds in the pre- and post-CSR rule periods.

|  | (1) | (2) | (3) |
|---|---|---|---|
|  | Pre-Rule | Post-Rule | Total |
| Unaffected | 14 | 47 | 61 |
| Affected | 1,420 | 932 | 2,352 |
| Total | 1,434 | 979 | 2,413 |

**Table 3**: Summary Statistics

This table reports the summary statistics of the variables used for regression analysis. *Yield* is the offer yield to maturity. *Yield Spread* is the spread between offer yield and the Treasury bill rate. *Yield* and *Yield Spread* are measured in percentages. *Sales* is total firm sales in year t. *Net Profits* is net profit of a firm in year t. *Net Worth* is measured as the difference between current assets and current liabilities. *Size* is the logarithm of total assets. Sales, net profits, current assets, and current liabilities are in million USD. *Tobin's Q* is measured as the ratio of the market value of equity plus the value of long-term debt to the book value of assets. *Leverage* is measured as total debt by total assets. *Maturity* is the number of years in which a bond is going to mature. *Issued_Sale* is the amount issued scaled by sale. Amount issued and sale are in million USD. *Credit Rank* is the credit rating of a bond. *CSR Spend* is the excess CSR spending over the CSR expenditure required by law, expressed as a percentage of required spending. *NGO Indicator* is a dummy variable that takes a value of 1 if a firm provides information about the NGOs through which their CSR expenditures are implemented and is otherwise 0. Refer to Appendix A for detailed definitions of variables.

| Variable | (1) #N | (2) Mean | (3) Standard Deviation | (4) Median | (5) Min | (6) Max |
|---|---|---|---|---|---|---|
| Yield | 2413 | 9.558 | 1.317 | 9.550 | 4.316 | 13.400 |
| Yield Spread | 2413 | 1.876 | 1.473 | 1.464 | 0.111 | 8.200 |
| Issued_Sale | 2413 | 0.092 | 0.372 | 0.023 | 0.001 | 3.389 |
| Sale | 2413 | 2134.944 | 2417.945 | 1103.833 | 0.769 | 8656.865 |
| Net Profit | 2413 | 277.293 | 271.602 | 182.090 | -109.483 | 774.837 |
| Net Worth | 2413 | 1900.948 | 1776.322 | 1134.706 | -71.045 | 5188.324 |
| Size | 2413 | 8.830 | 1.431 | 8.912 | 3.330 | 11.685 |
| Tobin's Q | 2413 | 2.218 | 1.275 | 1.938 | 0.409 | 6.018 |
| Leverage | 2392 | 0.519 | 0.248 | 0.585 | 0.022 | 0.899 |
| Maturity | 2413 | 6.598 | 13.190 | 3.000 | 0.000 | 100.000 |
| Credit Rank | 2317 | 7.465 | 0.648 | 7.500 | 3.000 | 8.000 |
| CSR Spent | 744 | 0.670 | 0.342 | 0 | 1 | 744 |
| NGO Indicator | 979 | 0.285 | 0.452 | 0 | 0 | 1 |

**Table 4:** Bond Yields and Mandatory CSR

This table reports the regression results of offer yield on mandatory CSR. Panel A reports the results of the baseline regression. Panel B reports the results of the complete model (i.e., with all the controls). *CSR Rule* is a dummy variable that takes a value of 1 if a bond is issued post 29th August 2013; otherwise, it takes a value of 0. *Affected_R1* is a dummy variable that takes a value of 1 if the *R1* (i.e., percentage difference between the firm's net profit and 0.83 million USD) is positive; otherwise, it takes a value of 0. *Affected_R2* is a dummy variable that takes a value of 1 if the *R2* (i.e., percentage difference between the firm's net worth and 83 million USD ) is positive; otherwise, it takes a value of 0. *Affected_R3* is a dummy variable that takes a value of 1 if the *R3* (i.e., percentage difference between the firm's sale and 167 million USD ) is positive; otherwise, it takes a value of 0. *Affected* is a dummy variable that takes a value of 1 if the firm is affected by the mandatory CSR rule i.e., *R1, R2, or R3* is positive; otherwise, it takes a value of 0. *Yield* is the offer yield to maturity, measured as a percentage. Refer to Appendix A for detailed definitions of variables. All control variables are winsorized at 1%. *, **, and *** show significance at 10%, 5%, and 1%.

