Peer Effects of Corporate Social Responsibility*

Jie Cao
The Chinese University of Hong Kong
E-mail: jiecao@cuhk.edu.hk

Hao Liang
Singapore Management University
E-mail: hliang@smu.edu.sg

Xintong Zhan
The Chinese University of Hong Kong
E-mail: xintong@baf.cuhk.edu.hk

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Abstract

We investigate how firms react to their peers' adoption of corporate social responsibility (CSR) by using a regression discontinuity design that relies on "locally" exogenous variations of CSR generated by shareholder proposals that pass or fail by a small margin of votes. We find that peers of a voting firm that passes a close-call CSR proposal experience lower announcement returns and higher following-year CSR scores than those of a voting firm that marginally rejects. Such effects are stronger in peer firms with higher competitive pressure and a more transparent information environment, and vary across peer firms with different financial constraints.

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We investigate how firms react to their peers' adoption of corporate social responsibility (CSR) by using a regression discontinuity design that relies on "locally" exogenous variations of CSR generated by shareholder proposals that pass or fail by a small margin of votes. We find that peers of a voting firm that passes a close-call CSR proposal experience lower announcement returns and higher following-year CSR scores than those of a voting firm that marginally rejects. Such effects are stronger in peer firms with higher competitive pressure and a more transparent information environment, and vary across peer firms with different financial constraints.

Keywords: Corporate social responsibility; peer effects; shareholder proposal; regression discontinuity.

JEL Classification: M14; L10; G14; G30

1. Introduction

Corporate social responsibility (CSR) has increasingly become a mainstream business activity—ranging from voluntarily engaging in environmental protection to increasing workforce diversity and employee welfare—although standard economic theories predict that it should be rather uncommon (Benabou and Tirole (2010), Kitzmueller and Shimshack (2012)). The neoclassical economic paradigm usually considers CSR as unnecessary and inconsistent with profit maximization (e.g., Friedman (1970)). This discrepancy between theory and real-world observations has attracted much scholarly attention in recent years. One popular view on why CSR prevails is that it creates a competitive advantage for the firm, such as enhanced social capital that may lead to higher profitability and sales growth (Lins, Servaes, and Tamayo (2015)), and thus contributes to firm value. Following this line, numerous studies have investigated the strategic value implications of CSR by focusing on how the adoption of CSR leads to higher returns and lower risks (e.g., Deng, Kang, and Low (2013), Flammer (2015a), Albuquerque, Durnev, and Koskinen (2014)). Others study the causes of CSR, and attribute the level of CSR to a firm's financial and operational performance (e.g., Hong, Kubik, and Scheinkman (2012)).

While shedding light on the relationship between CSR and firm performance, the extant studies are largely silent on how CSR *interacts with* the firm's surrounding environment, such as influencing industry structure and product market competition. Notably, firms do not operate in isolation, and they often compete with other firms in the product market. If CSR creates a competitive advantage, its effect should be mostly manifested through a firm's competition with other firms. To the extent that CSR signifies a firm's influence on the society in general and its product quality in particular, one can reasonably expect that it can affect other peer firms' competitive position and CSR practice as well. For instance, when a firm adopts a green technology in its production, it may be perceived as a threat to its peer firms, because such green technology may attract more environmentally conscious customers to switch from these peer firms to the adopting firm. Investors in these peer firms are aware of the potential loss of their companies' market shares, leading to immediate negative stock market reactions. To catch up with their competitor and regain their competitive edge, these peer firms may then adopt similar technologies in the next period. In this study, we build on this competitive advantage perspective of CSR and formally examine whether and how a firm's adoption of CSR can affect the CSR practice and value of its peer firms.

Properly addressing these questions is difficult, as both CSR and a firm's competitive position in the market are arguably endogenous choices of the firm. This posits an empirical challenge as to whether firms and investors react to their peers' CSR actions by changing their firm's CSR practice and market valuations, or whether the pre-existing differences in other unobservable firm characteristics lead different firms to adopt different levels of CSR. It is also challenging to apply a typical quasi-natural experiment approach by exploring exogenous legislative changes, because such legislative changes usually affect the CSR of all firms in the same industry or market. Moreover, the traditional definition of peer firms based on industry classifications such as the Standard Industrial Classification (SIC) and the North American Industry Classification System (NAICS) may not properly capture a true peer group—which may span multiple industries with regard to CSR practice—as most CSR issues are not industry-specific and can affect a broad range of stakeholders (such as environmental protection and product quality). As a result, the existing literature generally falls short in providing causal estimates of the peer effects of CSR.

In this study, we circumvent these empirical concerns and investigate the *product market* peer effects of CSR by using a Regression Discontinuity Design (RDD) approach. More specifically, we compare the effects of a firm's shareholder-sponsored CSR proposals that pass or fail by a small margin of votes (around the 50% majority threshold) in annual meetings on its peer firms' stock returns and subsequent CSR practice. The passage of such close-call proposals is akin to randomly "assigning" CSR to companies and hence is not correlated with peer firms' characteristics. Conceptually, there is no reason to expect that peer firms of a company for which a CSR proposal passes with 50.1% of the votes are systematically different from peer firms of a company for which a similar proposal fails with 49.9% of the votes, keeping everything else constant. Therefore, close-call CSR proposals provide a source of random variation of a firm's CSR that can be used to estimate the *causal effect* of CSR on peer firms' market valuation and CSR practice.[1] Although a similar approach has been used by Flammer (2015a) and by Cuñat, Gine, and Guadalupe (2012) to study the effects of

[1] Appendix A shows two examples of voting on CSR proposals which help illustrate our empirical method. The example in Panel A is a case of a *marginally rejected* CSR proposal during the shareholder meeting of Massey Company on May 19, 2010. The proposal on carbon dioxide emissions was rejected with 45.6% supporting votes. The example in Panel B is a case of a *marginally approved* CSR proposal during the shareholder meeting of IDACORP, Inc on May 21, 2010. The proposal on reducing total greenhouse gas emissions was passed with 51.2% supporting votes. Our objective is to examine the difference in non-voting peer firms' reaction. In our sample Massey Energy Company has 49 peer firms, with an average 3-day CAR of 0.0137 and an average adjusted KLD score of -0.62 in the year after the vote, i.e. 2010. IDACORP, Inc. has 55 peers, with an average 3-day CAR of -0.0068 and an average adjusted KLD score of -0.20. We analyze the peer effects of CSR by comparing the difference in peer firms' market reaction (i.e., -0.0068 v.s. 0.0137) in peer firms' future CSR performance (i.e., -0.20 v.s. -0.62).

the adoption of CSR proposals and of corporate governance proposals on stock returns, both studies examined the *focal* firm's shareholder value rather than peer effects induced by market competition. Our empirical setting focusing on peer firms enables us to go beyond the focal firm's perspective and study the dynamic interaction among firms, which captures the competitive nature of CSR that is largely unexplored in the literature. This focus on the competitive effect of CSR also reduces the concern on the external validity of our results (which can also apply to the results in Flammer (2015a) and Cuñat et al. (2012)), since such effect matters most in relatively oligopolistic industries in which a few large players compete with similar and most value-enhancing strategies. We discuss the external validity of the RDD results in the Conclusion section.

