

# **Does corporate social responsibility (CSR) create shareholder value? Exogenous shock-based evidence from the Indian Companies Act 2013**

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## **ABSTRACT:**

In 2013, a new law required Indian firms, which satisfied certain size and profitability thresholds, to spend at least 2% of their net income on CSR. We exploit this natural experiment to isolate the shareholder value implications of CSR activities. Using several identification strategies, including an event study, regression discontinuity design, difference-in-difference tests, and instrument variable approach, we find that the law caused a significant drop in the stock price of firms forced to spend money on CSR, consistent with the idea that firms voluntarily choose CSR levels to maximize firm value. Firms with greater agency costs and political connections benefit from mandatory CSR. Our results potentially clarify the direction of causality underlying decades of mixed findings on the association between CSR and firm value.

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# **Does corporate social responsibility (CSR) create shareholder value? Exogenous shock-based evidence from the Indian Companies Act 2013**

## **1. INTRODUCTION**

Corporate social responsibility (CSR) is now mandatory in India. According to the Clause 135 of the Companies Act (mandatory CSR rule, hereafter), passed by the Indian Parliament in 2013, a firm is required to spend 2% of its average net profits of the last three years on CSR activities, if during any fiscal year, it has either (1) a net worth of Indian Rupees (INR) 5,000 million (about U.S. \$83 million) or more; (2) sales of INR 10,000 million (about U.S. \$167 million) or more; or (3) a net profit of INR 50 million (about U.S. \$0.83 million) or more.<sup>1</sup> A legislative mandate forcing corporations to spend funds on CSR activities is perhaps the first of its kind in the world. We exploit this natural experiment to isolate the impact of the mandatory CSR rule on shareholder value.

There are two competing theoretical views on whether CSR affects firm value. The “shareholder expense” view, advocated most notably by Milton Friedman (1970), asserts that “*the social responsibility of business is to increase its profits*” and hence argues that CSR destroys shareholder value, either because (i) it constitutes moral hazard in that managers’ self-interest drives CSR spending at the expense of shareholders; or (ii) even absent moral hazard, CSR is a sacrifice of the firm’s profits in the social interest (Reinhardt, Stevins and Vietor 2008).

The contrasting view, labeled here as the “stakeholder value maximization” view, following the “doing well by doing good” theory advanced in the management literature, argues that strategic CSR spending can increase firm value. The intuition is that a firm’s self-interested focus on stakeholders’ interests increases stakeholders’ willingness to support the firm’s

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<sup>1</sup> An exchange rate of 60INR = 1US\$ is assumed for these conversion of INR to US\$.

operations in several ways (Kitzmueller and Shimshack 2012). Following this stakeholder view, studies have documented that a high commitment to CSR activities is associated with attracting and retaining higher quality employees (Greening and Turban, 2000), improving the effectiveness of the marketing of products and services (Fombrun, 2005), increasing demand for products and services (Navarro, 1988), providing superior access to valuable resources (Cochran and Wood, 1984), generating moral capital or goodwill that tempers punitive actions by regulatory agencies during a negative event (i.e. an insurance effect) and thereby preserves firm value (Godfrey 2005).

Existing empirical evidence on whether CSR creates shareholder value is inconclusive despite nearly four decades of research efforts, partly because these studies are clouded by methodological concerns such as potential endogeneity, reverse causality or omitted variable problems (Margolis, Elfenbein, and Walsh, 2009).<sup>2</sup> For instance, the choice to conduct CSR is voluntary and assuming firms spend their optimal level of CSR, on average, there ought to be no association between future firm performance and CSR in the cross-section. Hence, it is difficult to ascertain whether the observed associations between CSR and firm performance are causal in nature or merely attributable to model misspecification due to the influence of unobserved firm level heterogeneity related to CSR (Himmelberg, Hubbard and Palia 1999). Second, as highlighted by Hong, Kubik and Scheinkman (2012), reverse causality might drive the results as firms that are doing well, and are hence less financially constrained, might be the ones spending on CSR activities. Hence, firm performance could cause higher future CSR, as opposed to the other way around. Several extant studies suffer from this limitation, as pointed out by Margolis, Elfenbein and Walsh. (2009). Third, as Lys, Naughton and Wang (2015) suggest, CSR might

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<sup>2</sup>For reviews of the literature on CSR, see Griffin and Mahon (1997), Orlitzky and Benjamin (2001), Orlitzky, Schmidt and Rynes. (2003), Margolis and Walsh (2003), Margolis, Elfenbein, and Walsh (2009) and Kitzmueller and Shimshack (2012).

merely signal future profits, as opposed to causing them. In sum, the correlation between CSR and firm value or firm performance documented by hundreds of earlier studies, albeit interesting, does not necessarily warrant a causal interpretation.

To overcome these inferential problems, one would ideally like to find an exogenous experiment in which firms are randomly assigned to spend money on CSR or not. This would allow us to compare the outcomes of the treated firms with those of the non-treated firms and to hence attribute any differences in outcomes to their CSR spending. Remarkably, a fairly close version of that ideal experiment exists. The mandatory CSR rule of the Indian Companies Act represents an exogenous shock in the sense that it assigns firms in two groups: (i) firms that are mandatorily affected by these new CSR rule (treatment group); and (ii) firms that are not impacted by the CSR rule (control group). Comparing the stock returns of treatment group to those of control group (controlling for other firm attributes that are likely to affect returns) around the events that changed the probability of the passage of the Act can thus provide a reliable basis for causal inference.<sup>3</sup> Further, the numerical eligibility thresholds for the CSR provision, based on reported net worth, sale or profits, also enable us to employ a regression discontinuity design that compares the firms that were just above the rule cutoff and have to comply with the CSR requirement with those that were just below the cutoff and did not have to comply.

If firms choose CSR to maximize their firm value, imposing binding legal constraints on their CSR choices will lead to declines in their values (Demsetz and Lehn 1985). In contrast, if firms spent sub-optimally on CSR or if their CSR activities were not aligned with the stakeholder

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<sup>3</sup> Atanasov and Black (2014), in the survey of 863 studies examining the effect of governance on firm value, argue that credible inference strategies usually rely on “shocks” to governance. In contrast, only a few recent papers rely on instrumental variables to address the causality problem (e.g., Cheng, Ioannou, and Serafeim, 2011; Deng, Kang and Low 2013).

interests, the new mandatory CSR rule will lead to increase in firm value. Hence, if the mandatory CSR rule has a positive (negative) effect on shareholder value, then all else equal, we expect the treatment group to report higher (lower) announcement period stock returns relative to the control group. Furthermore, among the treatment group, firms differ on the extent to which they spend on CSR and therefore vary on the extent to which they comply with the proposed CSR spending norms. If the CSR law has a positive (negative) effect on shareholder value, we expect the firms that are less (more) compliant to report higher (lower) announcement period stock returns than firms that are more (less) compliant.

We test these predictions using a sample of approximately 2,100 firms listed on the National Stock Exchange (NSE) of India. About 1,237 (58%) of these firms are affected by the mandatory CSR rule and within this subsample, 458 firms currently spend on CSR activities whereas 779 firms do not currently spend on CSR activities. The remaining 883 firms (42%) of our sample are not affected by the CSR rule. We label these three groups of firms as *SPENDER*, *NONSPENDER*, and *UNAFFECTED*, respectively. Our baseline results indicate that for the group of firms affected by the mandatory CSR rule, the median three-day cumulative abnormal returns (CAR) around key events leading to the passage of the Companies Act ranges from -1.3% to -2.4%. Further, the negative returns are more pronounced for *NONSPENDER* firms, compared to *SPENDER* firms. In contrast, the average CAR around the same event dates for the *UNAFFECTED* firms is generally insignificant. These results suggest that the optimal amount of CSR spending for *NONSPENDER* firms is indeed zero.

These results are robust to a more rigorous regression discontinuity design (RDD). While applying RDD, we use the INR 50 million of net income as the threshold because the Companies Act stipulates a firm with net income above INR 50 million to spend on CSR. Firms with net

income between INR 50-75 million represent our treatment group and firms with net income between INR 25-50 million constitute our control group. RDD assumes that the firms in the treatment and control group are similar, except for the variable that assigns firms in these two groups and we confirm this assumption in our data. Therefore, any differences in the observed three-day CAR for the *SPENDER*, *NONSPENDER* and *UNAFFECTED* firms can thus be attributed to the mandatory CSR rule that creates the discontinuity. Results of our RDD analysis indicate that the average three-day CAR around the event dates for the *NONSPENDER* firms are negative, consistent with our earlier findings of a negative impact on CSR on shareholder value.

Motivated by the “stakeholder value maximization” perspective of the management literature, we perform four cross-sectional analyses to identify conditions under which mandatory CSR rule is likely to affect firm value differentially. Such an analysis also helps us mitigate omitted variable concerns that other macro shocks that possibly took effect during the key event dates potentially drive our baseline results. Specifically, we examine whether the impact of CSR on shareholder value varies depending on firm’s spending on agency costs faced by the firm, its political connections, its advertisement spending, and its affiliation to a highly polluting industry.

First, to the extent the increased reporting and governance requirements imposed by the law make firms redirect their CSR spending to maximize firm value, either by preventing managers from using CSR as an entrenchment device or as a means to satisfy their own social preferences, firm values will increase after the passage of the CSR rule as agency costs are reduced. To test this prediction we classify firms that belong to business group as the ones that face high levels of agency costs. This classification is consistent with Bertrand, Mehta and Mullainathan (2002) who view business groups as a structure that facilitates “tunneling” of funds

from minority outside shareholders to group insiders. Consistent with our expectations, we find that the average three-day CAR around the event dates for the *SPENDER* and *NONSPENDER* firms is positive if such firms are affiliated to business groups.

Second, political connections can be valuable to a firm in several ways (Faccio, 2006). However, firm value will be enhanced only when the marginal benefits of the connections outweigh their marginal costs (rents extracted by politicians). CSR spending might constitute a potential mechanism via which a firm can satisfy the preferences of politicians and increase its ability to conduct business with the government and other entities with their political connections. Therefore, we expect the positive (negative) effect of mandatory CSR rule on firm value to be higher (lower) among firms that are politically connected. We consider a firm to be politically connected if the firm or the business group to which a firm belongs has made a contribution of INR 20,000 or more to a political party in India during 2005-2012. Consistent with our expectations, we find that the average three-day CAR around the event dates for the *NONSPENDER* firms is positive if such firms are politically connected.

Third, Servaes and Tamayo (2013) find that CSR activities and firm value are positively related for firms with high customer awareness, but not for firms with low customer awareness. They argue that advertising expenditure enhances a firm's information environment, thereby increasing awareness among the firm's potential customers. This, in turn, is likely to increase chances of a consumer being associated with the product. Therefore we expect the positive (negative) effect of mandatory CSR rule on firm value to be higher (lower) among firms with high levels of advertisement spending. We don't find results consistent with our expectations.

Finally, firms in polluting industries are less likely to enjoy the net benefits of CSR activities because pressure from activists groups and the Government might force a firm to invest

in green technologies. Such investments, while potentially beneficial to the environment, might be associated with limited firm-specific benefits. Thus we expect the positive (negative) effect of mandatory CSR rule on firm value to be lower (higher) among these firms. Again, we don't find results consistent with our expectations.

We also conduct a difference-in-difference analysis as an alternative way to assess whether the mandatory CSR rule predicts a decline in value for the affected firms, right at the time when the mandatory CSR rule was adopted. If investors consider CSR activities as detrimental to firm value, then the Tobin's q ratio of the affected firms should decline more, relative to that of unaffected firms, in the years when the likelihood of the passage of mandatory CSR rule increased. Consistent with our expectations, we find that in the years 2011 and 2013, the decline in Tobin's q ratio was 13.8% and 9.5% more for the *SPENDER* firms, relative to the benchmark *UNAFFECTED* firms. Similarly, during the years 2011 and 2013, the decline in Tobin's q ratio was 22.5% and 29.6% more for the *NONSPENDER* firms, relative to the benchmark *UNAFFECTED* firms.

These results relating to the effect of CSR on Tobin's Q ratio are also robust to an instrument variable (IV) based regression technique. We use pre-law variation in the CSR spending and low levels of financial flexibility as IVs for CSR spending. Whether a firm spends on CSR in the year 2008 (the year before the new law was introduced) is likely to be correlated with whether a firm spends on CSR during the years 2009-2013 but is not directly related changes in firm value in the years 2009-2013. Similarly, low financial flexibility is likely to influence a firm's CSR spending (Hong, Kubik, and Scheinkman, 2012) but is unlikely to affect changes in firm value, especially because, in our second stage regressions, we control for the continuous effect of changes in cash holdings on changes in firm value. These IV regression



results mitigate the possibility that firms might have anticipated the mandatory CSR rule, and might have endogenously altered their CSR policies.