| VARIABLES | (1) Yield | (2) Yield | (3) Yield | (4) Yield | (5) Yield | (6) Yield | (7) Yield | (8) Yield |
|---|---|---|---|---|---|---|---|---|
| CSR Rule | -1.569*** | -1.349*** | -0.997*** | -0.975*** | -2.230*** | -2.174*** | -0.863*** | -0.833*** |
|  | (0.381) | (0.332) | (0.109) | (0.074) | (0.436) | (0.358) | (0.102) | (0.066) |
| Affected | -0.653* |  |  |  | -0.548 |  |  |  |
|  | (0.337) |  |  |  | (0.400) |  |  |  |
| Affected x CSR Rule | 0.791** |  |  |  | 1.683*** |  |  |  |
|  | (0.385) |  |  |  | (0.438) |  |  |  |
| Affected_R1 |  | -0.623** |  |  |  | -0.743** |  |  |
|  |  | (0.298) |  |  |  | (0.319) |  |  |
| Affected_R1 x CSR Rule |  | 0.562* |  |  |  | 1.626*** |  |  |
|  |  | (0.336) |  |  |  | (0.361) |  |  |
| Affected_R2 |  |  | -1.069*** |  |  |  | -0.210*** |  |
|  |  |  | (0.068) |  |  |  | (0.077) |  |
| Affected_R2 x CSR Rule |  |  | 0.421*** |  |  |  | 0.343*** |  |
|  |  |  | (0.122) |  |  |  | (0.114) |  |
| Affected_R3 |  |  |  | -0.919*** |  |  |  | 0.236*** |
|  |  |  |  | (0.064) |  |  |  | (0.079) |
| Affected_R3 x CSR Rule |  |  |  | 0.434*** |  |  |  | 0.465*** |
|  |  |  |  | (0.100) |  |  |  | (0.089) |
| Constant | 10.53*** | 10.49*** | 10.62*** | 10.34*** | 18.514*** | 18.689*** | 17.645*** | 18.577*** |
|  | (0.335) | (0.296) | (0.057) | (0.045) | (0.521) | (0.475) | (0.375) | (0.382) |
| Observations | 2,413 | 2,413 | 2,413 | 2,413 | 2,317 | 2,317 | 2,317 | 2,317 |
| R-squared | 0.099 | 0.1 | 0.192 | 0.181 | 0.348 | 0.347 | 0.343 | 0.354 |
| Controls | No | No | No | No | Yes | Yes | Yes | Yes |
| Industry | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

**Table 5:** Bond Yield-Spread and Mandatory CSR

This table reports the regression results of yield spread on mandatory CSR. *CSR Rule* is a dummy variable that takes a value of 1 if a bond is issued post 29th August 2013; otherwise, it takes a value of 0. *Affected_R1* is a dummy variable that takes a value of 1 if the *R1* (i.e., percentage difference between the firm's net profit and 0.83 million USD) is positive; otherwise, it takes a value of 0. *Affected_R2* is a dummy variable that takes a value of 1 if the *R2* (i.e., percentage difference between the firm's net worth and 83 million USD) is positive; otherwise, it takes a value of 0. *Affected_R3* is a dummy variable that takes a value of 1 if the *R3* (i.e., percentage difference between the firm's sale and 167 million USD) is positive; otherwise, it takes a value of 0. *Affected* is a dummy variable that takes a value of 1 if the firm is affected by the mandatory CSR rule i.e., *R1, R2, or R3* is positive; otherwise, it takes a value of 0. *Yield Spread* is the spread between the offer yield and the Treasury bill rate. *Yield* and *Yield Spread* are measured in percentages. *Industry* is industry fixed effects. Refer Appendix A for detailed definitions of variables. All control variables are winsorized at 1%. *, **, and *** show significance at 10%, 5%, and 1%.