The two pillars of our empirical analyses are the measurement of CSR and the identification of peer groups. First, we measure CSR using the Kinder, Lydenberg, and Domini (KLD) scores, which are the most comprehensive and standard CSR scores in the literature (e.g., Chatterji et al. (2009), Hong and Liskovich (2014), Flammer (2015a, 2015b)). KLD scores are developed by a for-profit company and are similar to credit ratings. The scores measure firm-level CSR along the lines of community relations, product characteristics, environmental impact, employee relations, workforce diversity, and corporate governance. KLD scans public databases such as those with employee strikes and Environmental Protection Agency (EPA) violations, and uses a team of analysts to measure these and other social responsibility dimensions of firm production. Second, we construct our sample of peer firms using the Hoberg-Phillips industry classification based on firm pairwise similarity scores from textual analyses of firm 10-K product descriptions. This method constructs a peer firm group based on the relatedness of firms in the product market space and can measure both within and across industry similarity. In contrast, the standard industry classifications such as the SIC and the NAICS are not defined according to a corresponding spatial representation or a continuous representation of the pairwise similarity of any two firms and thus their identifications of peer firms do not properly reflect their competitive nature—that is, the similarity of their products.

By empirically testing a large sample of 3,452 U.S. public non-voting "peer" firms over the period of 1997–2011 using the RDD approach, we find strong effects of the passage of close-call CSR proposals on peer firms' shareholder value and subsequent CSR adoption. More specifically, on the days close to and right after the shareholder meeting, the passage of a firm's CSR proposal by a narrow margin of votes yields a three-day cumulative abnormal return (CAR) of its non-voting peer firms that is 0.6% to 1% *lower* than the peers of the voting firm whose similar CSR proposal fails marginally. In

addition, if the voting firm marginally passes a close-call CSR proposal, the average CSR score for its non-voting peer firms in the following year is 0.16 points higher than that of the non-voting peer firms in which the vote marginally fails. This difference is economically significant as it is about 30% of the standard deviation of the adjusted CSR score. These results are robust when using global polynomial estimations, different measures of CSR and their sub-scores, as well as different peer samples (i.e., peer samples that are randomly drawn or based on SIC 3-digit industry classification). Such effects are absent in non-peer groups and for non-CSR proposals. In addition, peer firms tend to catch up by voluntarily engaging in CSR initiatives (rather than reducing CSR concerns), and in the same domain in which their competing voting firm passes the specific type of CSR proposal. To describe such dynamics of peer effects in the equilibrium context: initially, firms in the same peer group remain at their equilibrium-level of CSR. However, when one firm (the voting firm) "randomly" deviates from the equilibrium by raising its CSR level (due to the passage of a close-call CSR proposal), its peer firms first experience a utility loss and then react by also engaging in more CSR practice. As a result, all firms' CSR are at a higher level in the new equilibrium.

We further explore a few channels through which such CSR-peer effects take place. First, we investigate the competitive relation between the voting firm and its peers. We find that the aforementioned peer effects are stronger in firms with higher competitive pressure, as measured by the similarity of the products between a voting firm and its non-voting peers. Second, we investigate whether peer firms' capability in catching up in CSR performance is limited by their financial constraints and how this is reflected in the reaction of their investors. We find that peers with more severe financial constraints experience more negative abnormal returns and less CSR adoption following the passage of the voting firm's CSR proposal. Third, we investigate the role of information transparency in transmitting CSR peer effects, and find that the differences in CARs and following-year CSR are larger in peer firms with more transparent information environment as proxied by analyst coverage.

We also examine two important alternative interpretations of our results. One is based on a "learning" hypothesis, which suggests that peer firms engage more in CSR after "learning" from the voting firms' positive stock reactions following the adoption of CSR. However, as we discuss in Section 6, such learning-based argument cannot be reconciled with the initial negative stock reaction of peer firms upon the voting firm's passage of CSR proposal. The second relates to a "herding" hypothesis and an agency-based argument that CSR is costly and is a deviation from firm value

maximization. Specifically, investors of peer firms expect that there will be a spillover effect of the costly CSR adoption and thus respond unfavorably, which may account for the lower announcement CARs of their firms. We address this concern in a sample of strategic alliances for which the relationship between peers is now collaborating rather than competing. The agency-based argument would predict similar effects in both types of relationship. Our empirical findings show that strategic alliance partners of the voting firm that marginally passes a CSR proposal experience *higher* stock market returns and a *higher* KLD score in the following year than alliance partners of the voting firm in which a CSR proposal is marginally rejected, which does not support the agency-based argument.

Two guideposts can be used to put our findings into the context of the literature. First, our work echoes the recent academic attention on peer effects in corporate behavior and financial performance. The extant literature has discovered substantial peer effects on corporate behavior such as firms reacting to their peers' financial policies by adjusting their capital structure (Leary and Roberts (2014)) and reducing cash holdings and capital expenditure while increasing dividend payout and adopting more anti-takeover devices following hostile takeover threats in their industry (Servaes and Tamayo (2014)). Other studies focus on firms' stock price reactions to the news announcements of their peers such as earnings restatement (Gleason, Jenkins, and Johnson (2008)), bankruptcy attempt (Lang and Stulz (1992)), success of IPOs (Hsu, Reed, and Rocholl (2010)), and regulatory actions (Hadlock and Sonti (2012)). As an increasingly important aspect of corporate behavior, CSR that has been documented to be closely related to financial performance provides us an ideal foundation to test a different facet of peer effects. Our study combines the effects on both firm behavior and financial performance by investigating peer firms' CSR adoption and abnormal returns following the passage of shareholder-sponsored CSR proposals, thus providing a more comprehensive evaluation of peer effects in the competitive product market.