Overall, our results suggest that, on average, the mandatory CSR rule imposes statistically significant net costs on firms that are required to comply with this regulation, leading to declines in shareholder value. These costs can arise due to variety of factors including increased pressure from the Government on the businesses to pick up the tab for social activities prescribed the new CSR law, increased compliance costs associated with reporting and monitoring CSR activities or the use of scarce managerial time and effort in these activities that do not add shareholder value. However, under certain situations such as presence of agency costs and political connections, mandatory CSR spending can be valuable to the shareholders.

We make several contributions to the literature. Our primary contribution is to present clean evidence on the impact of CSR spending on firm value using a natural experiment. Using multiple identification strategies such as an event study, regression discontinuity design, difference-in-difference analysis and instrument variable approach, we document a negative relation between CSR and shareholder value. Second, what distinguishes our study from vast prior literature in this area is that while a majority of prior studies consider voluntary CSR, to the best of our knowledge, we are the first to examine the impact of mandatory CSR spending.<sup>4</sup> Our results suggest that mandating CSR activities, at least of the kind prescribed by the new CSR rule of the Indian Companies Act 2013, internalizes the social costs to the firms and does not lead to value maximization for shareholders. These results thus suggest that firms voluntarily chose levels of CSR designed to maximize firm value. Consistent with Himmelberg, Hubbard and Palia (1999), studies that find an association between corporate outcomes (e.g., higher operating

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<sup>4</sup> Several papers (e.g. Hung and Wang 2014) examine the effect of mandatory disclosures of CSR activities (not spending) on shareholder value.

performance, lower cost of capital or lower earnings management) and CSR need to grapple with the possibility that are confounded by omitted variables. Our study suggests that there ought to be no association between such outcomes and CSR given that firms, on average, pick CSR levels optimally to maximize firm value.

Finally our study complements prior research that examines the effect of firm-specific characteristics on the relationship between CSR and shareholder value. Our study is related to the work by Di Giuli and Kostovetsky (2014) who find that CSR activities motivated by the political affiliation of stakeholders come at the expense of firm value. In contrast, we argue that in developing economies like India where political connections can be valuable, CSR activities can be used to enhance political ties and therefore lead to increase in shareholder value.

The rest of the paper is organized as follows. Section 2 discusses the institutional background. Section 3 discusses related literature and our empirical predictions. Section 4 presents our sample and data. Section 5 describes the empirical results and section 6 concludes the paper.

## **2. BACKGROUND OF THE COMPANIES ACT 2013**

India's Companies Act, 2013 was enacted on 29<sup>th</sup> August 2013. This legislation attempts to overhaul a nearly sixty year old Indian corporate law framework to bring it in line with global best practices and aims to provide a healthy regulatory environment for the businesses to grow. A unique feature of this Act is clause 135 that requires all firms of a certain size (measured in terms of sales or net worth) or profitability are required to spend 2% of their average net profits of the last three years on CSR activities. Similar to Iliev (2010) in the context of section 404 of the Sarbanes Oxley Act, the numerical thresholds help us disentangle the contribution of the CSR rule from other requirements of the Companies Act 2013 (enhanced corporate governance

and disclosure norms, greater accountability of management and auditors; stricter enforcement, protection for minority shareholders, etc.) that apply to all listed firms, regardless of dollar cutoffs.

The Companies Act, 2013 is a culmination of several years of effort. It was first introduced in the Lok Sabha (lower house of the Indian parliament), on 3<sup>rd</sup> August 2009 as the Companies Bill, 2009 (Bill, hereafter). This version of the Bill was referred to the Parliamentary Standing Committee on Finance, which submitted its report on 31<sup>st</sup> August 2010. Keeping in view the recommendations made by the finance committee, a revised Bill was prepared and the original Bill was withdrawn. The new Bill was introduced in the Lok Sabha on 14<sup>th</sup> December, 2011. The Bill was again referred to the Finance Committee on 5<sup>th</sup> January, 2012 as certain new provisions, which had not been earlier referred to the committee, were included in this new Bill. The finance committee submitted its report on 26<sup>th</sup> June 2012. The Lok Sabha subsequently approved the Bill on 18<sup>th</sup> December 2012 and labeled it as the Companies Bill, 2012. The Companies Bill, 2012 was then considered and approved by the Rajya Sabha (upper house of the Indian parliament) on 8<sup>th</sup> August 2013 as The Companies Bill, 2013. It received the President's assent on 29<sup>th</sup> August 2013 and has now become law.

Surprisingly, the Bill in its original form had no clause on CSR. The Finance Committee introduced the notion of mandatory CSR for the first time in its report dated 31<sup>st</sup> August 2010. Anecdotal evidence and reports in popular press suggests that the Finance Committee, perhaps anticipating popular backlash that might result from a very progressive pro-business bill, inserted several new clauses to make the bill slightly more pro-development. The proposal mandating CSR spending was among these clauses and noted that:

“every company having [(net worth of rupees 500 crore or more, or turnover of rupees 1000 crore or more)] or [a net profit of rupees 5 crore or more during a year] shall be required to

formulate a CSR Policy to ensure that every year at least 2% of its average net profits during the three immediately preceding financial years shall be spent on CSR activities as may be approved and specified by the company”.

Murli Deora, the Minister of Corporate Affairs (the ministry that crafted the Companies Bill, 2009), acknowledged that there was an argument as to whether the Government should mandate anything, but the Ministry, enthusiastically adopted the Finance Committee’s mandatory CSR proposal. The proposal of mandatory CSR attracted a lot of criticism from the various companies who argued that what they spend on community welfare, education, health, development and environmental activism is for them to decide. Azim Premji, Chairman of Wipro Ltd. opposes mandatory CSR and argues that "my worry is the stipulation should not become a tax at a later stage ... Spending two per cent on CSR is a lot, especially for companies that are trying to scale up in these difficult times. It must not be imposed." He also felt that a distinction should be made between personal philanthropy and CSR, which is a company activity.<sup>5</sup> Due to these criticisms, the Ministry of Corporate Affairs announced on 28<sup>th</sup> February 2011 that it is considering making only the disclosure of CSR spending mandatory, and that the CSR spending as such will be voluntary. However, eventually, the Ministry of Corporate Affairs resisted the pressure from the corporate houses and went ahead with the mandatory CSR rule. Such resistance also suggests that reverse causality (from firm value to the implementation of the law) is highly unlikely.

While the term “CSR” itself is not defined in the Act, Schedule VII of the Companies Act, quoted below, requires CSR activities of the firm to focus on at least one of the following areas: (i) eradicating extreme hunger and poverty; (ii) promotion of education; (iii) promoting gender equality and empowering women; (iv) reducing child mortality and improving maternal

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<sup>5</sup> <http://businesstoday.intoday.in/story/azim-premji-aima-convention-corporate-social-responsibility/1/198960.html>

health; (v) combating HIV, AIDS, malaria and other diseases; (vi) ensuring environmental sustainability; (vii) employment-enhancing vocational skills; (viii) social business projects; (ix) contribution to the Prime Minister's National Relief Fund or any other fund set up by the Central Government or the state governments for socioeconomic development, and relief and funds for the welfare of the scheduled castes, the scheduled tribes, other backward classes, minorities and women; and (x) such other matters as may be prescribed.

The CSR rule also provides some guidance on the enforcement mechanism needed to achieve the CSR goals. Specifically, it requires a firm to make changes within its board of directors and create a CSR committee consisting of three or more directors, at least one of which must be an independent director. The CSR committee is expected to devise, recommend, and monitor CSR activities, and the amounts spent on such activities. The new rule also requires that a firm must (i) publicly disclose an official policy on its CSR activities and document CSR activities implemented during the year in its annual report; and (ii) give preference to local areas where they operate. While a company is not subject to liability for failing to spend on CSR, a company and its officers are subject to liability for not explaining such a failure in the annual report of the board of directors.<sup>6</sup> There is currently no guidance as to what constitutes a sufficient or statutorily valid explanation for failure to spend in the board report.

Overall, the mandatory CSR rule of the Companies Act, 2013 is a unique regulation as it may be the first time in the world that a country considered mandating expenditures for the public good, rather than simply taxing companies or leaving them to conduct CSR activities on their own. According to Ernst & Young, these provisions would generate over U.S. \$2.5 billion

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<sup>6</sup> Failure to explain is punishable by a fine on the company of not less than INR 50,000 (about U.S. \$833) and up to INR 25 lakhs (about U.S. \$41,667). Further, officers who default on the reporting provision could be subject to up to three years in prison and/or fines of not less than INR 50,000 rupees (about U.S. \$833) and as high as INR 5 lakh (about U.S. \$8,333).

of CSR spending annually. While the country, which is home to the largest concentration of poverty on the planet, can certainly benefit from this large inflow of funds in socially responsible activities, the question remains whether this mandatory CSR improves or hurts shareholder value.

### 3. RELATED LITERATURE AND HYPOTHESES

Does CSR affect firm value? Existing theoretical literature on this question can be categorized in two opposing views: (i) shareholder expense view; and (ii) stakeholder value maximization view.

The shareholder expense view follows Milton Friedman's (1970) assertion that "*the social responsibility of business is to increase its profits.*" Friedman's fundamental criticism of CSR is that it involves managers spending shareholders' money and "in effect imposing taxes, on one hand, and deciding how the tax proceeds shall be spent, on the other." He also considers CSR as a drain on firm's valuable resources that should be utilized for shareholders value maximization.<sup>7</sup>

In contrast to the shareholder expense view, Freeman's (1984) stakeholder theory argues that a firm should consider the interests of everyone who substantially affects (or is affected by) the welfare of the firm. Thus, social, environmental or ethical preferences of stakeholders can induce CSR activities (Baron 2001; McWilliams and Siegal 2001). Such strategically motivated CSR activities can be profitable and the management literature terms this thesis as "*doing well by*

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<sup>7</sup> Consider the following excerpt from Business Week, 2005 which follows Friedman's intuition: "It's 8:30am on a Friday in July, and Carol B. Tomé is starting to sweat. The chief financial officer of Home Depot Inc. isn't getting ready to face a firing squad of investors or unveil troubled accounting at the home improvement giant. Instead, she and 200 other Home Depot employees are helping to build a playground replete with swings, slides, and a jungle gym at a local girls' club in hardscrabble Marietta, Ga. ... Is this any way to build shareholder value at Home Depot, where the stock has been stuck near \$43, down 35% from its all-time high?"

*doing good.*”<sup>8</sup> The economics based reasoning for profitable CSR is that these activities reduce transaction costs with stakeholders and provide net benefits to the firm. The theory of the firm, as advanced by Coase (1937) and expanded by Jensen and Meckling (1976), among others, views a firm as a nexus of contracts (both explicit and implicit) between shareholders and other stakeholders in which each group of stakeholders supplies the firm with critical resources. Firms that undertake CSR activities tend to develop a reputation for keeping their commitments associated with the implicit contracts. Consequently, stakeholders of these firms are more likely to contribute resources and effort to the firm and accept less favorable explicit contracts (compared to stakeholders of firms with no or low levels of CSR activities).

The empirical evidence on the direct effect of CSR on firm value is mixed. Margolis, Elfenbein, and Walsh (2009), in their influential meta-analysis of this body of work comprising roughly 167 studies, find that some studies document a positive effect when regressing firm’s financial performance (either accounting based ROA or stock returns) on corporate goodness while others find a negative effect. The average effect across these studies is a small positive increase in firm performance. More recently, Dhaliwal, Oz and Yang (2011) find that the voluntary disclosure of CSR activities leads to a reduction in the firm’s cost of capital, while attracting institutional investors and broader analyst coverage. Servaes and Tamayo (2013) find that CSR activities and firm value are positively related for firms with high customer awareness, but not for firms with low customer awareness. In contrast, Di Giuli and Kostovetsky (2014) find that Democrat-leaning firms are associated with more CSR policies than Republican-leaning firms, and increases in firm CSR ratings are associated with negative future stock returns and

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<sup>8</sup> Benabou and Tirole (2010), Margolis, Elfenbein, and Walsh (2009) and Kitzmueller and Shimshack (2012) are some papers that review this literature on “*doing well by doing good.*”

declines in ROA. This finding suggests that CSR activities that are motivated by the political affiliation of stakeholders come at the expense of firm value.