| VARIABLES | (1) Yield Spread | (2) Yield Spread | (3) Yield Spread | (4) Yield Spread |
|---|---|---|---|---|
| CSR Rule | -1.418*** | -1.548*** | -0.585*** | -0.616*** |
|  | (0.418) | (0.343) | (0.098) | (0.063) |
| Affected | -0.228 |  |  |  |
|  | (0.384) |  |  |  |
| Affected x CSR Rule | 1.030** |  |  |  |
|  | (0.420) |  |  |  |
| Affected_R1 |  | -0.583* |  |  |
|  |  | (0.306) |  |  |
| Affected_R1 x CSR Rule |  | 1.157*** |  |  |
|  |  | (0.346) |  |  |
| Affected_R2 |  |  | -0.164** |  |
|  |  |  | (0.074) |  |
| Affected_R2 x CSR Rule |  |  | 0.211* |  |
|  |  |  | (0.109) |  |
| Affected_R3 |  |  |  | 0.307*** |
|  |  |  |  | (0.076) |
| Affected_R3 x CSR Rule |  |  |  | 0.390*** |
|  |  |  |  | (0.085) |
| Constant | 9.890*** | 10.205*** | 9.382*** | 10.406*** |
|  | (0.499) | (0.455) | (0.358) | (0.365) |
| Observations | 2,317 | 2,317 | 2,317 | 2,317 |
| R-squared | 0.338 | 0.338 | 0.335 | 0.349 |
| Controls | Yes | Yes | Yes | Yes |
| Industry | Yes | Yes | Yes | Yes |

**Table 6:** Bond Amounts Issued and Mandatory CSR

This table reports the regression results of the bond amounts issued on mandatory CSR. *Issued_Sale* is the amount issued scaled by sale. *Amount Issued* and *Sale* are in million USD. *CSR Rule* is a dummy variable that takes a value of 1 if a bond is issued post 29th August 2013; otherwise, it takes a value of 0. *Affected_R1* is a dummy variable that takes a value of 1 if the *R1* (i.e., percentage difference between the firm's net profit and 0.83 million USD) is positive; otherwise, it takes a value of 0. *Affected_R2* is a dummy variable that takes a value of 1 if the *R2* (i.e., percentage difference between the firm's net worth and 83 million USD) is positive; otherwise, it takes a value of 0. *Affected_R3* is a dummy variable that takes a value of 1 if the *R3* (i.e., percentage difference between the firm's sale and 167 million USD) is positive; otherwise, it takes a value of 0. *Affected* is a dummy variable that takes a value of 1 if the firm is affected by the mandatory CSR rule i.e., *R1, R2, or R3* is positive; otherwise, it takes a value of 0. *Industry* is industry fixed effects. Refer to Appendix A for detailed definitions of variables. All control variables are winsorized at 1%. *, **, and *** show significance at 10%, 5%, and 1%.

| VARIABLES | (1) Issued_Sale | (2) Issued_Sale | (3) Issued_Sale | (4) Issued_Sale |
|---|---|---|---|---|
| CSR Rule | 0.136* | 0.303*** | 0.156*** | 0.043*** |
|  | (0.079) | (0.065) | (0.020) | (0.013) |
| Affected | -0.796*** |  |  |  |
|  | (0.073) |  |  |  |
| Affected x CSR Rule | -0.144* |  |  |  |
|  | (0.079) |  |  |  |
| Affected_R1 |  | -0.422*** |  |  |
|  |  | (0.059) |  |  |
| Affected R1 x CSR Rule |  | -0.309*** |  |  |
|  |  | (0.066) |  |  |
| Affected_R2 |  |  | 0.039*** |  |
|  |  |  | (0.015) |  |
| Affected R2 x CSR Rule |  |  | -0.162*** |  |
|  |  |  | (0.022) |  |
| Affected_R3 |  |  |  | -0.007 |
|  |  |  |  | (0.016) |
| Affected_R3 x CSR Rule |  |  |  | -0.033* |
|  |  |  |  | (0.017) |
| Constant | 0.682*** | 0.349*** | 0.105 | 0.134* |
|  | (0.094) | (0.086) | (0.072) | (0.075) |
| Observations | 2,317 | 2,317 | 2,317 | 2,317 |
| R-squared | 0.303 | 0.245 | 0.091 | 0.072 |
| Controls | Yes | Yes | Yes | Yes |
| Industry | Yes | Yes | Yes | Yes |