Second, our work contributes to the understanding of the determinants and consequences of CSR. On the determinants of CSR, the literature mostly focuses on a firm's own financial motives (e.g., Hong et al. (2012), Jo and Harjoto (2012)), trade liberalization (Flammer (2015b)), and institutional environment (e.g., Liang and Renneboog (2014)). Our work extends the scope of this literature by focusing on the dynamic nature of CSR and empirically documenting that a firm's CSR policy can also be substantially changed by its peers' CSR practice. On the consequences of CSR, the literature has shown that it can contribute to the *focal* firm's stock return, long-term operating performance (Flammer (2015a)), acquirer return and post-merger performance (Deng, Kang, and Low (2013)),

reduction of costs of capital (e.g., Dhaliwal, Li, Tsang, and Yang (2011), El Ghoul et al. (2011)) and improvement of employee productivity (Flammer (2015b)). Our study further documents that a firm's CSR adoption can also influence its *peer* firms' stock returns, thus extends the understanding of the scope of the CSR effect, namely, CSR not only influences focal firms' financial performance, but also the performance of other firms.

The rest of the paper proceeds as follows. Section 2 reviews the literature on CSR and on peer effects in corporate finance. Section 3 discusses the data and methodology and Section 4 presents the main results of CSR peer effects. Section 5 explores a few potential channels of the CSR peer effects and Section 6 discusses the alternative interpretations by studying the CSR peer effects on alliance partners. Section 7 concludes.

2. Corporate Social Responsibility and Peer Effects

2.1. Corporate social responsibility

The desirability of firms engaging in corporate social responsibility has long been recognized and discussed. Many researchers and practitioners consider CSR a way of obtaining competitive advantage such that a firm can increase its "social capital" by being actively involved in activities that help to build good relationships with its key stakeholders (e.g., Edmans (2011), Deng et al. (2013), Flammer (2015a)). Others consider CSR as a way of signaling product market quality and generating a good corporate image that makes investors and consumers more attached to the company (Hong and Liskovich (2014)). CSR is also frequently regarded as delegated giving, whereby firms are well positioned to deliver warm-glow feelings to stakeholders who are then willing to direct their money to more socially responsible firms by purchasing their products and holding their stocks (e.g., Benabou and Tirole (2010)). All of these arguments suggest that CSR can contribute to the maximization of firm value. Voluminous studies have documented that on average, a higher CSR score is associated with higher profitability and sales growth (Lins et al. (2015)), higher firm value as proxied by Tobin's Q for firms in controversial industries (Cai, Jo, and Pan (2012), lower idiosyncratic risk (e.g., Lee and Faff (2009)), a lower probability of financial distress (e.g., Goss (2009)), a lower cost of capital ((El Ghoul et al. (2011), Dhaliwal et al. (2011), Albuquerque, Durnev, and Koskinen (2014)), more positive sell-side analysts' recommendations (e.g., Bushee and Noe (2000)), and higher abnormal returns and long-term post-acquisition returns (e.g., Flammer (2015a), Deng et al. (2013)).

The opposite view questioning the desirability of CSR also exists. The opponents of CSR usually consider it as being induced by managerial agency problems, as managers do "good" with other people's money. In particular, managers may pursue private benefits by engaging in costly but value-destroying CSR projects (e.g, Cheng et al. (2014), Masulis and Reza (2015)). Following this line, some studies have documented that firm participation in certain social issues—such as not engaging in "sin" industries, avoiding nuclear energy, and charity giving—is negatively associated with shareholder returns (e.g., Brown, Helland, and Smith (2006), Brammer and Millington (2008), Di Giuli and Kostovetsky (2014), Masulis and Reza (2015)).

Arguably, CSR can be both strategically valuable and a symptom of managerial agency problems (which can be value-destroying) (Krueger (2015)). Our empirical results that non-voting, *product market* peers on average experience a *lower* three-day CAR and a *higher* subsequent CSR score if the voting firm marginally passes a CSR proposal tend to support the competitive advantage argument of CSR. In particular, the strategic value of the exogenously increased CSR in voting firms threatens the non-voting peers, causes a lower stock market return, and leads the non-voting firms to engage in CSR activities to maintain their competitive position. Perhaps more importantly, the effects are stronger when the competition is higher and when information about non-voting firms is more transparent, which lends further support to the argument that CSR on average has strategic value and is unlikely to be driven by agency problems. Therefore, studying the dynamic interactions between peer firms, CSR, and shareholder value can shed light on the value implications of CSR. In the next section, we review the growing body of literature of peer effects in finance and discuss in further detail how the value implications of CSR can be studied in a peer context.

2.2. Peer effects

The existence of peer effects on individual and households' financial decision making and behavior has long been documented (e.g., Kaustia and Knüpfer (2012); Georgarakos, Haliassos, and Pasini (2014)). Recent studies have established that substantial externalities and peer effects also exist in corporate policies. Peer effects are believed to be one of the most important determinants of corporate behavior, as firms increasingly interact with other firms within the same industry and across different industries in their daily operations. For example, according to Leary and Roberts (2014), peer effects are more important for capital structure determination than most previously identified determinants. Such peer effects are also found in corporate precautionary cash holdings (e.g., Hoberg et al. (2014)),

corporate investment decisions (e.g., Foucault and Fresard (2014)), and financial misconduct (e.g., Parsons, Sulaeman, and Titman (2014), Kaustia and Rantala (2015)). In addition, one type of behavior of a firm may trigger other types of behaviors and related financial policies of its peer firms, and such effects can subsequently be reflected in peer firms' stock returns. For example, Servaes and Tamayo (2014) find that following a firm's hostile takeover attempt, its industry peers cut their capital spending, free cash flows, and cash holdings while increasing their leverage and payouts and adopting more takeover defenses. Peer firms' stock returns and performance also improve after a takeover attempt. Similarly, Hsu et al. (2010) find that the successful IPO of a company triggers negative stock price reactions of its peer firms, whereas a withdrawal is associated with peers' positive stock price reactions.