While, the discussion so far focuses on how voluntary CSR can be costly or beneficial to shareholders, we also have to consider the implications of mandatory CSR in India as imposed by the Companies Act. There are several reasons why mandatory CSR activities and their disclosure may not benefit, and might even harm, shareholders. If indeed Friedman's view of CSR is descriptively valid and firms optimally choose not to spend on CSR, imposing binding legal constraints on their CSR choices will lead to declines in their values. Further, once CSR spending and its reporting becomes mandatory, the Government may find it easier to pressure businesses to pick up the tab for social activities that it ought to have undertaken. It is also conceivable that the Government might start dictating how the CSR money should be spent, thereby limiting a firm's flexibility in coming up with its CSR policies.<sup>9</sup> Further, various interest groups may find it easier to lobby management to advance their environment and social goals. Finally, mandatory CSR also comes with compliance related costs such as administrative costs associated with reporting information and board monitoring CSR activities.

While a new regulation might often impose net costs on shareholders, there can also be situations where a regulation is in fact beneficial.<sup>10</sup> In the pre-mandatory CSR period, managers might be reluctant to spend on CSR or spend sub-optimally because of pressures to achieve short term earnings targets. However, with mandatory CSR required by the law, managers might now

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<sup>9</sup> For instance, the Indian state of Chattisgarh was considering an additional requirement that the CSR money should be directed to Chief Minister's fund. Source: <http://www.thehindu.com/todays-paper/chhattisgarh-wants-mandatory-csr-spends-to-go-to-cm-fund/article5132833.ece>

<sup>10</sup> For example Chhaochharia and Grinstein (2007) find that certain governance related provisions of Sarbanes Oxley Act led to increase in firm value. Black and Khanna (2007) find that the governance reforms (Clause 49) introduced in India are associated with positive stock market reaction. Similarly Black and Kim (2012) find that the 1999 Korean governance reforms also led to increase in firm value for the affected firms.



be able to nurture their relations with various stakeholders that might pay off in the long run. It is also possible that managers might spend on CSR to satisfy their own social preferences. Increased reporting and governance requirements imposed by the law will make firms redirect their CSR spending to maximize firm value. Finally, as discussed earlier, firms might use CSR activities as a signal of their commitment towards their implicit contracts. With the mandatory CSR rule, a firm's CSR policies become more formalized and visible thereby strengthening the signal. Hence, the terms of firms' explicit contracts might become more favorable to the firm.

In summary, there are several ways in which CSR can either have a positive or negative impact on firm value, thereby making this issue an intriguing empirical question. Based on this discussion our first hypothesis is:

*H1: The mandatory CSR rule affects firm value.*

We next hypothesize conditions under which mandatory CSR rule is likely to affect firm value differentially. Specifically, we consider whether the impact of CSR on shareholder value varies depending on the firm's agency problems, its political connections, its advertisement spending, and its affiliation to a highly polluting industry.

Under Friedman's framework, CSR activities of a firm can only be viewed as a manifestation of moral hazard towards shareholders. The pursuit of doing good may give corporate executives a higher feeling of satisfaction or positive public recognition (such as various CSR awards). A firm's CSR activities may be driven by a manager's own social preferences. It may also represent efforts of an entrenched manager to establish overly friendly relationship with specific stakeholders in order to reinforce his entrenchment strategy (Pagano and Volpin 2005; Surroca and Tribo 2008; Cronqvist, Heyman, Nilson, Svaleryd and Valchos 2009). In all these case, benefits that other stakeholders obtain from CSR activities come at the

expense of shareholder wealth, resulting in a wealth transfer from shareholders to other stakeholders. To the extent the increased reporting and governance requirements imposed by the mandatory CSR rule make firms redirect their CSR spending to maximize firm value, either by preventing managers from using CSR as an entrenchment device or as a means to satisfy their own social preferences, firm values will increase after the passage of the CSR rule as agency costs are reduced. Hence, our hypothesis is:

*H2a: The negative (positive) effect of mandatory CSR rule on firm value is lower (higher) among firms with high agency costs.*

Next, we consider the impact on political connectedness of a firm on the relation between CSR and firm value. Faccio (2006) suggests that political connections can be of value to a firm in several ways including - preferential treatment by government-owned enterprises (such as banks or raw material producers), lower taxation, preferential treatment in competition for government contracts, relaxed regulatory oversight of the company in question, or stiffer regulatory oversight of its rivals. However, as pointed by Shleifer and Vishny (1994), politicians themselves will extract at least some of the rents generated by connections, and firm value will be enhanced only when the marginal benefits of the connections outweigh their marginal costs. CSR spending might constitute a potential mechanism via which a firm can satisfy the preferences of politicians and increase its ability to conduct business with the government and other entities with their political connections. Consistent with this argument, Di Giuli and Kostovetsky (2014) find that companies with Democrat CEOs and companies headquartered in Democrat states have higher CSR ratings than companies with Republican CEOs or headquartered in Republican states. The importance of political connections becomes even greater in the context of India where the Government regulation is high, corruption is accepted as a ground reality and enforcement mechanisms are unpredictable (Khanna and Palepu 2000).

Consequently, CSR activities can become an important part of corporate strategy to enhance these political ties. For example, in his inaugural Independence Day speech, the Prime Minister of India recently urged corporations to take up building toilets in schools as a priority under their CSR policies. Within four days, companies announced over INR 200 crore (US\$ 33.33 million) contributions for Government's "Swachh Bharat" (Clean India) campaign.<sup>11</sup> To the extent firms can use CSR as a mechanism to enhance their political ties, CSR can be valuable. Therefore, we hypothesize that -

*H2b: The negative (positive) effect of mandatory CSR rule on firm value is lower (higher) among firms that are politically connected.*

The marketing and management literatures suggests that CSR activities of a firm can attract customers. Fisman, Heal, and Nair (2008), in their model, argue that consumers realize that only firms that care about product quality are willing to invest in CSR activities because purely profit-oriented firms (that can compromise on quality) find these investments to be "too expensive." By engaging in CSR, firms are able to identify themselves as the ones selling better quality products. Further, socially responsible consumers (e.g. "green" consumers) are more likely to buy and some are even willing to pay higher for products of CSR firms (Navarro 1988; Sen and Bhattacharya 2001). Servaes and Tamayo (2013) find that CSR and firm value are positively related for firms with high consumer awareness, as proxied by advertising expenditure. They argue that a necessary condition for CSR to modify consumer behavior and hence affect firm value is consumer awareness of the firm's CSR activities. Advertising expenditure enhances a firm's information environment, thereby increasing the firm's potential customers' awareness about the firm, its products, and practices (including CSR). This, in turn,

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<sup>11</sup> <http://timesofindia.indiatimes.com/india/Modis-Swachh-Bharat-call-gets-Rs-200-crore-from-TCS-Bharti/articleshow/40384230.cms>

is likely to increase the chances of a consumer identifying with the product, thereby enhancing revenue and eventually firm value. Following this logic, we hypothesize that –

*H2c: The negative (positive) effect of mandatory CSR rule on firm value is lower (higher) among firms with high levels of advertisement expenditure.*

Finally, we investigate whether the negative effect associated with the mandatory CSR rule is relatively strong among firms in polluting industries. Once CSR becomes mandatory, environmental activist groups and local communities can pressure these firms to spend on investments in green technologies or environmental controls. While these investments can benefit the overall environment, they typically tend to fetch limited firm-specific benefits.

Hence, we hypothesize that:

*H2d: The negative (positive) effect of mandatory CSR rule on firm value is higher (lower) among firms that are in high polluting industries.*

#### **4. DATA**

The data for our study is obtained primarily from Prowess, a database maintained by the Centre for Monitoring Indian Economy (CMIE). The Prowess database is widely used by scholars (e.g., Khanna and Palepu 2000; Bertrand, Mehta, and Mullainathan 2002; Gopalan, Nanda, and Seru 2007) to conduct large sample studies on Indian firms. Our sample comprises of firms with non-missing data on total assets, sales, net income, book value of equity, and market capitalization. We also require a firm to have stock return data around key event dates related to the passage of the Companies Act. These data restrictions yield a sample of 2,120 unique firms. We hand collect the data on CSR from the annual reports of these firms. To keep the data collection efforts manageable, we gather detailed information on the nature of CSR activities as well as the amount spent on CSR for the year 2012 - the most recent fiscal year

before the passage of the Companies Act. For years 2008-2011 when the Act was under various stages of deliberations, we just record whether a firm spends on CSR or not.

Table 1 describes the composition of our sample. During 2012, in a full sample of 2,120 firms, 1,237 firms meet the profitability/size thresholds mentioned in the Companies Act and hence are likely to be affected by the CSR norms in future. Of these firms, 458 firms (22%) currently spend funds on CSR whereas 779 firms (37%) do not spend anything on CSR. The remaining 883 firms (41%) of our sample are not affected by the CSR rule. We label these three groups of firms as *SPENDER*, *NONSPENDER*, and *UNAFFECTED*. Panel A presents the industry wise distribution of our sample. Construction and business services industries have the largest presence among the *SPENDER* and *NONSPENDER* firms, respectively. Panel B presents the descriptive statistics on the amount of CSR spent by *SPENDER* firms. The median amount spent on CSR is INR 3.02 million (approx \$50,333) which is roughly 0.37% of the average of last three years net income. The 75th percentile for CSR spending as a proportion of net income is 1.31%. These statistics suggest that a majority of firms currently do not spend funds on CSR and those that do spend are spending well below the proposed 2% level. Panel C provides details on the type of CSR activity undertaken by *SPENDER* firms. We hand-collect this information from the annual report or CSR reports of these firms. Almost all of these firms undertake multiple CSR related activities. The most common areas where firms focus their CSR spending are related to community welfare, education, environment, and health care.

Table 2 provides descriptive statistics on the characteristics for *SPENDER*, *NONSPENDER*, and *UNAFFECTED* firms. The construction of these variables is explained in Appendix A. Panel A shows that *SPENDER* firms are larger and more profitable than the *NONSPENDER* and *UNAFFECTED* firms. *SPENDER* firms also are more likely to belong to a

business group or owned by Government, compared to *NONSPENDER* firms. Further, *SPENDER* firms are more politically connected than *NONSPENDER* firms. We adopt Prowess' group classification for identifying business group affiliation and Government ownership. This group affiliation has been previously used by Khanna and Palepu (2000); Bertrand, Mehta, and Mullainathan (2002); Gopalan, Nanda, and Seru (2007) and other papers. We measure political connectedness using a dummy variable *POLITICAL*, that equals one if the firm or the business group to which a firm belongs has made a contribution of INR 20,000 or more to a political party in India between 2005-2012, and zero otherwise. We obtain this data from website of Association of Democratic Reforms, a non-for-profit organization working in the area of electoral and political reforms in India.<sup>12</sup> Finally, *SPENDER* firms are more likely to belong to industries identified by Ministry of Environment and Forests, Government of India as heavily polluting industries.<sup>13</sup> The dummy variable *POLLUTED* captures these industries and is equal to one if a firm belongs to metallurgical, chemical, petrochemical, coal, thermal power, building materials, paper, brewing, pharmaceutical, fermentation, textiles, leather, or the mining industry, and zero otherwise.

The Pearson correlations presented in panel B confirm these findings. *SPENDER* is positively correlated (p-value <0.01) with firm size, profitability, business group affiliation, *POLITICAL*, and *POLLUTED*. The differences in firm characteristics between the *SPENDER* and other firms are controlled for in every regression to follow. Moreover, the use of the regression discontinuity design, discussed in section 5.2 to follow, explicitly accounts for these differences by focusing on firms that fall in a narrow band around the eligibility thresholds for mandatory CSR set by the Companies Act 2013.

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<sup>12</sup> <http://adrindia.org/research-and-report/political-party-watch/combined-reports/2014/corporates-made-87-total-donations-k>

<sup>13</sup> <http://envfor.nic.in/legis/ucp/ucpsch8.html>

## 5. RESULTS

### 5.1. Announcement returns around legislative events leading to the Companies Act 2013

In Table 3 we report median cumulative abnormal returns (CAR) for the *UNAFFECTED*, *SPENDER*, and *NONSPENDER* firms around the key legislative events related with the passage of the Companies Act 2013. We measure abnormal returns by estimating the market model using two hundred trading days of return data ending 11 days before the legislative event. The return on CNX 500 index is used as a proxy for the market return.<sup>14</sup> Daily abnormal stock returns are cumulated to obtain the cumulative abnormal return (CAR) from day  $t-1$  before the legislative event date to day  $t+1$  after the event date. There is no significant market reaction for the first event i.e., when the Bill was introduced for the first time in the Lok Sabha (lower house of the Indian Parliament). This outcome is not surprising because this version of the Bill introduced in the Lok Sabha contained no clause related to CSR. The insignificant result (which is akin to a placebo test) mitigates the possibility that some unobserved firm characteristics drive the differences in CAR for the three sub-samples.