**Table 7**: Future Cash Flows, Yield Spread, and Mandatory CSR

This table provides the results of the two stage least square (2SLS) regression and endogeneity tests. Column (1) provides the results for the first stage, with *Future Cash Flow* as the dependent variable. Colum (2) provides the results of the second stage, where *Yield Spread* is the dependent variable. *CSR Rule* is a dummy variable that takes a value of 1 if a bond is issued after 29th August 2013; otherwise, it takes a value of 0. *R1* is the percentage difference between the firm's net profit and 0.83 million USD. *R2* is the percentage difference between the firm's net worth and 83 million USD. *R3* is the percentage difference between the firm's sale and 167 million USD is positive. *Affected* is a dummy variable that takes a value of 1 if the firm is affected by the mandatory CSR rule i.e., *R1, R2, or R3* is positive; otherwise, it takes a value of 0. $FCF_{t+1}$ is free cash flow of the firm at t +1. *Industry* is industry fixed effects. Refer to Appendix A for detailed definitions of variables. All control variables are winsorized at 1%. *, **, and *** show significance at 10%, 5%, and 1%.

| VARIABLES | (1) $FCF_{t+1}$ | (2) Yield Spread |
|---|---|---|
| CSR Rule | 0.517*** | |
| | (0.120) | |
| Affected | 0.047 | -0.08 |
| | (0.114) | (0.343) |
| Affected x CSR Rule | -0.495*** | |
| | (0.120) | |
| $FCF_{t+1}$(Fitted) | | -2.260*** |
| | | (0.831) |
| Constant | 0.091 | 9.940*** |
| | (0.131) | (0.552) |
| Observations | 2,203 | 2,317 |
| R-squared | 0.135 | 0.357 |
| Controls | Yes | Yes |
| Industry | Yes | Yes |

**Table 8:** Multi-Dimension Regression Discontinuity Design

This table provides the results for multi-dimension regression discontinuity design (MRDD) tests. Panel A reports the results using *Yield* as a dependent variable. Panel B reports the results using *Yield Spread* as a dependent variable. Criteria I-III are threshold variables: sales, profit, and net worth. The bias-corrected method uses a bias-corrected RD estimator with a conventional variance estimator. All tests include covariates such as *Size*, *Leverage*, *Tobin's Q*, *Maturity* and *Credit Rank*. *Industry* is industry fixed effects. Refer to Appendix A for detailed definitions of variables. All control variables are winsorized at 1%. *, **, and *** show significance at 10%, 5%, and 1%.

| Affected Criteria | Method | Covariates | (1) Yield | (2) Yield Spread |
|---|---|---|---|---|
| Criteria I | Bias-corrected | Yes | 1.255*** | 0.765* |
| | | | (0.427) | (0.425) |
| Criteria II | Bias-corrected | Yes | 0.466** | -0.563*** |
| | | | (0.020) | (0.185) |
| Criteria III | Bias-corrected | Yes | 0.069 | 1.044*** |
| | | | (0.135) | (0.095) |
| All Three Criteria | Bias-corrected | Yes | 2.408* | 1.322 |
| | | | (1.920) | (1.162) |

**Table 9:** Nearest Neighbor Matched Sample Analysis

This table provides the results for difference-in-differences regression after matching. Panel A reports the distribution of affected and unaffected firms before and after the CSR rule. Panel B reports the covariate balance between affected and unaffected issuers after matching. Panel C reports the difference-in-differences regression results. *Industry* is industry fixed effects. Refer to Appendix A for detailed definitions of variables. All control variables are winsorized at 1%. *, **, and *** show significance at 10%, 5%, and 1%.

**Panel A**: Distribution of Affected and Unaffected Observations Pre- and Post-CSR Rule

Panel A reports the distribution of Affected and Unaffected firms before and after the CSR rule.

|  | (1) | (2) | (3) |
|---|---|---|---|
|  | Unaffected | Affected | Total |
| Pre-CSR Rule | 7 | 28 | 35 |
| Post-CSR Rule | 21 | 58 | 79 |
| Total | 28 | 86 | 114 |

**Panel B**: Covariate Balance

Panel B reports the covariate balance between affected and unaffected firms after matching.

|  | (1) | | (2) | |
|---|---|---|---|---|
|  | Mean | | t-test | |
| Variable | Unaffected | Affected | t | p>t |
| Size | 8.604 | 5.669 | 10.32 | 0.000 |
| Tobin's Q | 1.864 | 1.537 | 1.2 | 0.232 |
| Leverage | 0.389 | 0.478 | -2.00 | 0.048 |
| Years of Maturity | 6.937 | 6.657 | 0.09 | 0.931 |
| Credit Rank | 6.369 | 6.730 | -1.37 | 0.173 |

**Panel C**: Difference-in-Differences

Panel C reports the difference-in-differences regression results for the matched sample of firms. Column (1) shows the results for *Yield*, Column (2) shows the results for *Yield Spread* and Column (3) shows the results for *Issued_Sale* as dependent variables.