While most of these studies investigate the peer effects on a firm's *financial* performance, little is known about such implications on a firm's *social* performance. Given the voluminous evidence on peer effects of various corporate policies, it is reasonable to expect that CSR as an important corporate policy aimed at addressing various stakeholders' issues that are often commonly shared by the local community, the industry, and even the country, should also be subject to peer effects. Combining the literature of CSR and peer effects, we argue that the peer effects of CSR can function through both influencing peer firms' stock returns and CSR policies. From the perspective of competition, when a firm observes a commitment in CSR by its competitor, the threat of losing the competitive position in the product market appears, and its *relative* value decreases. In response, the firm will increase its engagement in CSR to be more competitive.

Following this line of competition logic, our paper fills the gap in the peer effects of corporate social performance by investigating how firms react to the adoption of CSR their *product market* competitors. The traditional industry classification or geographical proximity, which has been used in the previous literature as identification for peer firms, may not properly capture the extent to which firms compete, a context that we study in this paper. Recently, Hoberg and Phillips (2010, 2014, 2015) and Hoberg, Phillips, and Prabhala (2014) take a step further and develop a measure of peer firms based on a firm pairwise similarity from a text analysis of firms' 10-K product descriptions to study peer effects and product market competition. The authors' measure of peer firms is shown to be highly relevant and consistent in the contexts of mergers and acquisitions, stock market valuations, operating cash flows, payout policies, R&Ds and advertising activities induced by a competitive threat in the product market. This measurement captures how managers identify rivals as their peer firms based on product similarity/differentiation, how various effects spill over to peers, and how peer financial

returns are affected (Hoberg and Phillips (2015)). Therefore, it arguably can better capture the competitive nature of CSR. In the next section, we utilize the classification of product market peers as constructed by Hoberg and Phillips (2010) and empirically test these hypotheses regarding the net effects of CSR on peer firms' stock market reactions and subsequent CSR policies.

3. Data and Empirical Strategy

3.1. Data, measure, and sample construction

As mentioned above, our key identification strategy is to investigate the effect of the close-call passage of a firm's CSR proposal on its non-voting peers' CARs and subsequent CSR performance. We obtain the data on shareholder-proposal voting results from RiskMetrics and Factset's SharkRepellent. The RiskMetrics data cover shareholder proposals from 1997 to 2011 for all S&P 1,500 companies and additional 400–500 widely held companies. The resolution type "SRI" in RiskMetrics identifies the proposals related to CSR. For each proposal, the dataset provides the date of the annual meeting, the proposal's sponsor, the voting requirements, and the vote outcome. We complement the voting data from RiskMetrics with data from SharkRepellent, which covers about 4,000 companies in the Russell 3,000 index from 2005 to 2011. In SharkRepellent, proposals related to CSR are categorized as "Social/Environmental Issues."

Our peer firm data set is retrieved from the Hoberg and Philips (2010, 2014) text-based product market peer database (Text-Based Network Industry Classifications or TNIC).[2] This peer (product market rivals) database covers the fiscal years 1996–2011. In each fiscal year, two firms are recorded as a pair of rivals if they exhibit a degree of product similarity according to the product description in their 10-K files. This approach has the advantage of directly and dynamically capturing two firms' competitive relationship in the product market.

After linking the shareholder proposal data with the Hoberg-Philipps peer firm database and requiring no missing outcome variables (discussed in the following paragraph) or relevant firm fundamental variables (size, market-to-book, and leverage), we remove peer firms that experienced stock and bond issuance, M&A announcement, and dividend payments around their affiliated voting firm's voting date (Day -5 to Day 5) so as to rule out potential confounding effects.[3] After filtering, we obtain 38,630 (non-voting peer) firm-vote observations, which account for 3,452 unique non-voting

[2] The text-based product market peer data can be obtained from http://cwis.usc.edu/projects/industrydata/

[3] Our stock and bond issuance data comes from SDC database. The M&A announcement data are obtained from Zephyr and SDC databases. Dividend payment data are obtained from CRSP.

U.S. public firms as our peer firm sample. Our sample consists of 1,407 unique firm-votes from 1997 to 2011.[4] Table 1 provides the distribution of our sample, with Panel A showing a summary of the numbers of voting firm-vote observations and non-voting peer-vote observations in each year,[5] as well as the cumulative percentage, and Panel B showing the distribution of CSR proposals by type, which are classified according to the general categories (dimensions) as used in KLD.

[Insert Table 1 about here]

To test the response of non-voting peer firms to the voting results of the CSR proposals, we investigate both the stock market reaction and subsequent-year CSR performance. We calculate the CAR over the three-day event window [-1, +1] to measure the stock market reaction. Using the CAR is appealing because it shows how investors of non-voting firms react to the increased CSR performance in their peer firms. We estimate the CAR using a market model, and also validate the results based on the market model by estimations using the Fama-French three-factor and Carhart (1997) four-factor models.

To test non-voting firms' strategic reaction to the passage of a CSR proposal in their peer firm, we mainly rely on the CSR score of the non-voting firms in year *t+1* (the year after their peer' vote) as the outcome variable. The data for the CSR score construction is retrieved from the KLD database, which provides detailed information on firms' CSR activities according to 13 categories: community, diversity, employment, environment, human rights, product, alcohol, gaming, firearms, military, nuclear, tobacco, and corporate governance. Within each category, the database shows whether the firm has conducted a good deed ("Strength") or a harm ("Concern"), and gives one point to either strength or concern for each relevant activity of the firm. The CSR score is calculated as strengths minus concerns. To measure the overall CSR performance of a firm, we consider four main categories (or dimensions) of CSR as classified by KLD: community, diversity, employee relationship, and

[4] Our sample has fewer votes than Flammer (2015a) because the data coverage of Horberg-Phillips database is smaller than that of the Compustat universe. Nevertheless, as we show later, our results are robust to different peer definition, such as the SIC industry classification that include broader coverage in Compustat.