The second event is a very important in the context of our study because this represents the first mention of mandatory CSR in the Bill. As discussed in section 2.2, the parliamentary standing committee on finance vetted the initial version of the Bill introduced in the Lok Sabha and inserted a mandatory CSR clause. This new rule was a totally unexpected addition to the Bill. We find a significant negative market reaction to this news for the *SPENDER* (-1.3%) and *NONSPENDER* (-1.9%) firms but an insignificant reaction for the *UNAFFECTED* firms. The magnitude of the negative reaction for the *NONSPENDER* firms is also significantly greater than the market reaction for the *SPENDER* firms. When the Ministry of Corporate Affairs announced

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<sup>14</sup> CNX 500 is a broad based benchmark of the Indian capital market. It comprises of 500 firms that represents about 96% of the free float market capitalization of the stocks listed on National Stock Exchange of India (NSE). More details can be found at [http://www.nseindia.com/products/content/equities/indices/cnx\\_500.htm](http://www.nseindia.com/products/content/equities/indices/cnx_500.htm)

that it is considering making only the disclosure of CSR, but not the spending on CSR mandatory, there is a significant positive market reaction for the *SPENDER* (0.7%) and *NONSPENDER* (0.5%) firms. The passage of this Bill in the Lok Sabha also leads to a significantly negative reaction for the *SPENDER* (-1.6%) and *NONSPENDER* (2.4%) firms. The other events that we consider such as the re-introduction of the Bill in the Lok Sabha, submission of Standing committee's revised report, the passage of this Bill in the Rajya Sabha (the upper house of the Indian Parliament), and the Presidential assent to the Bill are not associated any significant market reaction, possibly because they may reflect predictable events related with the passage of the Bill, rather than any new information. Overall, these results provide an initial evidence of a negative impact of CSR on shareholder value.

To further establish the causal impact of mandatory CSR rule on firm value, we regress the three day CAR for each event discussed on dummy variables indicating whether a firm is *SPENDER* or *NONSPENDER*, a set of firm-level control variables and industry fixed effects. Our baseline regression model is as follows:

$$CAR = \beta_0 + \beta_1 SPENDER + \beta_2 NONSPENDER + \sum_j \delta_j Control_j + \varepsilon \quad (1)$$

In this model, *UNAFFECTED* firms act as the benchmark group and the coefficient  $\beta_0$  captures the average return of these *UNAFFECTED* firms. Our coefficients of interest are  $\beta_1$  and  $\beta_2$ , which capture incremental announcement returns for *SPENDER* and *NONSPENDER* firms, respectively, relative to the *UNAFFECTED* firms. A negative coefficient on  $\beta_1$  and  $\beta_2$  will be consistent with the decrease in shareholder value due to mandatory CSR whereas a positive coefficient on  $\beta_1$  and  $\beta_2$  will be consistent with the hypothesis that mandatory CSR increases shareholder value. Further, compared to *NONSPENDER* firms, *SPENDER* firms are relatively more compliant with the mandatory CSR norms. Hence we expect the impact of mandatory CSR



norms to be more pronounced for *NONSPENDER* firms. If mandatory CSR is value increasing we expect  $\beta_2 > \beta_1$ , whereas if mandatory CSR is value decreasing we expect  $\beta_2 < \beta_1$ .

The regression model also includes several control variables. Following Fama and French (1992), we include firm size and book-to market ratio in the model and expect negative and positive coefficients on these variables. The Companies Act 2013 also included several key provisions on corporate governance and auditor rotation. Hence we include a variable capturing board independence as well as a dummy variable that indicates if the firm engages a Big 4 auditor. These regulatory requirements can either impose additional costs on the firms or result in benefits due to better monitoring mechanisms. Hence, we do not make any predictions about the expected sign of coefficients on these variables. It is important to emphasize, however, that the governance improvements and auditor rotation provisions apply to all firms in our sample, regardless of whether they fell in the *SPENDER*, *NONSPENDER* or *UNAFFECTED* categories. Hence, the differential returns we document for these three types of firms are more likely attributable to mandatory CSR rather than to other governance enhancements passed in the Companies Act 2013.

We also include dummy variables in the model that indicate whether a firm belongs to a business group, is foreign owned, or is Government owned. These ownership structures, especially in the context of India, can affect firm performance and governance (Khanna and Palepu 2000; Bertrand, Mehta, and Mullainathan 2002; Gopalan, Nanda, and Seru 2007) and hence could also affect the market reaction to the mandatory CSR rule. Finally, we include industry dummy variables to overcome the problem associated with cross-sectional correlations in the individual firm returns that will arise given that the event period is common to all firms in our sample. We rely on robust standard errors in all our regression analyses.

Table 4 presents the results of estimating equation (1). The coefficient on *NONSPENDER*, is significantly negative in columns 2, 6, and 7 suggesting that the insertion of the mandatory CSR rule in the Bill by the parliamentary standing committee, the passage of this Bill in the Lok Sabha, and the passage of this Bill in the Rajya Sabha were viewed negatively by the shareholders of the *NONSPENDER* firms. *SPENDER* firms also experience a negative stock price reaction on the first two of these three event dates. Further, an *F-test* rejects the null hypothesis that  $\beta_2 = \beta_1$  in all these columns suggesting that the negative reaction is more pronounced for the *NONSPENDER* firms than the *SPENDER* firms on the event dates. Similar to the event study results, we do not find any market reaction to the *SPENDER* and *NONSPENDER* firms on other event dates. Collectively, these results are consistent with market participants viewing mandatory CSR as shareholder value decreasing activity.

## **5.2. Regression discontinuity design**

To provide further reliability related to the causal effect of CSR on shareholder value, we employ a regression discontinuity design (RDD). An RDD assigns firms in treatment and control groups based on whether their rating variable (also termed as forcing variable) falls just above or below a certain threshold. Any difference in outcomes for the two groups can reliably be attributed to the exogenously determined threshold that is not related to firm fundamentals. Recent applications of RDD in finance include Black and Kim (2006) who study Korean governance reforms, which apply to firms with assets greater than 2 trillion Korean Won, but not smaller firms; and Iliev (2010) who studies the impact of section 404 of Sarbanes-Oxley, which applies to U.S. firms with \$75M public float but not the smaller firms.<sup>15</sup>

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<sup>15</sup> See Lee and Lemieux (2010) and Roberts and Whited (2013) for surveys of RDD applications in the economics and finance literature. For a formal treatment of the RDD methodology, see Imbens and Lemieux (2008).

In our setting, the numerical thresholds for the CSR provision, based on reported net worth, sales or profits and determined by the Companies Act lead to a discrete change (i.e., a discontinuity) in the required adoption of CSR policies. We examine the three-day CAR of firms that fall just above and just below this threshold. The basic intuition here is that firms that are just above and below the threshold are fundamentally similar (verified later in the data) and hence unobservable firm characteristics are less likely to impact the relation between CSR and firm value. Further, there is no reason to believe that one group is more likely to undertake CSR activities than other, thereby mitigating the concern that firms spending on CSR self-select themselves based on their private information about future profitability, as suggested by Lys, Naughton and Wang (2015). Therefore, any differences in the observed three-day CAR of the two groups of firms – those that are required to spend and those that are not, can thus be attributed to the mandatory CSR rule that creates the discontinuity.

While applying RDD, we use the INR 50 million threshold stipulated in the Companies Act. We examine the three-day CAR of firms that the just above and just below this threshold. Specifically, we restrict the sample to firms that have a reported net income between INR 25 – 75 million. Firms with net income between INR 50-75 million are our treatment group and firms with net income between INR 25-50 million represent our control group. A critical choice in a RDD is that of bandwidth around the discontinuity. The further away one goes from the discontinuity, the weaker is the claim that assignment of firms in treatment and control groups is close to random. However, narrower bandwidth reduces the sample size and hence the power of tests. To make sure that our bandwidth is not overly large, we test for the differences in mean and median values of various firm characteristics for firms just above and below the threshold of INR 25 million. The statistically insignificant differences in various firm characteristics, as

reported in panel A of Table 5, provide support for our assumption that the firms just above and just below this threshold are indeed similar, except for the size and profitability criteria imposed by the mandatory CSR rule.

We estimate equation (1) for this sub-sample and present the results of such an analysis in panel B of the Table 5. Consistent with our earlier findings (documented in Table 4),  $\beta_2$ , the coefficient on *NONSPENDER* is significantly negative at 1% level in columns 2, and 6 suggesting a negative effect of mandatory CSR rule on equity value in firms that currently do not spend on CSR. Further,  $\beta_2$ , the coefficient on *SPENDER* is also negative in these two columns. However, *F-test* rejects the null hypothesis that  $\beta_2 = \beta_1$  only in column 2, possibly because the decrease in sample size due to the application of RDD reduces the power of our tests.

The validity of inferences based on RDD can also be challenged if firms can manipulate the rating variable – for example, some firms might manage the earnings downwards to report earnings below INR 25 million and avoid the compliance with the mandatory CSR rule. Such a manipulation will lead to biased estimate of the rule's effect. In our un-tabulated tests, we use the reported net income of 2009 to assign firms in the treatment and control group. Information about proposed mandatory CSR was not known in 2009. Hence, it becomes difficult to argue that firms systematically managed their earnings in 2009 downwards to escape mandatory CSR. Further, we also verify the robustness of our results when we use sales and net worth as the rating variables. Specifically, in panel C we consider firms with net worth between INR250- 500 million as the control group and firms with net worth between INR 500 million – INR750 million as the treatment group. Similarly, in panel D we use INR 1000 million +/- INR 250 million of sales as another setting to estimate the RDD. In both these instances, our results remain unchanged i.e. the mandatory CSR rule has a negative impact on equity value of firms

that currently do not spend funds on CSR. Moreover, firms are less likely to have manipulated the three different thresholds to avoid compliance with the mandatory CSR rules.

### 5.3. Cross sectional variation in abnormal returns around rule-making events

The results reported thus far are consistent with the hypothesis that the mandatory CSR spending rule has a negative effect on shareholder value. To provide further evidence on this inference, we investigate the cross sectional variation in the impact of mandatory CSR rule on shareholder value. Specifically, we examine four dimensions – consumer awareness, political connectedness, and environmental impact—hypothesized by prior work to affect the efficacy of CSR spending.

Specifically we estimate the following model-

$$CAR = \beta_0 + \beta_1 SPENDER + \beta_2 NONSPENDER + \beta_3 VARIATION + \beta_4 SPENDER * VARIATION + \beta_5 NONSPENDER * VARIATION + \sum_j \delta_j Control_j + \varepsilon \quad (2)$$

We estimate four different versions of this model where *VARIATION* refers to *BG* (the business group affiliation), *POLITICAL* (political connectedness), *AD* (advertisement intensity), and *POLLUTED* (affiliation to a highly polluting industry), respectively. Results from estimating model (2) are tabulated in Table 6. In panel A, we consider the impact of business group affiliation (our proxy for agency costs) on the relation between CSR spending and shareholder value. Consistent with our hypothesis, we find a positive and significant  $\beta_4$  and  $\beta_5$  coefficients in columns 2, 4, and 6 suggesting that the negative relation between CSR and shareholder value is mitigated in the presence of agency costs. Further, an *F*-test (untabulated) rejects the hypothesis that  $\beta_2 + \beta_3 + \beta_5 = 0$  in columns 2 and 6, indicating that CSR spending can lead to increase in shareholder value in these firms. In panel B, we consider the impact of political connections of a firm. Our results are very similar to those found in the panel A

suggesting that CSR spending can lead to increase in shareholder value in politically connected firms. In panels C and D, we generally find mixed or insignificant  $\beta_4$  and  $\beta_5$  coefficients, suggesting that a firm's advertisement spending and its affiliation to a highly polluting industry do not affect the CSR-shareholder value link in our context.

#### 5.4. Difference-in-differences analysis of Tobin's Q

In this section, we apply difference-in-differences (D-i-D) analysis as an alternative way to assess whether the mandatory CSR rule leads to a decline in value for the affected firms, right at the time when the rule was adopted. If investors consider CSR activities as detrimental to firm value, then the value of affected firms should decline, relative to that of unaffected firms, in the years when the likelihood of the passage of mandatory CSR rule increased, controlling for other factors that affect firm value. We estimate the following equation to test this prediction:

$$\Delta \ln(Q) = \alpha_0 + \sum_{i=2010}^{2013} \lambda_i \text{YEAR}_i * \text{SPENDER} + \sum_{i=2010}^{2013} \gamma_i \text{YEAR}_i * \text{NONSPENDER} + \sum_j \delta_j \Delta \text{Control}_j + \varepsilon \quad (3)$$

Following prior research on firm value and governance (e.g. Black and Kim 2012; Ahern and Dittmer 2012) we use Tobin's q as our main measure of firm value. Tobin's q is calculated as the sum of total assets and market value of equity less common book equity, divided by total assets. We consider logs of Tobin's q to address the skewness in non-logged values. Our CAR results indicate that the most important event dates in our study are (i) 31-Aug-2010, when the parliamentary standing committee on finance introduced the notion of mandatory CSR in the draft Bill; and (ii) 18-Dec-2011 when Lok Sabha passed this Bill containing mandatory CSR rule. Hence we expect negative coefficients on the interaction terms of the following dummy variables:  $\text{YEAR2011} * \text{SPENDER}$ ,  $\text{YEAR2013} * \text{SPENDER}$ ,  $\text{YEAR2011} * \text{NONSPENDER}$  and  $\text{YEAR2013} * \text{NONSPENDER}$ . We make no predictions about the signs of coefficients for other

interaction terms. The model also includes the main terms i.e. dummy variables for each year from 2010-2013, *SPENDER* and *NONSPENDER*. We do not posit directional predictions for these coefficients because they serve as controls for time-specific and group-specific effects in the D-i-D design. We further control for firm specific characteristics such as size, leverage, growth opportunities, profitability, liquidity, ownership structure, board independence, and the presence of Big 4 auditor, that are known to affect firm value.