|  | (1) | (2) | (3) |
|---|---|---|---|
| VARIABLES | Yield | Yield Spread | Issued_Sale |
| CSR Rule | -2.175*** | -1.310** | 0.170 |
|  | (0.577) | (0.549) | (0.338) |
| Affected | -1.129 | -0.352 | -0.488 |
|  | (0.691) | (0.657) | (0.402) |
| Affected x CSR Rule | 2.404*** | 1.277** | -0.255 |
|  | (0.654) | (0.623) | (0.384) |
| Constant | 13.745*** | 5.252*** | 0.024 |
|  | (1.133) | (1.078) | (0.657) |
| Observations | 114 | 114 | 114 |
| R-squared | 0.475 | 0.440 | 0.301 |
| Controls | Yes | Yes | Yes |
| Industry | Yes | Yes | Yes |

**Table 10:** Effect of Identified NGO Agencies

This table explains the cross-section differences in yield and amount issued due to incumbent foundation or third-party CSR implementing agency in the post-CSR rule period. Columns (1)-(3) show the results for cross-section differences in bond characteristics based on whether NGOs (incumbent or third-party) information is provided by the issuer. Columns (4)-(6) show the results for cross-section differences in the bond characteristics of affected issuers based on the amount spent as a percentage of the amount expected. *Yield* is the offer yield to maturity. *Yield Spread* is the spread between the offer yield and the Treasury bill rate. *Yield* and *Yield Spread* are measured in percentages. *Issued_Sale* is a logarithm of the amount issued in dollars. *Industry* is industry fixed effects. Refer to Appendix A for detailed definitions of the variables. All control variables are winsorized at 1%. *, **, and *** show significance at 10%, 5%, and 1%.

| VARIABLES | (1) Yield | (2) Yield Spread | (3) Issued_Sale | (4) Yield | (5) Yield Spread | (6) Issued_Sale |
|---|---|---|---|---|---|---|
| Affected | 0.629 | 0.569 | -1.052*** | | | |
| | (0.471) | (0.453) | (0.268) | | | |
| NGO Indicator | 0.969** | 0.915* | -0.940*** | | | |
| | (0.486) | (0.479) | (0.251) | | | |
| NGO Indicator X Affected | -0.941* | -0.868* | 0.935*** | | | |
| | (0.499) | (0.491) | (0.249) | | | |
| Amount Spent (in %) | | | | -0.414*** | -0.415*** | -0.010 |
| | | | | (0.078) | (0.074) | (0.008) |
| Constant | 16.585*** | 8.729*** | 0.525* | 18.887*** | 10.834*** | -0.020 |
| | (0.938) | (0.907) | (0.307) | (0.854) | (0.838) | (0.046) |
| Observations | 940 | 940 | 940 | 727 | 727 | 727 |
| R-squared | 0.385 | 0.359 | 0.367 | 0.470 | 0.449 | 0.043 |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry | Yes | Yes | Yes | Yes | Yes | Yes |

**Table 11:** CSR Rule Commencement Date and Bond Issuance

This table provides the results for the difference-in-differences regression when the commencement date (1st April 2014) is used as the CSR Rule adoption date. The pre- and post-sample periods are two years before and two years after the commencement date. Column (1) shows the results for *Yield*. Column (2) shows the results for *Yield Spread*. Column (3) shows the results for *Amount Issued*. *Industry* is industry fixed effects. Refer to Appendix A for detailed definitions of variables. All control variables are winsorized at 1%. *, **, and *** show significance at 10%, 5%, and 1%.

| VARIABLES | (1) Yield | (2) Yield Spread | (3) Amount Issued |
|---|---|---|---|
| CSR Rule (Comm.) | -2.150*** | -2.009*** | 0.118*** |
| | (0.753) | (0.732) | (0.043) |
| Affected | -0.580 | -0.507 | 0.040 |
| | (0.704) | (0.685) | (0.040) |
| CSR Rule (Comm.) x Affected | 1.458* | 1.402* | -0.116*** |
| | (0.755) | (0.734) | (0.043) |
| Constant | 18.623*** | 10.661*** | 0.039 |
| | (0.833) | (0.810) | (0.048) |
| Observations | 1,427 | 1,427 | 1,427 |
| R-squared | 0.400 | 0.405 | 0.103 |
| Controls | Yes | Yes | Yes |
| Industry | Yes | Yes | Yes |