[5] The jump in number of peer-vote observations from 2002 (1,330) to 2003 (2,980) is due to the change in coverage in the KLD database. The KLD database covers 1,128 unique firms in 2002 and 2,978 unique firms in 2003.

environment.[6] Following Deng et al. (2013) and Servaes and Tamayo (2013), we count the number of strengths and concerns within each of the four categories and subtract the number of concerns from the number of strengths to construct the raw score for each category in each year. The overall raw CSR score is the sum of the raw scores of the four categories. A higher raw CSR score indicates a better CSR performance. However, as pointed out by Mănescu (2011), the raw CSR score may be problematic for evaluating a firm's actual CSR activities over years as the number of strengths and concerns within each category can differ across years. To overcome this concern and make consistent comparisons in both the cross-sectional and time-series analyses, we scale the strengths and concerns for each firm-year to a range of 0 to 1. To do so, we divide the number of strengths (or concerns) for each firm-year within each CSR category by the maximum possible number of strengths (or concerns) in each CSR category each year to get the adjusted strength (or concern) index. We then subtract the adjusted concern index from the adjusted strength index. For each category, the adjusted CSR score ranges from -1 to +1. For the overall adjusted CSR score, we sum the four adjusted scores. Therefore in principle, the adjusted CSR score can range from -4 to +4. We use the raw CSR score and the change in the adjusted CSR performance score as alternative outcome variables for a robustness check.

In addition to these alternative measures of CSR, we also test the robustness of our study using alternative samples, including different definitions of peers and randomly drawn peer groups. Moreover, to investigate potential mechanisms through which CSR adoption can influence peer firms' stock returns and future CSR strategies, we conduct several subsample analyses by focusing on different levels of financial constraints and information asymmetry. Furthermore, as an extension to our story of CSR-peer effects, we test the spillover effect of CSR adoption on the CSR performance of alliances (including joint ventures), for which we obtain data from Zephyr and SDC.[7]

The definitions and sources of our variables are provided in the Appendix B. The summary statistics of our key outcome variables and control variables are provided in Table 2.

[Insert Table 2 about here]

[6] We exclude corporate governance from our CSR performance construction, as it is perceived as a mechanism to mitigate conflicts between principles and managers (Shleifer and Vishny (1997)) rather than a concern about other stakeholders, such as the community and employees. We also exclude the product safety and quality dimension, as it is more likely to be subject to legal restrictions and regulations.

[7] We cross-validate the information on joint venturing deal announcement between the Zephyr and SDC.

3.2. Methodology

We use a regression discontinuity framework to estimate the causal effect of shareholder proposals on peer firms' shareholder returns and other outcome variables.[8] Similar to Flammer (2015a), we use CSR proposals, but focus on the shareholder returns and other outcomes of the *non-voting* peer firms instead of the voting firms. Ideally, to obtain a consistent estimate, we would want the passage of a CSR proposal to be a randomly assigned variable with regard to peer firms' characteristics, especially in regards to their CSR performance. The RDD framework that exploits the vote shares helps us to approximate this ideal setup, because the passage of a CSR proposal is a random outcome in an arbitrarily small interval around the majority vote threshold (50%) (for example, whether a proposal passes by 50.1% or by 49.9% is arguably random). Accordingly, such close-call CSR proposals provide a source of random variation in the adoption of CSR proposals that can be used to estimate the causal effect of passing a CSR proposal on peer firms' performance. Our estimate of such an effect using RDD is not affected by omitted variables even if they are correlated with the vote as long as the effects are continuous around the threshold.

We perform the RDD by using a nonparametric, "local" linear estimation. Small "neighborhoods" to the left-hand and right-hand sides of the threshold are used to estimate the discontinuity in peer firms' reactions. The choices of the neighborhoods (bandwidth) are data-driven (determined by the data structure) and are different across samples and variables. We follow Imbens and Kalyanaraman (2012) to derive the asymptotically *optimal bandwidth* under squared error loss. By choosing the *optimal bandwidth* to the left and right of the cutoff point (threshold), the nonparametric linear estimation approach allows us to capture the difference in the stock market reaction and future CSR performance between peers who observe the passage and failure of a CSR proposal by their associated voting firm. In addition, the RDD requires no other observable covariates (control variables) for identification. The local linear regression model can therefore be specified as:

$$Y_{it} = \alpha + \beta \cdot X_{it} + \rho \cdot Pass_{it} + \varepsilon_{it} \,, \tag{1}$$

where Y_{it} is the stock market reaction (CAR) or CSR score in year *t+1* of the peer firm *i*, $Pass_{it}$ is a dummy equal to 1 if the peer firm's associated voting firm passes a CSR-related proposal—i.e., more than 50% of the votes are in favor of adopting the CSR proposal—and 0 otherwise, and X_{it} is the

[8] The regression discontinuity design has been used in several papers, including Cuñat, Gine, and Guadalupe (2012); Flammer (2015a); Bradley, Kim, and Tian (2015).

percentage of vote shares favoring the CSR proposal, centered at the 50% threshold. The estimate of ρ captures the discontinuity at the majority threshold—the difference in outcome between peer firms of the voting firm that marginally passes a CSR proposal and peer firms of the voting firm that marginally fails a CSR proposal—and hence provides a consistent estimate of the causal effect of passing a CSR proposal on peer firms' Y_{it}. We also use alternative bandwidths that are either narrower or wider than the optimal bandwidth to check the robustness of our results.

3.3. Tests for a quasi-randomized assignment

Our identification strategy requires that passing or failing a close-call CSR proposal is nearly random to peer firms' characteristics. In this subsection, we perform two diagnostic tests to ensure the validity of the identifying assumption (randomness assumption) of the RDD that shareholders of the voting company cannot precisely manipulate the forcing variable (i.e., vote shares) near the known cutoff (Lee and Lemieux (2010)). If this assumption is satisfied, the variation in the passage of CSR proposals is as good as that from a randomized experiment.

3.3.1. Continuity in the distribution of shareholder votes

We first test whether the distribution of shareholder votes is continuous around the majority threshold, that is, 50% of vote shares. We follow McCrary (2008) and provide a formal test of the discontinuity in the density, which checks for the smoothness of the density function around the threshold. A random assignment of pass versus fail at the small margin implies that the vote-share distribution should be smooth and continuous around the majority threshold. Figure 1 visually confirms this. A more formal test is provided in Figure 2, which plots the density of shareholder votes. The dots depict the density and the solid line represents the percentage of votes for CSR. The density appears generally smooth, with no evidence for a discontinuous jump around the threshold. The P-value is 0.1556, which fails to reject the null of continuity of the density function at the threshold. With the McCrary (2008) test result, we confirm no precise manipulation exists and the assumption of smoothness is validated.