In panel A of Table 7, we compare the year-on-year differences in  $Ln(Q)$  for the *UNAFFECTED*, *SPENDER* and *NONSPENDER* firms. Consistent with expectations, the mean and median values of  $\Delta Ln(Q)$  for the *SPENDER* and *NONSPENDER* firms are negative in the years 2011 and 2013. *NONSPENDER* firms experience a greater decline in  $Ln(Q)$  compared to *SPENDER* firms, who, in turn, suffer a greater than the decline in  $Ln(Q)$  compared to *UNAFFECTED* firms. These results suggest that, on average, compared to firms unaffected by mandatory rule, firms affected by mandatory CSR rule experience a greater decline in Tobin's Q ratio in the years when the likelihood of the passage of mandatory CSR rule increased.

Panel B of Table 7 presents results from the estimation of model 3. Columns 1 and 2 show the estimation results with and without firm specific controls. In columns 3 and 4, we estimate a variant of model 3 where we examine the level of Tobin's q and include firm fixed effects. Across all these columns, the coefficients on the interaction terms *YEAR2011\*SPENDER*, *YEAR2013\*SPENDER*, *YEAR2011\*NONSPENDER* and *YEAR2013\*NONSPENDER* are negative and significant. In terms of economic significance, from column 2, we can infer that during the years 2011 and 2013 the decline in Tobin's q ratio was 13.8% and 9.5% more for the *SPENDER* firms, relative to the benchmark *UNAFFECTED* firms. Similarly, during the years 2011 and 2013, the decline in Tobin's q ratio was 22.5% and

29.6% more for the *NONSPENDER* firms, relative to the benchmark *UNAFFECTED* firms. The *F-tests* also indicate that the decline in Tobin's q ratio was more for the *NONSPENDER* firms compared to the *SPENDER* firms, in these years. The sign on coefficient estimates for the firm-specific controls variables are consistent with prior research (e.g. Black and Kim 2012). Specifically, we find that leverage, profitability, growth opportunities, and liquidity to be positively associated with Tobin's q ratio, whereas firm size is negatively associated with Tobin's q ratio.

### **5.5. Instrument variable analysis of Tobin's Q**

Our final identification strategy uses the instrument variable (IV) approach. Though the mandatory CSR rule provides an exogenous shock, to the extent firms had anticipated this rule, they might alter their CSR policies. For example firms anticipating poor performance might start spending on CSR. By doing so, they might try to explain away the poor performance by blaming CSR. Alternately, firms spending on CSR might cut back on their CSR spending till it becomes mandatory to spend on CSR. This would mechanically lead to a negative relation between CSR and firm performance. To overcome these endogenous firm decisions that will confound the observed relation on CSR and firm value, we follow an instrument variable approach.

Our instruments for *SPENDER* are (i) *SPENDER2008*, an indicator variable that equals one if a firm spends on CSR activities in the year 2008, and zero otherwise, and (ii) *LOCASH*, an indicator variable that equals one if the cash holdings of a firm are in the bottom five percentile of the industry-year distribution. In the year 2008 there were no indications that CSR is going to be mandatory in future. Thus, CSR policies of a firm in 2008 are most likely to be free from the effects of any anticipated regulation. Whether a firm spends on CSR in the year 2008 (*SPENDER2008*) is correlated with whether a firm spends on CSR during the years 2009-2013



(*SPENDER*) but is not directly related changes in firm value in the years 2009-2013.<sup>16</sup>

Similarly, low financial flexibility as proxied by *LOCASH*, is likely to influence a firm's CSR spending (Hong, Kubik, and Scheinkman, 2012) but is unlikely to affect changes in firm value, especially because in our regressions we control for the continuous effect of changes in cash holdings on changes in firm value. The two-stage instrument variable model is specified as follow:

$$\text{First stage: } SPENDER = \alpha_0 + \mu_1 * SPENDER2008 + \mu_2 * LOCASH + \sum_j \delta_j \Delta Control_j + \varepsilon \quad (4)$$

$$\text{Second stage: } \Delta \ln(Q) = \alpha_0 + \sum_{i=2010}^{2013} \lambda_i YEAR_i * SPENDER\_FITTED + \sum_j \delta_j \Delta Control_j + \varepsilon \quad (5)$$

We estimate these equations with two-stage least squares (2SLS), with same control variables as in equation (3). In the first stage regression, we expect *SPENDER2008* to be positively associated with *SPENDER* because firms that have a CSR program going are likely to continue with it. We expect a negative association between *LOCASH* and *SPENDER* because we expect that the firms with financial constraints are not likely to spend on CSR. In the second stage, we regress  $\Delta \ln(Q)$  on the fitted value of *SPENDER* obtained from the first stage, and other exogenous control variables. Unlike models (1) – (3), we do not include the *UNAFFECTED* firms in the analysis and hence *NONSPENDER* firms become the benchmark in equation (5). This adjustment is necessary because in 2008 there was no information on which firms will be required to spend on CSR in future, but were not spending at that time. Thus, there is no way to come up with an IV for *NONSPENDERS*. Further, considering both

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<sup>16</sup> Our choice of IV is similar in spirit to the approach followed by Ahren and Dittmar (2012) who study the effect of mandatory female board representation law on firm value. They use the pre-law variation in the female board representation across firms as an instrument to capture exogenous variation in mandated changes in the proportion of female board members over time. Pre-law variation in the female board representation thus becomes a good IV because it is related to post-law variation in female board representation (endogenous independent variable) and it related to post-law firm value (dependent value) indirectly only through its effect on pre-law female board representation.

*UNAFFECTED* and *NONSPENDER* firms as the benchmarks would make the interpretation of coefficient difficult.

Table 8 presents results from the estimation of 2SLS model. Column 1 shows the estimation results from the first stage regression. Consistent with our expectations, *SPENDER* is significantly positively (negatively) related to *SPENDER2008 (LOCASH)*. Column 2 shows the second stage estimation results. The coefficient on the interaction terms *YEAR2011\*SPENDER\_FITTED* and *YEAR2013\*SPENDER\_FITTED* are positive and significant. These results indicate that during the years 2011 and 2013 which coincided with a greater likelihood of the passage of the mandatory CSR rules firms spending on CSR experienced a lower decline in the Tobin's Q ratio, relative to firms that did not spend on CSR.

Our IVs also satisfy the dual criteria of relevance and exogeneity. The under-identification test based on Kleibergen-Paap LM statistics strongly rejects the null hypothesis of no correlation between the IV and *SPENDER*. Although, IV exogeneity cannot be conclusively tested, the Hansen's *J*-statistics for the test of over-identifying restrictions are insignificant. This provides some comfort that, assuming one of the IVs is a valid IV, we cannot reject the null hypothesis of no correlation between the two IVs and 2SLS residuals.

## **5.6. Robustness tests**

We conduct several robustness tests to assess the sensitivity of our results. In the event study / CAR analysis we obtain similar results if we: (i) use buy-and-hold returns for the event window instead of summing daily abnormal returns; (ii) use COSPI index and MSCI emerging market index instead of CNX500 index as the proxy for market returns while estimating the market model to calculate abnormal returns<sup>17</sup>; (iii) use market adjusted returns to capture

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<sup>17</sup> COSPI is the CMIE's Overall Share Price Index (COSPI) that comprises of all the stocks in the CMIE universe.

abnormal returns instead of using the market model; (iv) change the event window to (-5,+5), (-2,+2), or (0,+2) instead of (-1,+1) while calculating cumulative abnormal returns; and (v) exclude the outliers instead of winsorizing them at 1% and 99%. We also obtain similar results in Table 7 and 8 if we (i) use market-to-book value of equity instead of the Tobin's q ratio, and (ii) estimate the regressions on a balanced panel where same numbers of firms are present throughout the event period.

## 6. CONCLUSION

This paper examines the effect of CSR activities on shareholder value. Our identification comes from a natural experiment consisting of a unique regulatory change in India that makes it mandatory for firms to spend 2% of their profits on CSR if their profits/ revenue / book value of equity exceed certain threshold. This natural experiment enables us to identify how stock market participants, in aggregate, view the average effect of mandatory CSR activities on shareholder value. We find that the average three-day cumulative abnormal return (CAR) around key events leading to the passage of this regulation is negative for firms affected by this regulation. Further, the negative returns are more pronounced for the subgroup of affected firms that currently do not spend on CSR, compared to those that do spend on CSR. We also find that compared to firms unaffected by the mandatory rule, firms affected by the mandatory CSR rule experience a greater decline in Tobin's q ratio in the years when the likelihood of the passage of mandatory CSR rule increased. Overall, our evidence suggests that mandatory CSR activities can impose social burdens on business activities at the expense of shareholders. Our findings also indicate that firms, left to their own devices, choose their optimal level of CSR spending designed to maximize their firm value. Hence, future research might want to be cautious about drawing causal inferences from associations of corporate outcomes and CSR spending.

While the findings of this study are specific to India, they are also relevant to the policy debate of other emerging economies which are experiencing unprecedented CSR initiatives by their regulators due to concerns related to unequal economic growth and environmental abuses. An important caveat of our study is that our analysis does not explore the social welfare implications of the mandatory CSR rule. Therefore, our study is not a verdict on regulatory reforms related to CSR, which is inherently a social welfare decision and involves numerous stakeholders, apart from shareholders. Whether mandatory CSR achieved its objective of social welfare is an important question we intend to study in future work.

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## Appendix A: Variable definitions

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<i>SPENDER</i>	indicator variable that equals one if the firm is required to spend on CSR activities under the new mandatory CSR rule of the Companies Act 2013, and does spend on CSR activities during the fiscal year and zero otherwise
<i>NONSPENDER</i>	indicator variable that equals one if the firm is required to spend on CSR activities under the new mandatory CSR rule, and does not spending on CSR activities during the fiscal year, and zero otherwise
<i>UNAFFECTED</i>	indicator variable that equals one if the firm is not affected by the new mandatory CSR rule, and zero otherwise
<i>CAR</i>	Cumulative abnormal returns where we measure abnormal returns by estimating the market model using two hundred trading days of return data ending 11 days before key legislative events related to the passage of the Companies Act 2013. The return on National Stock Exchange's CNX 500 index is used as a proxy for the market return. Daily abnormal stock returns are cumulated to obtain the cumulative abnormal return (CAR) from day t-1 before the legislative event date to day t+1 after the event date.
<i>Tobin's Q</i>	(book value of total assets + market value of equity - common book equity) / total assets
<i>SIZE</i>	natural log of the market value of equity ( market value of equity = stock price at the end of fiscal year * number of shares outstanding)
<i>BM</i>	ratio of book value of equity to the market value of equity
<i>LEV</i>	long term debt (including its current portion) divided by total assets at the end of year
<i>SGROWTH</i>	sales growth defined as $(sales_t - sales_{t-1}) / sales_{t-1}$
<i>ROA</i>	income from continuing operations divided by the total assets at the end of year
<i>CAPEX</i>	Capital expenditure during the year / total assets at the end of year
<i>CASH</i>	Cash and marketable securities at the end of year / total assets at the end of year
<i>BG</i>	Indicator variable that equals one if the firm belongs to a business group as defined by the Prowess database, and zero otherwise
<i>MNC</i>	indicator variable that equals one if the firm is a subsidiary of multinational corporation, and zero otherwise
<i>GOVT_OWNED</i>	indicator variable that equals one if the firm is a owned by the central or a state Government, and zero otherwise
<i>BOARD_INDPENDENCE</i>	number of independent directors on the board / total number of directors on the board
<i>BIG4</i>	indicator variable that equals one if the firm engages a Big 4 auditor, and zero otherwise
<i>AD</i>	advertisement expenses divided by the sales during the year
<i>POLITICAL</i>	indicator variable that equals one if the firm or the business group to which a firm belongs has made a contribution of INR20,000 or more to a political party in India between 2005-2012, and zero otherwise.
<i>POLLUTED</i>	indicator variable that equals one if the firm belongs to an industry identified by ministry of environment and forests, Government of India as heavily polluting industries, and zero otherwise

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**Table 1: Sample description**

Our sample consists of 2,120 unique firms over the period 2009-2013. In this table we present descriptive statistics on industry wide distribution, amount spent on CSR, and the type of CSR activity undertaken by sample firms in the year 2012.