**Table 12**: Firm Ownership Structure and CSR Rule

This table provides the difference-in-differences results for different ownership structures. Columns (1) – (3) show results for ownership concentration to promoters. Columns (4)– (6) show results if government holds significant ownership in a firm. Columns (7)-(9) show results for business group ownership. *Conc_Hold* is a dummy variable that takes a value of 1 if promoters holding is greater than median; otherwise, it takes a value of 0. *Govt Owned* is a dummy variable that takes a value of 1 if government ownership in a firm is greater than median; otherwise, it takes a value of 0. *BG* is a dummy variable that takes a value of 1 if a firm belongs to a business group; otherwise, it takes a value of 0. *Industry* is industry fixed effects. Refer to Appendix A for detailed definitions of variables. All control variables are winsorized at 1%. *, **, and *** show significance at 10%, 5%, and 1%.

| VARIABLES | (1) Yield | (2) Yield Spread | (3) Issued_Sale | (4) Yield | (5) Yield Spread | (6) Issued_Sale | (7) Yield | (8) Yield Spread | (9) Issued_Sale |
|---|---|---|---|---|---|---|---|---|---|
| Conc_Hold | -0.276*** | -0.262*** | 0.028*** | | | | | | |
| | (0.058) | (0.056) | (0.010) | | | | | | |
| Govt Owned | | | | -1.151*** | -1.150*** | 0.057*** | | | |
| | | | | (0.079) | (0.075) | (0.014) | | | |
| BG | | | | | | | 0.891*** | 0.916*** | -0.052*** |
| | | | | | | | (0.073) | (0.070) | (0.013) |
| Conc_Hold X Affected X CSR Rule | 0.144 | 0.177** | -0.026* | | | | | | |
| | (0.090) | (0.086) | (0.015) | | | | | | |
| Govt Owned X Affected X CSR Rule | | | | 0.326*** | 0.297*** | -0.015 | | | |
| | | | | (0.110) | (0.105) | (0.020) | | | |
| BG X Affected X CSR Rule | | | | | | | -0.201* | -0.260*** | 0.020 |
| | | | | | | | (0.104) | (0.099) | (0.018) |
| CSR Rule | -2.115*** | -1.312*** | 0.127 | -2.168*** | -1.354*** | 0.132* | -2.051*** | -1.240*** | 0.127 |
| | (0.434) | (0.416) | (0.079) | (0.414) | (0.394) | (0.078) | (0.419) | (0.399) | (0.078) |
| Affected | -0.519 | -0.205 | -0.795*** | -0.573 | -0.253 | -0.796*** | -0.374 | -0.055 | -0.805*** |
| | (0.398) | (0.382) | (0.073) | (0.380) | (0.362) | (0.073) | (0.384) | (0.367) | (0.073) |
| Affected X CSR Rule | 1.466*** | 0.805* | -0.118 | 1.531*** | 0.881** | -0.136* | 1.672*** | 1.066*** | -0.151* |
| | (0.441) | (0.423) | (0.080) | (0.416) | (0.396) | (0.079) | (0.428) | (0.409) | (0.080) |
| Observations | 2,317 | 2,317 | 2,317 | 2,317 | 2,317 | 2,317 | 2,317 | 2,317 | 2,317 |
| R-squared | 0.356 | 0.345 | 0.306 | 0.413 | 0.410 | 0.310 | 0.400 | 0.396 | 0.309 |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

**Table 13**: Corporate Governance and CSR

This table provides the results for difference-in-differences for board independence and Big 4 auditors. The pre- and post-sample are two years before and two years after the commencement date. Columns (1) –(3) show results for BIG4. Columns (4) – (6) show results for board independence. *BI* is a dummy variable that takes a value of 1 if a firm has an independent board; otherwise, it takes a value of 0. *BIG4* is a dummy variable that takes a value of 1 if a firm is audited by a Big 4 auditor or their affiliates; otherwise, it takes a value of 0. *Industry* is industry fixed effects. Refer to Appendix A for detailed definitions. All control variables are winsorized at 1%. *, **, and *** show significance at 10%, 5%, and 1%.