[Insert Figure 1 and Figure 2 about here]

3.3.2. Pre-existing differences

The randomness assumption of our RDD setting also requires that the *peer firms* of companies whose voting shares are marginally below or above the majority threshold should be very similar on the basis of ex-ante characteristics. That is, if the passage of close-call CSR proposals is akin to a random assignment, it should be unrelated to peer-firm characteristics prior to the vote. Intuitively, there is little reason to believe that such a voting outcome is directly affected by peer-firm characteristics. To justify this, we show in Table 3 the differences of a few key firm-characteristic variables for these two peer groups (for simplicity, we hereafter call them "passing peers" and "failing peers," which refer to peer firms of the voting firm that passes a close-call CSR proposal and those of the voting firm that fails a close-call CSR proposal, respectively). As shown in columns (1) and (2), before voting on CSR proposals, firm characteristics—firm size, market-to-book ratio, book leverage, return on assets (ROA), and CSR scores—of passing peers and failing peers are not very different. For column (3), the differences between passing peers and failing peers in general are statistically significant for firm size and market-to-book ratio, but such significance completely disappears in column (4) in which we compare their differences at the small margin around the threshold.[9] Overall, this evidence suggests that no systematic and significant difference exists between passing peers and failing peers around the majority threshold, which gives support to our identification strategy.

[Insert Table 3 about here]

4. Main Results

4.1. The Effects of CSR adoption on peer firms' stock returns and subsequent CSR levels

Having validated the randomness assumption of our RDD setting, we then test the peer effects of CSR by focusing on peer firms' stock returns and subsequent-year CSR levels following the voting firm's passage/rejection of close-call CSR proposal. We first present the RDD results in Figure 3 to visualize how non-voting firms react to the result of a voting firm's CSR proposal. Specifically, we divide the spectrum of vote shares into 50 bins (with a bin width of 2% of vote shares). The non-voting peer firms'

[9] We conduct the tests using optimal bandwidth following Imbens and Kalyanaraman (2012). The numbers of observation vary across different variables because their optimal bandwidths are different. The numbers of observation range from 2,199 to 4,642 for failing peers and range from 620 to 853 for passing peers in column (4). Our results do not change when we test the pre-existing difference within some other specified small margins such as [48%, 52%] or [49%, 51%].

reactions of voting firms which reject a CSR proposal are plotted in the left of the 50% threshold and those of voting firms which pass a CSR proposal are plotted in the right of the 50% threshold.

Figure 3a and Figure 3b show the discontinuity in both spontaneous market reaction ([-1, +1] CAR) and subsequent CSR adoption (adjusted KLD score in year *t+1*) in non-voting peer firms at the threshold. Specifically, we find a lower CAR of passing peers compared with that of failing peers. Following the passage of a CSR proposal in the voting firm, the passing peers demonstrate a better CSR performance compared with the failing peers. The figures are supportive to our conjectures on CSR-peer effects.

[Insert Figure 3 about here]

We next formally test the impact of exogenously generated variation in CSR on the peer firms' value and subsequent CSR performance by relying on a local nonparametric linear regression approach by estimating Eq. (1). In Table 4, we report the results of our baseline specifications, which estimate the difference in returns and CSR adoption between passing peers and failing peers as defined above.[10] To account for potential information leakage right before the shareholder meeting and the possibility that it may take some time for investors to digest voting outcomes, we use peer firms' CARs over a three-day event window (Day -1 to Day 1, with Day 0 being the day of shareholder vote).[11] We also explore the sensitivity of the results to a range of bandwidths. Panel A of Table 4 shows the results in peer firms' CARs. As is evident in Panel A, the estimates of the difference in CARs between passing peers and failing peers for a small margin around the threshold are consistently negative and mostly significant at the 1% level when we use the optimal bandwidth in column (1) as well as 50%, 75%, and 150% of the optional bandwidth as shown in columns (2)–(4), all estimated using the rectangular kernel.[12] A very similar result is obtained when the difference in CARs is estimated using the triangular

[10] For these baseline specifications, we test the discontinuity at the majority threshold—i.e., 50%. For placebo tests, we conduct the same analysis at other cutoffs (e.g. 45%, 35%, 55%, 65%, etc.) and find no evidence of discontinuity for both CAR and subsequent CSR activities, which supports our argument that the effects on peer firms' CARs are generated by the exogenous increase of CSR level of the voting firm caused by *marginally* passing the CSR proposal.

[11] The RDD estimate for abnormal return on the voting day—i.e., day 0, is negative -0.28%—but insignificant. The estimate for cumulative return on the voting day and the day after the voting day—i.e., day [0, +1], is -0.49%—significant at 5% level.

[12] Following Imbens and Kalyanaraman (2012), we estimate the effect of CSR proposal passage within the optimal bandwidth. A narrower bandwidth indicates a lower bias and higher variance. The optimal bandwidth for CAR [-1, +1] as an outcome variable is 0.14. There are 111 unique CSR votes within the optimal bandwidth. 50% of the

kernel, as in column (5).[13] The differences in three-day CARs between passing peers and failing peers range from -0.58% to -0.76%, indicating that passing peers experience lower abnormal returns than failing peers.

Flammer (2015a) finds a positive and significant difference in *voting* firms' one-day abnormal returns on the day of the vote (AR[0]) between those that marginally pass and those that marginally fail a CSR proposal, which ranges from 0.92% to 1.18% depending on model specifications (with an average of 1.07%). The magnitudes of our estimates are smaller than that of Flammer (2015a), which is reasonably expected since peer firms may indeed react less strongly than voting firms due to information distance and the heterogeneity across peer firms. This result implies that the passage of CSR proposals by a small margin of votes on average leads to a significant decrease in peer firms' shareholder value in relation to the marginal rejection of CSR proposals. This is consistent with the notion that CSR has strategic value and firms observing their competitors adopting such strategic CSR practice could lose their competitive edge, causing a negative stock market reaction to the news of their competitors gaining an advantage.

We then explore whether and how a firm's adoption of a CSR proposal affects its peer firms' CSR practice. To do so, we use the same model specifications as in Panel A, but now the outcome variable *Y* is the peer firm's CSR score in the next calendar year after the passage of the voting firm's close-call CSR proposal, instead of the peer firm's CARs. Panel B of Table 4 reports the estimates of the difference in the following-year CSR level between passing peers and failing peers. It is clearly shown that the estimates are positive and statistically significant above the 5% level across different specifications of bandwidth and kernel.[14] The point estimate is around 0.16 (as in column (1)), indicating that the difference in CSR levels between passing peers and failing peers is as large as 0.16 points. Given that the adjusted KLD score has a mean of -0.13 points and a standard deviation of 0.42 points, a difference of 0.16 points (more than 30% of the standard deviation) should be economically sizable. This result implies that when a voting firm adopts a CSR proposal, its peer firms will significantly increase their CSR practice, which is in line with the argument that peer firms perceive

optimal bandwidth is half of the optimal bandwidth—i.e., 0.07, and the number of CSR votes reduces to 40 within this narrower bandwidth.