*Panel A: Industry wise distribution*

Industry	UNAFFECTED	SPENDER	NONSPENDER	TOTAL	%
Automobiles and Truck	21	35	43	99	4.67%
Banking	43	21	51	115	5.42%
Business Services	84	28	60	172	8.11%
Chemicals	57	35	65	157	7.41%
Construction	36	41	61	138	6.51%
Construction Material	14	15	20	49	2.31%
Consumer Goods	19	14	18	51	2.41%
Electrical Equipment	19	11	22	52	2.45%
Food Products	25	17	36	78	3.68%
Machinery	26	21	38	85	4.01%
Non-Metallic and Industrial	20	11	22	53	2.50%
Pharmaceutical Products	44	34	29	107	5.05%
Steel Works	27	28	39	94	4.43%
Textiles	71	24	34	129	6.08%
Trading	86	13	27	126	5.94%
Wholesale	100	13	27	140	6.60%
Other industries with < 2% frequency	191	97	187	475	22.41%
<b>Total</b>	<b>883</b>	<b>458</b>	<b>779</b>	<b>2,120</b>	<b>100.00%</b>
	41.65%	21.60%	36.75%	100.00%	

*Panel B: CSR spending*

	Mean	Median	SD	P25	P75
CSR spending (INR million)	49.30	3.02	200.89	0.53	14.39
CSR spending /average last three years profits (%)	1.22	0.37	2.31	0.07	1.27

*Panel C: CSR activity undertaken*

CSR activity	N	%
Community welfare	242	52.84%
Education	212	46.29%
Environment	191	41.70%
Healthcare	178	38.86%
Rural development	44	9.61%
Women empowerment	37	8.08%
Children health	35	7.64%
Donations	31	6.77%
Disaster relief	25	5.46%
Sports	12	2.62%
Support for physically challenged	9	1.97%

**Table 2: Descriptive statistics**

Panel A of this table provides descriptive statistics of variables used in the empirical analyses and the Panel B presents the Pearson correlations between these variables. See Appendix A for variable definitions. These statistics are based on a sample of 2,120 unique firms for the year 2012. The significance of differences in means and medians are evaluated based on the *t-test* and *Wilcoxon test*, respectively (p-values for the t-statistic and Z-statistic are two-tailed). \* denotes at least 5% significance level.

*Panel A: Mean, median, and standard deviation of key variables*

	UNAFFECTED (1) N = 883			SPENDER (2) N = 458			NONSPENDER (3) N = 779			Difference in mean		Difference in median	
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD	[2] – [1]	[3] – [2]	[2] – [1]	[3] – [2]
<i>SIZE</i>	6.615	6.656	1.347	9.645	9.470	1.789	9.082	8.802	1.753	3.030*	-0.563*	2.814*	-0.668*
<i>BM</i>	2.289	1.821	1.831	1.530	1.171	1.353	1.915	1.315	1.755	-0.759*	0.384*	-0.650*	0.144*
<i>LEV</i>	0.438	0.454	0.262	0.483	0.496	0.218	0.462	0.493	0.237	0.045*	-0.021	0.042*	-0.002
<i>SGROWTH</i>	0.082	0.003	0.319	0.062	0.003	0.152	0.092	0.003	0.198	-0.019	0.030*	0.000	0.001
<i>ROA</i>	-0.009	0.005	0.071	0.062	0.048	0.067	0.054	0.046	0.067	0.071*	-0.008*	0.043*	-0.002
<i>CAPEX</i>	0.034	0.007	0.066	0.056	0.034	0.065	0.055	0.030	0.072	0.022*	-0.001	0.027*	-0.003
<i>CASH</i>	0.054	0.021	0.090	0.069	0.038	0.092	0.067	0.038	0.082	0.015*	-0.002	0.017*	0.000
<i>BG</i>	0.108	0.000	0.310	0.413	0.000	0.493	0.329	0.000	0.470	0.305*	-0.084*	0.000*	0.000*
<i>MNC</i>	0.015	0.000	0.121	0.022	0.000	0.146	0.027	0.000	0.162	0.007	0.005*	0.000	0.000
<i>GOVT_OWNED</i>	0.000	0.000	0.000	0.046	0.000	0.209	0.019	0.000	0.138	0.046*	-0.027	0.000*	0.000
<i>BOARD_INDPENDENCE</i>	0.481	0.500	0.128	0.470	0.462	0.110	0.459	0.462	0.124	-0.011	-0.011	-0.038*	0.000
<i>BIG4</i>	0.057	0.000	0.231	0.284	0.000	0.451	0.262	0.000	0.440	0.227*	-0.022	0.000	0.000
<i>AD</i>	0.001	0.000	0.007	0.005	0.000	0.014	0.005	0.000	0.015	0.004*	0.000	0.000*	0.000*
<i>POLITICAL</i>	0.014	0.000	0.116	0.159	0.000	0.366	0.087	0.000	0.282	0.146*	-0.072*	0.000*	0.000*
<i>POLLUTED</i>	0.386	0.000	0.487	0.531	1.000	0.500	0.443	0.000	0.497	0.144*	-0.088*	1.000*	-1.000*

Panel B: Pearson correlation among key variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
<i>SPENDER (1)</i>	1.000																
<i>NONSPENDER (2)</i>	-0.421*	1.000															
<i>SIZE (3)</i>	0.356*	0.320*	1.000														
<i>BM (4)</i>	-0.105*	-0.040*	0.061*	1.000													
<i>LEV (5)</i>	0.051*	0.010	0.217*	-0.096*	1.000												
<i>SGROWTH (6)</i>	-0.030*	0.059*	-0.054*	-0.071*	0.036*	1.000											
<i>ROA (7)</i>	0.193*	0.268*	0.088*	-0.254*	-0.277*	0.188*	1.000										
<i>CAPEX (8)</i>	0.082*	0.047*	0.082*	-0.048*	0.131*	0.081*	0.075*	1.000									
<i>CASH (9)</i>	0.042*	0.056*	0.043*	-0.145*	-0.225*	-0.012	0.219*	-0.120*	1.000								
<i>BG (10)</i>	0.188*	0.122*	0.394*	-0.074*	0.125*	-0.144*	0.027*	0.038*	0.015	1.000							
<i>MNC (11)</i>	-0.005	0.049*	0.032*	-0.054*	-0.055*	-0.039*	0.029*	-0.013	0.077*	-0.086*	1.000						
<i>GOVT_OWNED (12)</i>	0.117*	0.004	0.285*	0.027*	-0.031*	-0.033*	0.015	-0.039*	0.120*	-0.076*	-0.019	1.000					
<i>BOARD_INDEPENDENCE (13)</i>	-0.003	-0.068*	-0.091*	0.073*	0.013	0.003	-0.040*	-0.012	-0.075*	0.030*	-0.105*	-0.082*	1.000				
<i>BIG4 (14)</i>	0.121*	0.155*	0.292*	-0.169*	-0.031*	-0.054*	0.131*	0.031*	0.114*	0.257*	0.115*	-0.062*	-0.099*	1.000			
<i>AD (15)</i>	0.072*	0.098*	0.106*	-0.170*	-0.031*	0.006	0.178*	0.018	0.087*	0.098*	0.032*	-0.034*	-0.028*	0.203*	1.000		
<i>POLITICAL (16)</i>	0.176*	0.042*	0.268*	-0.131*	0.057*	-0.048*	0.065*	0.044*	0.006	0.355*	-0.010	-0.037*	-0.022*	0.268*	0.124*	1.000	
<i>POLLUTED (17)</i>	0.091*	0.014	0.072*	-0.038*	0.193*	0.025*	0.062*	0.078*	-0.095*	-0.007	-0.043*	-0.028*	-0.034*	-0.003	0.058*	0.021*	1.000

### Table 3: Event study results

This table reports median 3 day CAR around the key legislative events for the three subgroups of our sample i.e. *UNAFFECTED*, *SPENDER*, and *NONSPENDER*. We measure abnormal returns by estimating the market model using two hundred trading days of return data ending 11 days before key legislative events related to the passage of the Companies Act 2013. The return on National Stock Exchange's CNX 500 index is used as a proxy for the market return. Daily abnormal stock returns are cumulated to obtain the cumulative abnormal return (CAR) from day t-1 before the legislative event date to day t+1 after the event date. The significance of median and the difference in median values for the two subgroups is tested using Wilcoxon test. \*\*\*, \*\*, and \* denote significance at 1%, 5%, and 10% level (two-tailed), respectively.

Event	Date	Event description	UNAFFECTED (1)	SPENDER (2)	NONSPENDER (3)	Difference (3)-(2)
1	03 Aug 2009	The Bill is introduced in the Lok Sabha (lower house of parliament). There is no mention of CSR in this version of the Bill.	-0.001	-0.002	-0.006	-0.004
2	31 Aug 2010	The standing committee on finance submits its report and introduces a clause on mandatory CSR in the Bill.	0.000	-0.013***	-0.019***	-0.006***
3	28 Feb 2011	The Ministry of Corporate Affairs suggests that it is considering to make only the disclosure and not the spending on CSR mandatory	-0.001	0.007***	0.005***	-0.002
4	14 Dec 2011	The Bill is re-introduced in the Lok Sabha with a mandatory CSR clause	0.000	0.003	0.001	-0.002
5	26 Jun 2012	The standing committee on finance submits its report.	0.001*	0.001	0.002	0.002
6	18 Dec 2012	The Bill is passed in Lok Sabha with mandatory CSR clause	-0.009***	-0.016***	-0.024***	-0.008***
7	08 Aug 2013	The Bill is passed in Rajya Sabha (higher house of parliament) with mandatory CSR clause	0.007***	0.003	0.002	0.000
8	29 Aug 2013	The President of India signs the Bill	0.002	0.002	0.000	-0.002

**Table 4: Market reaction – regression analysis**

This table reports results of estimating model (1)

$$CAR = \beta_0 + \beta_1 SPENDER + \beta_2 NONSPENDER + \sum_j \delta_j Control_j + \varepsilon \quad (1)$$

We measure abnormal returns by estimating the market model using two hundred trading days of return data ending 11 days before key legislative events related to the passage of the Companies Act 2013. The return on National Stock Exchange's CNX 500 index is used as a proxy for the market return. Daily abnormal stock returns are cumulated to obtain the cumulative abnormal return (CAR) from day t-1 before the legislative event date to day t+1 after the event date. See Appendix A for variable definitions. The *t-statistics* reported in the parentheses are based on robust standard errors. \*\*\*, \*\*, and \* denote significance at 1%, 5%, and 10% level (two-tailed), respectively.

CAR3D	(1) 08/03/2009	(2) 08/31/2010	(3) 02/28/2011	(4) 12/14/2011	(5) 06/26/2012	(6) 12/18/2012	(7) 08/08/2013	(8) 08/29/2013
<i>SPENDER</i>	-0.000 (-0.036)	-0.022*** (-6.819)	-0.003 (-0.835)	0.002 (0.515)	-0.002 (-0.676)	-0.010*** (-2.899)	-0.005 (-0.808)	-0.005 (-1.058)
<i>NONSPENDER</i>	-0.001 (-0.241)	-0.028*** (-10.426)	-0.004 (-1.405)	-0.001 (-0.269)	0.001 (0.184)	-0.015*** (-5.054)	-0.011** (-2.291)	-0.006 (-1.392)
<i>SIZE</i>	-0.001 (-0.664)	0.002*** (3.241)	0.003*** (3.995)	-0.001 (-0.887)	0.001 (0.809)	0.003*** (3.464)	0.004*** (3.204)	0.000 (0.477)
<i>BM</i>	0.001*** (4.126)	-0.000 (-1.069)	-0.000 (-0.949)	-0.001** (-1.965)	-0.000 (-1.008)	0.000 (0.928)	0.000 (1.022)	-0.001** (-1.985)
<i>BOARD_INDPENDENCE</i>	0.005 (0.420)	-0.007 (-0.830)	0.013 (1.498)	0.008 (0.807)	0.002 (0.229)	0.008 (0.833)	-0.003 (-0.176)	0.006 (0.501)
<i>BIG4</i>	0.005 (1.108)	-0.004 (-1.314)	-0.001 (-0.423)	-0.007** (-1.976)	-0.001 (-0.396)	0.005* (1.711)	0.004 (0.684)	0.002 (0.441)
<i>BUSINESS_GROUP</i>	0.006 (1.628)	0.029*** (12.621)	-0.001 (-0.540)	-0.004 (-1.562)	0.001 (0.234)	0.019*** (7.551)	-0.004 (-0.981)	0.006* (1.783)
<i>GOVT_OWNED</i>	-0.007 (-0.961)	-0.007 (-1.460)	0.005 (0.673)	0.003 (0.444)	-0.000 (-0.055)	-0.006 (-1.026)	-0.002 (-0.236)	0.002 (0.297)
<i>MNC</i>	-0.007	-0.000	-0.014**	0.004	-0.002	-0.002	0.009	0.004
<i>F-test</i>								
$\beta_2 > \beta_1$	0.05	7.26***	0.28	1.13	1.66	5.37**	2.97*	0.17
Industry FE	Included	Included	Included	Included	Included	Included	Included	Included
Observations	1,712	1,882	1,958	1,922	1,956	1,998	1,569	1,550
Adjusted R <sup>2</sup>	0.024	0.040	0.024	0.015	0.001	0.063	0.036	0.003

## Table 5: Market reaction – regression discontinuity design

In Panel A, we compare the characteristics of firms just above and just below the profitability cut-off of INR 50M that mandates CSR. The significance of differences in means and medians are evaluated based on the t-test and Wilcoxon test, respectively (p-values for the t-statistic and Z-statistic are two-tailed).