| VARIABLES | (1) Yield | (2) Yield Spread | (3) Issued_Sale | (4) Yield | (5) Yield Spread | (6) Issued_Sale |
|---|---|---|---|---|---|---|
| BIG4 | 0.299*** | 0.264*** | -0.028** | | | |
| | (0.061) | (0.059) | (0.011) | | | |
| BI | | | | 0.199*** | 0.264*** | -0.009 |
| | | | | (0.059) | (0.057) | (0.011) |
| CSR Rule | -1.514*** | -0.828** | 0.454*** | -1.207*** | -0.353 | 0.175** |
| | (0.405) | (0.389) | (0.077) | (0.410) | (0.394) | (0.078) |
| Affected | 0.638* | 0.867** | -0.615*** | 1.205*** | 1.374*** | -0.567*** |
| | (0.357) | (0.343) | (0.069) | (0.323) | (0.311) | (0.062) |
| Big4 X CSR Rule | 1.565*** | 1.602*** | -1.040*** | | | |
| | (0.537) | (0.515) | (0.098) | | | |
| BI X CSR Rule | | | | 0.935** | 0.473 | 0.340*** |
| | | | | (0.397) | (0.382) | (0.074) |
| Affected X CSR Rule | 0.893** | 0.342 | -0.463*** | 0.486 | -0.112 | -0.172** |
| | (0.409) | (0.392) | (0.078) | (0.413) | (0.397) | (0.078) |
| Big4 X CSR Rule X Affected | -1.402*** | -1.368*** | 1.038*** | | | |
| | (0.539) | (0.517) | (0.098) | | | |
| BI X CSR Rule X Affected | | | | -0.766* | -0.474 | -0.353*** |
| | | | | (0.400) | (0.384) | (0.074) |
| Constant | 13.835*** | 5.549*** | 0.882*** | 13.221*** | 4.921*** | 0.883*** |
| | (0.390) | (0.375) | (0.074) | (0.350) | (0.336) | (0.066) |
| Observations | 2,392 | 2,392 | 2,392 | 2,392 | 2,392 | 2,392 |
| R-squared | 0.321 | 0.312 | 0.308 | 0.310 | 0.298 | 0.281 |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry | Yes | Yes | Yes | Yes | Yes | Yes |

**Appendix A**: Variable Definitions and Descriptions

| VARIABLE | DEFINITION |
| --- | --- |
| Yield | The bond's yield to maturity as reported by SDC Platinum. Measured in percentage. |
| Yield spread | Yield to maturity minus matched Indian Treasury Interest Rate |
| Issued_Sale | Ratio of the amount issued and sale. The amount issued and sale are in millions of USD. |
| Maturity | Difference between years of maturity minus years of issuing the bond. |
| CSR Rule | Dummy variable equal to 1 if the bond is issued after 29th Aug 2013 and otherwise equal to 0. |
| CSR Rule (Comm.) | Dummy variable equal to 1 if the bond is issued after 1st April 2014 and otherwise equal to 0. |
| R1 | The percentage difference between the firm's *net profit* and 0.83 million USD . |
| R2 | The percentage difference between the firm's *net worth* and 83 million USD |
| R3 | The percentage difference between the firm's *sale* and 167 million USD . |
| M | The minimum positive value of R1, R2, and R3 if at least one of them is positive or if the maximum values of R1, R2, and R3 are all negative |
| Affected_R1 | Dummy variable equal to 1 if R1>0 and otherwise equal to 0 |
| Affected_R2 | Dummy variable equal to 1 if R2>0 and otherwise equal to 0 |
| Affected_R3 | Dummy variable equal to 1 if R3>0 and otherwise equal to 0 |
| Affected | Dummy variable equal to 1 if M< 0 and otherwise equal to 0 |
| Size | Logarithm of total assets. Total assets is measured in million USD. |
| Leverage | Ratio of long-term debt to total assets |
| ROA | The ratio of net income to total assets |
| Tobin's Q | 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 is aligned with Deloitte, E Y, PWC, or KPMG |
| BG | Dummy variable equal to 1 if the firm is aligned with a business group and otherwise equal to 0 |
| Conc_Hldg | Dummy variable equal to 1 if the promoter holding is greater than the median holding in the sample and otherwise equal to 0. |
| Net Profit | Net profit of a firm. Measured in million USD. |
| Net Worth | Total assets minus total liabilities. Measured in million USD. |
| Credit Rank | Rank for securities rating grade assigned based on ratings given by different rating agencies. |