[13] According to Imbens and Lemieux (2008), the choice of kernel has little impact on the estimation in practice, though using rectangular kernel is a more common practice.

[14] The optimal bandwidth for RDD estimation with adjusted KLD score as the outcome variable is 0.156. Within this optimal bandwidth, there are 135 unique CSR votes.

CSR as strategically valuable and will improve their CSR performance to maintain their edge after observing their rivals adopt it.

[Insert Table 4 about here]

4.2. Robustness

The previous analysis using a nonparametric local linear estimation gives an unbiased estimate of β, which captures differences in peer firms' average *Y* between CSR proposals that pass or fail by a small margin of votes. We next extend the regression discontinuity analysis with an estimation of a global polynomial series model by including polynomials of order three on both sides of the threshold.[15] Specifically, we estimate the following model:

$$Y_{it} = \alpha + \beta Pass_{it} + P_l(v_{it}, \gamma_l) + P_r(v_{it}, \gamma_r) + \varphi \mathbb{Z}_{it} + \varepsilon_{it}, \quad (2)$$

where Y_{it} is the outcome variable of the (non-voting) peer firm—i.e., three-day CAR over the event window [-1, +1] or adjusted KLD score in year *t+1*. $Pass_{it}$ is a dummy that equals 1 if the voting firm passes the CSR proposal—i.e., the vote percentage is higher than 50%, and 0 otherwise. $P_l(v_{it}, \gamma_l)$ is a flexible polynomial function for observations on the left-hand side of the majority threshold γ (50% in our case) with different orders, and $P_r(v_{it}, \gamma_r)$ is a flexible polynomial function for observations on the right-hand side of the threshold γ with different orders. v is the percentage of shares favoring the CSR proposal. We choose a polynomial order of 3 for our analysis. $\mathbb{Z}_{it}$ is a set of control variables.

The estimate of β is the variable of interest and the magnitude shows the difference in these two smoothed functions at the cutoff, therefore capturing the effects of passing a CSR proposal on non-voting peers' firm value and subsequent CSR performance. The results are shown in Table 5, with columns (1) and (2) excluding control variables ($\mathbb{Z}_{it}$), and columns (3) and (4) including control variables ($\mathbb{Z}$). Again, the difference in CARs between passing peers and failing peers is negative and significant, indicating that passing peers experience lower announcement returns, whereas the difference in following-year CSR between passing and failing peers is positive and significant. The economic effects are somewhat larger for peer firms' CARs, with a difference of 1.084% in CARs

[15] The global polynomial approach, however, fails to take into consideration the strong locality and weak externality of RDD, which are important features of the approach (Bakke and Whited (2012)).

between passing peers and failing peers when we include control variables, and are similar for peer firms' following-year CSR.

[Insert Table 5 about here]

In addition to validating our empirical results using a global polynomial approach, we also conduct a few robustness tests with alternative outcome measures and alternative peer samples. We first check whether the results are driven by measurement errors in the outcome variables. First, for each vote, we treat all of the associated non-voting peers as a portfolio and we take the averages of their responses—i.e., the average of three-day CARs and the average of adjusted KLD scores—as the outcome variables and conduct the same tests.[16] The results are reported in column (1) of Table 6 (Panel A for CAR and Panel B for the adjusted KLD score). Consistent with our previous results, we find a significant and negative response from the equity market: the average difference in [-1, +1] CAR between passing and failing peers is -0.85% (t-stat=2.73). We also find significant and positive results when non-voting peers' average adjusted KLD score is the outcome variable, indicating that the passage of a firm's close-call CSR proposal leads to a *relative* improvement in CSR performance of its non-voting peers. In addition, we check the robustness of our results using alternative measures of stock market response and CSR scores. Specifically, we run nonparametric local linear regressions with the CARs estimated by the Fama-French three-factor model and the CARs estimated by the Carhart four-factor model as dependent variables, respectively. The empirical results shown in columns (2) and (3) of Panel A of Table 6 confirm our previous findings that the passage of a CSR proposal leads to lower stock market returns of passing peers. In Panel B, columns (2) and (3) of Table 6, we measure CSR performance using a raw KLD Score and the change in the adjusted KLD score from year *-1* to year *+1*. The RDD estimates using the above two alternative CSR performance measures are consistent with our previous findings.

[Insert Table 6 about here]

[16] We recognize that linking CSR votes to non-voting peers changes the structure of the data, which might bias the empirical results as the non-voting firms are clustered at the vote level. By taking the average of the non-voting peer firms' response, we could address this concern.

Further, we check whether our results are biased by the choice of peer firms in our sample. To do so, we conduct a similar analysis on alternative samples of peer firms. We first use alternative samples based on different industry classifications and different sample periods. Panel A of Table 7 reports results from these alternative samples, with sample (a) defined as peers over a 3-digit SIC, and samples (b) and (c) using the original Hoberg-Phillips classification of peers but covering the periods from 2003 to 2011 and from 2005 to 2011, respectively. The two alternative samples in (b) and (c) are chosen because the KLD data experienced structural changes in 2003 and 2005. In 2003, KLD dramatically increased its sample coverage by adding the full coverage of the Russell 3000, and in 2005 KLD expanded its CSR measurement categories by adding several "Strengths" and "Concerns" measures into the database.[17] Columns (1), (3), and (5) show the results of non-voting peers' three-day CARs around the voting firm's shareholder meeting, and columns (2), (4), and (6) show the results of non-voting peers' adjusted KLD scores one year after voting firms' shareholder meeting in which the CSR proposal is voted. The previous results are again supported in these alternative samples based on different industry classifications and sample periods: passing peers experience lower CARs and a more significant increase in CSR performance in the subsequent year relative to failing peers, and the economic magnitudes are similar to our initial results.