Panels B, C and D report results of estimating model (1) using a regression discontinuity design

$$CAR = \beta_0 + \beta_1 SPENDER + \beta_2 NONSPENDER + \sum_j \beta_j Control_j + \varepsilon \quad (1)$$

To apply the regression discontinuity design, the sample is restricted to firms with (i) a net income in the range of INR 25M-75M, (ii) book value of INR 250M – 750 M, and (iii) sales of INR 750M – 1250M , in panels B, C, and D, respectively. We measure abnormal returns by estimating the market model using two hundred trading days of return data ending 11 days before key legislative events related to the passage of the Companies Act 2013. The return on National Stock Exchange’s CNX 500 index is used as a proxy for the market return. Daily abnormal stock returns are cumulated to obtain the cumulative abnormal return (CAR) from day t-1 before the legislative event date to day t+1 after the event date. See Appendix A for variable definitions. We do not report the coefficients on the intercept, control variables, and industry dummies for brevity. The *t-statistics* shown in the parentheses and are based on robust standard errors. \*\*\*, \*\*, and \* denote significance at 1%, 5%, and 10% level (two-tailed), respectively.

*Panel A: Comparison of firms just below and just above the profitability cut-off mandating CSR*

	(1) 25M <= Profit < 50M			(2) 50M <= Profit <= 75M			Difference (2) – (1)	
	Mean	Median	SD	Mean	Median	SD	Mean	Median
<i>SIZE</i>	7.071	7.014	1.030	7.337	7.275	0.918	0.266***	0.261***
<i>BM</i>	2.271	1.847	1.632	2.160	1.722	1.565	-0.111	-0.125
<i>LEV</i>	0.452	0.479	0.215	0.467	0.481	0.209	0.015	0.002
<i>ROA</i>	0.045	0.031	0.045	0.052	0.039	0.042	0.007***	0.009***
<i>CAPEX</i>	0.052	0.023	0.075	0.053	0.025	0.070	0.001	0.003
<i>SGROWTH</i>	0.098	0.009	0.243	0.127	0.011	0.224	0.029	0.002
<i>CASH</i>	0.066	0.030	0.096	0.062	0.034	0.083	-0.003	0.004
<i>BOARD_INDPENDENCE</i>	0.473	0.467	0.117	0.474	0.455	0.107	0.001	-0.012
<i>BIG4</i>	0.071	0.000	0.257	0.110	0.000	0.313	0.039***	0.000***
<i>BG</i>	0.135	0.000	0.342	0.159	0.000	0.366	0.024	0.000
<i>GOVT_OWNED</i>	0.002	0.000	0.044	0.000	0.000	0.000	-0.002	0.000
<i>MNC</i>	0.011	0.000	0.104	0.017	0.000	0.131	0.007	0.000
<i>AD</i>	0.002	0.000	0.008	0.002	0.000	0.008	0.000	0.000
<i>POLITICAL</i>	0.013	0.000	0.113	0.017	0.000	0.131	0.005	0.000
<i>POLLUTED</i>	0.490	0.000	0.500	0.476	0.000	0.500	-0.014	0.000

Panel B: RDD sample based on profit cut-off

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CAR3D	08/03/2009	08/31/2010	02/28/2011	12/14/2011	06/26/2012	12/18/2012	08/08/2013	08/29/2013
<i>SPENDER</i>	0.021*	-0.022**	-0.001	0.006	-0.004	-0.016*	0.006	0.002
	(1.923)	(-2.177)	(-0.120)	(0.500)	(-0.357)	(-1.909)	(0.346)	(0.133)
<i>NONSPENDER</i>	0.004	-0.039***	0.001	0.005	0.003	-0.023***	0.001	0.005
	(0.329)	(-7.202)	(0.076)	(0.634)	(0.343)	(-3.476)	(0.039)	(0.430)
<i>F-test</i>								
$\beta_2 > \beta_1$	1.73	3.59*	0.02	0.01	0.35	0.07	0.09	0.05
Controls	Included	Included	Included	Included	Included	Included	Included	Included
Industry FE	Included	Included	Included	Included	Included	Included	Included	Included
Observations	234	258	266	259	218	233	187	190
Adjusted R <sup>2</sup>	0.020	0.032	0.038	0.009	0.003	0.023	0.008	0.013

Panel C: RDD sample based on book value cut-off

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CAR3D	08/03/2009	08/31/2010	02/28/2011	12/14/2011	06/26/2012	12/18/2012	08/08/2013	08/29/2013
<i>SPENDER</i>	0.000	-0.023**	-0.010	-0.013	-0.007	-0.018**	-0.016	0.000
	(0.031)	(-2.356)	(-1.199)	(-1.409)	(-0.614)	(-2.100)	(-0.928)	(0.026)
<i>NONSPENDER</i>	0.005	-0.034***	-0.007	0.005	0.005	-0.025***	-0.006	0.001
	(0.555)	(-6.597)	(-1.129)	(0.685)	(0.613)	(-4.113)	(-0.477)	(0.084)
<i>F-test</i>								
$\beta_2 > \beta_1$	0.15	2.95*	0.08	2.91*	1.03	0.65	0.24	0.00
Controls	Included	Included	Included	Included	Included	Included	Included	Included
Industry FE	Included	Included	Included	Included	Included	Included	Included	Included
Observations	360	376	358	342	357	373	231	219
Adjusted R <sup>2</sup>	0.026	0.036	0.006	0.002	0.007	0.036	0.024	0.005

Panel D: RDD sample based on sales cut-off

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CAR3D	08/03/2009	08/31/2010	02/28/2011	12/14/2011	06/26/2012	12/18/2012	08/08/2013	08/29/2013
<i>SPENDER</i>	-0.026	-0.025*	-0.008	-0.030**	-0.001	-0.007	-0.018	0.003
	(-1.572)	(-1.974)	(-0.509)	(-2.349)	(-0.064)	(-0.501)	(-0.814)	(0.090)
<i>NONSPENDER</i>	-0.012	-0.035***	-0.005	0.011	-0.007	-0.022**	0.008	-0.008
	(-0.879)	(-3.891)	(-0.552)	(1.039)	(-0.680)	(-2.014)	(0.397)	(-0.599)
<i>F-test</i>								
$\beta_2 > \beta_1$	0.64	3.67*	0.03	9.79***	0.15	0.81	0.89	0.12
Controls	Included	Included	Included	Included	Included	Included	Included	Included
Industry FE	Included	Included	Included	Included	Included	Included	Included	Included
Observations	157	170	159	161	159	161	116	109
Adjusted R <sup>2</sup>	0.012	0.041	0.003	0.062	0.005	0.041	0.040	0.001

**Table 6: Market reaction – cross sectional differences**

This table reports results of estimating model (2):

$$\text{CAR} = \beta_0 + \beta_1 \text{SPENDER} + \beta_2 \text{NONSPENDER} + \beta_3 \text{VARIATION} + \beta_4 \text{SPENDER} * \text{VARIATION} + \beta_5 \text{NONSPENDER} * \text{VARIATION} + \sum_j \delta_j \text{Control}_j + \varepsilon \quad (2)$$

We estimate three different versions of this model where *VARIATION* refers to *BG* (business group affiliation), *POLITICAL* (political connectedness of a firm), *AD* (advertisement spending), and *POLLUTED* (affiliation to a highly polluting industry), in panels A, B, C and D, respectively. We measure abnormal returns by estimating the market model using two hundred trading days of return data ending 11 days before key legislative events related to the passage of the Companies Act 2013. The return on National Stock Exchange's CNX 500 index is used as a proxy for the market return. Daily abnormal stock returns are cumulated to obtain the cumulative abnormal return (CAR) from day t-1 before the legislative event date to day t+1 after the event date. See Appendix A for definitions of other variables. We do not report the coefficients on the intercept, control variables, and industry dummies for brevity. The *t*-statistics reported in the parentheses are based on robust standard errors. \*\*\*, \*\*, and \* denote significance at 1%, 5%, and 10% level (two-tailed), respectively.

*Panel A: Impact of firm's affiliation to a business group on the CSR-shareholder value relation*

CAR3D	(1) 08/03/2009	(2) 08/31/2010	(3) 02/28/2011	(4) 12/14/2011	(5) 06/26/2012	(6) 12/18/2012	(7) 08/08/2013	(8) 08/29/2013
<i>SPENDER</i>	-0.003 (-0.619)	-0.023*** (-6.467)	-0.002 (-0.620)	-0.003 (-0.784)	-0.003 (-0.770)	-0.012*** (-3.128)	0.001 (0.100)	-0.004 (-0.870)
<i>NONSPENDER</i>	-0.001 (-0.299)	-0.036*** (-12.881)	-0.004 (-1.214)	-0.004 (-0.986)	-0.000 (-0.025)	-0.022*** (-6.594)	-0.012** (-2.238)	-0.008* (-1.662)
<i>BG</i>	-0.000 (-0.029)	-0.000 (-0.043)	0.001 (0.083)	-0.023*** (-4.401)	-0.002 (-0.283)	-0.002 (-0.389)	0.004 (0.328)	0.001 (0.103)
<i>SPENDER* BG</i>	0.012 (1.316)	0.025*** (3.563)	-0.003 (-0.371)	0.027*** (4.037)	0.003 (0.404)	0.020*** (3.160)	-0.018 (-1.397)	0.002 (0.205)
<i>NONSPENDER* BG</i>	0.005 (0.597)	0.045*** (6.692)	-0.002 (-0.299)	0.022*** (3.448)	0.004 (0.471)	0.034*** (5.641)	-0.004 (-0.332)	0.008 (0.829)
Controls	Included	Included	Included	Included	Included	Included	Included	Included
Industry dummies	Included	Included	Included	Included	Included	Included	Included	Included
Observations	1,712	1,882	1,958	1,922	1,956	1,998	1,569	1,550
Adjusted R2	0.024	0.065	0.023	0.020	0.002	0.076	0.037	0.003

*Panel B: Impact of political connections on the CSR-shareholder value relation*

CAR3D	(1) 08/03/2009	(2) 08/31/2010	(3) 02/28/2011	(4) 12/14/2011	(5) 06/26/2012	(6) 12/18/2012	(7) 08/08/2013	(8) 08/29/2013
<i>SPENDER</i>	-0.000 (-0.085)	-0.023*** (-7.121)	-0.002 (-0.710)	-0.000 (-0.007)	-0.001 (-0.418)	-0.010*** (-3.020)	-0.002 (-0.341)	-0.005 (-0.977)
<i>NONSPENDER</i>	-0.002 (-0.375)	-0.029*** (-10.870)	-0.004 (-1.337)	-0.001 (-0.236)	0.001 (0.313)	-0.016*** (-5.302)	-0.011** (-2.165)	-0.006 (-1.275)
<i>POLITICAL</i>	-0.021 (-0.880)	0.003 (0.153)	0.015 (0.910)	-0.032*** (-2.629)	0.033 (1.084)	-0.011 (-0.577)	0.082*** (4.626)	0.029 (1.420)
<i>SPENDER* POLITICAL</i>	0.021 (0.851)	0.035* (1.645)	-0.015 (-0.874)	0.053*** (3.928)	-0.038 (-1.231)	0.031* (1.618)	-0.076*** (-4.591)	-0.025 (-1.165)
<i>NONSPENDER* POLITICAL</i>	0.027 (1.114)	0.057** (2.474)	-0.012 (-0.678)	0.033** (2.422)	-0.033 (-1.068)	0.047** (2.362)	-0.073*** (-3.625)	-0.025 (-1.161)
Controls	Included	Included	Included	Included	Included	Included	Included	Included
Industry FE	Included	Included	Included	Included	Included	Included	Included	Included
Observations	1,712	1,882	1,958	1,922	1,956	1,998	1,569	1,550
Adjusted R2	0.023	0.094	0.023	0.019	0.000	0.077	0.042	0.003



*Panel C: Impact of advertising on the CSR-shareholder value relation*

CAR3D	(1) 08/03/2009	(2) 08/31/2010	(3) 02/28/2011	(4) 12/14/2011	(5) 06/26/2012	(6) 12/18/2012	(7) 08/08/2013	(8) 08/29/2013
<i>SPENDER</i>	0.001 (0.143)	-0.024*** (-7.222)	-0.003 (-0.753)	0.002 (0.398)	-0.002 (-0.628)	-0.009*** (-2.737)	-0.001 (-0.191)	-0.005 (-1.046)
<i>NONSPENDER</i>	-0.001 (-0.336)	-0.029*** (-10.808)	-0.005 (-1.485)	-0.001 (-0.433)	0.001 (0.381)	-0.016*** (-5.117)	-0.009* (-1.722)	-0.005 (-1.203)
<i>AD</i>	-0.225 (-0.749)	-0.386* (-1.722)	-0.050 (-0.308)	-0.075 (-0.415)	0.268 (0.820)	0.046 (0.235)	0.797*** (4.048)	0.110 (0.631)
<i>SPENDER*AD</i>	0.069 (0.227)	0.546** (2.403)	0.013 (0.073)	0.148 (0.738)	-0.195 (-0.591)	-0.068 (-0.328)	-1.163*** (-5.442)	-0.089 (-0.484)
<i>NONSPENDER*AD</i>	0.252 (0.823)	0.496** (2.133)	0.102 (0.592)	0.168 (0.892)	-0.269 (-0.816)	0.056 (0.279)	-1.035*** (-5.038)	-0.206 (-1.081)
Controls	Included	Included	Included	Included	Included	Included	Included	Included
Industry FE	Included	Included	Included	Included	Included	Included	Included	Included
Observations	1,712	1,882	1,958	1,922	1,956	1,998	1,569	1,550
Adjusted R2	0.024	0.043	0.022	0.014	0.001	0.062	0.044	0.002

*Panel D: Impact of a firm's affiliation to a highly polluting industry on the CSR-shareholder value relation*

CAR3D	(1) 08/03/2009	(2) 08/31/2010	(3) 02/28/2011	(4) 12/14/2011	(5) 06/26/2012	(6) 12/18/2012	(7) 08/08/2013	(8) 08/29/2013
<i>SPENDER</i>	0.001 (0.131)	-0.019*** (-4.433)	-0.004 (-0.828)	0.000 (0.005)	-0.005 (-1.172)	-0.010** (-2.326)	0.003 (0.450)	0.006 (0.956)
<i>NONSPENDER</i>	-0.001 (-0.242)	-0.029*** (-7.983)	-0.008** (-2.067)	0.001 (0.243)	-0.002 (-0.483)	-0.017*** (-4.431)	-0.009 (-1.338)	0.008 (1.301)
<i>POLLUTED</i>	0.003 (0.259)	0.070*** (10.831)	-0.002 (-0.325)	-0.015* (-1.845)	0.009 (0.870)	-0.044*** (-6.041)	0.042*** (3.375)	-0.074*** (-7.593)
<i>SPENDER* POLLUTED</i>	-0.002 (-0.238)	-0.006 (-1.074)	0.002 (0.371)	0.004 (0.563)	0.006 (1.063)	0.001 (0.141)	-0.015 (-1.616)	-0.022*** (-2.667)
<i>NONSPENDER*POLLUTED</i>	0.001 (0.086)	0.001 (0.149)	0.009 (1.597)	-0.004 (-0.678)	0.006 (1.098)	0.004 (0.798)	-0.006 (-0.628)	-0.029*** (-3.678)
Controls	Included	Included	Included	Included	Included	Included	Included	Included
Industry FE	Included	Included	Included	Included	Included	Included	Included	Included
Observations	1,712	1,882	1,958	1,922	1,956	1,998	1,569	1,550
Adjusted R2	0.023	0.040	0.024	0.015	0.001	0.062	0.036	0.014

**Table 7: Difference – in – differences: Tobin’s Q analysis**

Panel A reports the mean and median values of  $\Delta \ln(Q)$  for *UNAFFECTED*, *SPENDER*, and *NONSPENDER* firms for the years 2009-2013. Q is the Tobin’s Q ratio defined as book value of total assets plus market value of equity less book value of equity, divided by the book value of total assets. The significance of differences in means and medians are evaluated based on the *t-test* and *Wilcoxon test*, respectively (p-values for the t-statistic and Z-statistic are two-tailed).

Panel B reports results of estimating model (3):

$$\Delta \ln(Q) = \alpha_0 + \sum_{i=2010}^{2013} \lambda_i \text{YEAR}_i * \text{SPENDER} + \sum_{i=2010}^{2013} \gamma_i \text{YEAR}_i * \text{NONSPENDER} + \sum_j \delta_j \Delta \text{Control}_j + \varepsilon \quad (3)$$

See Appendix A for variable definitions. The t-statistics reported in the parentheses are based on robust standard errors and are adjusted for firm and year clustering. \*\*\*, \*\*, and \* denote significance at 1%, 5%, and 10% level (two-tailed), respectively.

*Panel A: Univariate tests*

$\Delta \ln(Q)$	UNAFFECTED (1)		SPENDER (2)		NONSPENDER (3)		(2) - (1)	(3) - (2)	(2) - (1)	(3) - (2)
	Mean	Median	Mean	Median	Mean	Median	Difference in mean		Difference in median	
2009	-0.246	-0.194	-0.143	-0.089	-0.192	-0.125	0.103***	-0.049	0.105***	-0.036*
2010	0.271	0.202	0.378	0.308	0.341	0.293	0.107***	-0.037**	0.106***	-0.015*
2011	-0.077	-0.058	-0.225	-0.189	-0.522	-0.587	-0.148***	-0.297***	-0.131***	-0.398***
2012	-0.079	-0.049	0.064	0.057	0.108	0.110	0.143***	0.044*	0.106***	0.053***
2013	-0.078	-0.051	-0.131	-0.113	-0.487	-0.451	-0.053**	-0.356***	-0.062***	-0.338***

Panel B: Regression analysis

	(1) $\Delta \ln(Q)$	(2) $\Delta \ln(Q)$	(3) $\ln(Q)$	(4) $\ln(Q)$
YEAR2010*SPENDER	0.003 (0.083)	0.049 (1.188)	0.076*** (2.642)	0.117*** (4.050)
YEAR2011*SPENDER	-0.255*** (-6.841)	-0.226*** (-6.016)	-0.085*** (-3.010)	-0.026 (-0.907)
YEAR2012*SPENDER	0.038 (1.045)	0.048 (1.316)	0.118*** (4.513)	0.165*** (6.036)
YEAR2013*SPENDER	-0.157*** (-4.499)	-0.131*** (-3.805)	-0.124*** (-4.190)	-0.056* (-1.786)
YEAR2010*NONSPENDER	0.014 (0.398)	0.053 (1.473)	0.041 (1.557)	0.090*** (3.410)
YEAR2011*NONSPENDER	-0.508*** (-15.069)	-0.485*** (-14.415)	-0.216*** (-7.916)	-0.144*** (-5.409)
YEAR2012*NONSPENDER	0.125*** (3.721)	0.131*** (3.970)	0.066** (2.549)	0.135*** (5.158)
YEAR2013*NONSPENDER	-0.470*** (-13.834)	-0.455*** (-13.439)	-0.257*** (-8.484)	-0.175*** (-5.597)
YEAR2010	0.518*** (19.882)	0.479*** (17.993)	0.304*** (15.117)	0.292*** (14.179)
YEAR2011	0.173*** (7.368)	0.141*** (5.953)	0.237*** (12.158)	0.229*** (11.411)
YEAR2012	0.171*** (7.300)	0.148*** (6.270)	0.098*** (5.102)	0.116*** (5.750)
YEAR2013	0.170*** (7.308)	0.139*** (6.012)	0.028 (1.320)	0.056** (2.496)
SPENDER	0.097*** (3.370)	0.087*** (2.943)	0.042 (0.766)	-0.020 (-0.319)
NONSPENDER	0.058** (2.211)	0.060** (2.218)	0.006 (0.264)	-0.063** (-2.527)
$\Delta SIZE$		-0.219*** (-6.118)		-0.138*** (-5.175)
$\Delta LEVERAGE$		0.681*** (7.351)		0.843*** (11.747)
$\Delta SALES\_GROWTH$		0.084*** (4.487)		0.070*** (3.010)
$\Delta ROA$		0.221** (2.093)		0.747*** (6.093)
$\Delta CAPEX$		-0.009 (-0.213)		0.135*** (2.823)
$\Delta CASH$		0.253** (2.305)		0.321*** (2.674)
BG		-0.007 (-0.838)		-0.033 (-1.104)
MNC		0.025 (0.911)		0.090 (0.639)
GOVT_OWNED		-0.011 (-0.467)		-0.199 (-1.493)
BOARD_INDEPENDENCE		0.016 (0.418)		-0.068 (-1.063)
BIG4		0.023*** (2.674)		0.081** (2.387)
<i>F-test</i>				
$\lambda_2 + \delta_5 = \gamma_2 + \delta_6$	125.67***	128.07***	8.67***	6.52**
$\lambda_4 + \delta_5 = \gamma_4 + \delta_6$	351.02***	320.74***	8.41***	6.35**
Industry fixed effects	Yes	Yes	No	No
Firm fixed effects	No	No	Yes	Yes
Year Fixed effects	Yes	Yes	Yes	Yes
Observations	9,351	8,599	9,981	9,074
Adjusted R2	0.241	0.282	0.762	0.783

**Table 8: Instrument variable approach: Tobin's Q analysis**

This table reports results of estimating the following 2SLS model:

$$\text{First stage: } SPENDER = \alpha_0 + \mu_1 * SPENDER2008 + \mu_2 * LOCASH + \sum_j \delta_j \Delta Control_j + \varepsilon \quad (4)$$

$$\text{Second stage: } \Delta \ln(Q) = \alpha_0 + \sum_{i=2010}^{2013} \lambda_i YEAR_i * SPENDER\_FITTED + \sum_j \delta_j \Delta Control_j + \varepsilon \quad (5)$$

Q is the Tobin's Q ratio defined as book value of total assets plus market value of equity less book value of equity, divided by the book value of total assets. *SPENDER2008* is an indicator variable that equals one if a firm spends on CSR activities in the year 2008, and zero otherwise. *LOCASH* is an indicator variable that equals one if the cash holdings of a firm are in the bottom five percentile of the industry-year distribution, and zero otherwise. Control variables are same as those included in the Panel B of Table 7. See Appendix A for variable definitions. The *t*-statistics reported in the parentheses are based on robust standard errors and are adjusted for firm and year clustering. Coefficients on the control variables, industry dummy variables and intercept are not reported for brevity. \*\*\*, \*\*, and \* denote significance at 1%, 5%, and 10% level (two-tailed), respectively.

	(1) <i>First stage</i> <i>SPENDER</i>	(2) <i>Second stage</i> $\Delta \ln(Q)$
<i>SPENDER2008</i>	0.090*** (2.710)	
<i>LOCASH</i>	-0.342*** (-25.551)	
<i>SPENDER_FITTED</i>		0.0650 (0.340)
<i>YEAR2010*SPENDER_FITTED</i>		-0.1843 (-0.780)
<i>YEAR2011*SPENDER_FITTED</i>		0.4312* (1.710)
<i>YEAR2012* SPENDER_FITTED</i>		-0.1389 (-0.530)
<i>YEAR2013* SPENDER_FITTED</i>		0.5075** (2.010)
<i>YEAR2010</i>	-0.028 (-1.130)	0.5840 (6.250)***
<i>YEAR2011</i>	-0.042* (-1.810)	-0.4056 (-4.120)***
<i>YEAR2012</i>	-0.014 (-0.601)	0.2936 (2.850)***
<i>YEAR2013</i>	0.000 (-0.010)	-0.3932 (-3.830)***
Control variables	Included	Included
Industry FE	Yes	Yes
Observations	5,746	5,486
Adjusted R2	0.095	0.403
Under-identification test		
Kleibergen-Paap LM stat	84.69	
<i>p</i> -value of $\chi^2$ (2)	0.000	
Over-identification test of all IVs		
Hansen <i>J</i> -stat		0.255
<i>p</i> -value of $\chi^2$ (2)		0.614