We also notice that the numbers of peers differ significantly across different voting firms—i.e., from 1 to 272. To address the concern that our results might be biased by an imbalanced distribution of peer firms, we conduct similar tests on samples with a pre-determined number of peer firms. Specifically, we randomly select samples with several arbitrarily chosen numbers of peers as shown in Panel B of Table 7: 30 peers for sample (d), 40 peers for sample (e), and 50 peers for sample (f). Again, the results of the three-day event CARs and following-year KLD scores are reported and the estimated differences are consistent with previous findings, and have similar statistical and economic significance. These alternative sample analyses give further support to our conjecture that a firm's adoption of CSR can cause a decline of stock prices and future improvement in CSR of its peer firms.[18]

As a further robustness check, we examine whether the above results are driven by confounding factors—such as market sentiments which may also explain the decrease in CARs and the increase in CSR levels of peer firms—by conducting a placebo test on non-voting firms that are not product market peers of the voting firms. We find one matched firm for each non-voting peer by requiring the two firms to be the same in size, market-to-book ratio, and leverage ratio decile. If more

[17] In addition, the year 2005 is the starting year that RiskMetrics and SharkRepellent, our two data sets, merged.
[18] Empirical results for other random samples (20, 25, 60 peers, etc.) are similar and available upon request.

than one non-peer firm is found, we keep the one with the firm size closest to the peer firm. Based on our product market competition argument, one would expect no significant reactions by these non-peers to the voting firm's adoption of a CSR proposal. This is indeed the case as shown in Panel C of Table 7. The differences between passing peers and failing peers in stock returns (event-day abnormal returns in column (1), two-day and three-day CARs in columns (2) and (3)) and the adjusted KLD scores are not statistically significant and the point estimates are much smaller. This indicates that a voting firm's adoption of CSR does not affect non-peer firms, which gives further support to our argument that the observed differences in peer firms' stock returns and CSR are induced by the voting firm's CSR strategy rather than by other factors such as market sentiment.

One may be concerned that our results reflect the effects of other types of proposals rather than CSR proposals, as during a shareholder meeting there are usually various types of proposals—especially proposals on corporate governance—being voted. Therefore, in our final robustness check, we conduct two placebo tests to examine whether such confounding effects may explain our findings and report our results in Panel D of Table 7. In the first placebo test, we exclude all proposals on corporate governance and run the same RDD analysis, the results on three-day CARs (column (1)) and following-year CSR (column (2)) remain statistically significant and have the "right" signs, indicating our previous findings are not entirely driven by confounding proposals on corporate governance. The economic effects for CARs are attenuated but still comparable to that in Table 4; the economic effects of following-year CSR remain the same. In the second placebo test, we randomly select 1,407 proposals—the same number as that for our sample of CSR proposals—from all proposals casted in our sample firms, and we don't find any significant result for three-day CARs (column (3)). This is consistent with our argument that peer firms mainly react to the voting firm's CSR adoption (as they perceive it as a threat), rather than other random proposals casted by shareholders of the voting firm.

[Insert Table 7 about here]

4.3. Which CSR matters?

Given the abovementioned findings that a firm's CSR adoption can affect its peer firms' CSR strategies, one may wonder how peer firms change their CSR practice: do these firms actively launch new initiatives aiming at solidifying their strengths of social performance, or do they reduce their production of negative societal externalities? To answer these questions, we decompose the overall

KLD score into "Strengths" and "Concerns" for each KLD dimension. "Strengths" capture a firm's voluntary engagement in CSR issues while "Concerns" capture (potential) negative externalities produced by the firm. For example, under the "Environment" dimension, "Strengths" include environmentally beneficial products and services (that promote the efficient use of energy), pollution prevention, recycling, clean energy, communication in environmental issues (e.g., a signatory to the CERES Principles, a notably substantive environmental report, an effective internal communications systems in place for environmental best practice, etc.), as well as property, plans, and equipment having an above-average environment performance. "Concerns" under this dimension include hazard waste, regulatory problems, ozone depleting chemicals, substantial emissions, agricultural chemicals, and climate change (substantial revenues from the sale of coal or oil and its derivative fuel products).[19] We conduct the same tests on peers' following-year CSR as previously conducted, with the exception of replacing the adjusted KLD score with KLD "Strengths" and KLD "Concerns." As shown in Panel A of Table 8, the RDD estimate of "Strengths" is statistically significant at the 5% level, while the estimate of "Concerns" is insignificant. This may imply that the effects on the change of passing peers' CSR seem to come from their focus on "Strengths" (launching new initiatives aiming at strengthening the firms' social engagement), rather than on "Concerns" (reducing negative externalities).

We also decompose the overall adjusted KLD score into a few sub-dimensions, such as Environment, Employee Relationship, and Workforce Diversity, which are the most important aspects of CSR,[20] and conduct the same analysis on these sub-dimensions. As shown in Panel B of Table 8, the CSR scores of the passing peers all significantly increase across these sub-dimensions, giving further support to our hypothesis that CSR is strategically valuable and can induce peer firms to enhance their competitive positions by upgrading their engagement in environmental, employment, and other workforce issues.

Given the above findings on KLD sub-scores, a natural question that arises is whether peer firms match the specific CSR strategy that the voting firm adopts. That is, if the voting firm passes a proposal to enhance its environmental strategy which is perceived by its peer firms as a competitive

[19] For a detailed description of "Strengths" and "Concerns" under each category, please refer to the link below: https://wrdsweb.wharton.upenn.edu/wrds/support/Data/_001Manuals%20and%20Overviews/_070KLD/_001General/_002Rating%20Criteria%20Definitions.pdf.cfm.

[20] Besides the "Environment" dimension as explained in the text, the "Employee Relations" dimension considers company engagement in treating a unionized workforce fairly, maintaining a consistent no-layoff policy, a cash profit-sharing program, employee stock option plans, retirement benefits, health and safety programs, etc. The "Workforce Diversity" dimension considers whether a company engages in promoting a female or minority CEO and board of directors, providing childcare, elder care, or flextime, women and minority contracting, innovation hiring programs for the disabled, progressive policies toward gay and lesbian employees, etc.

threat, these peers will also adopt more environment-related CSR strategies. To test this sub-hypothesis of competitive advantage, we further decompose CSR proposals into different types by reading through the texts in all these proposals, and classify them into environment-related proposals, workforce diversity-related proposals, and proposals related to employee relationship. We then conduct the same analysis as in Panel B on these subsamples of different types of CSR proposals, and report the results in Panels C, D and E, respectively. We indeed find evidence that peer firms match with the voting firm's specific CSR strategies: In Panel C which comprises peer firms associated with environment-related proposals, only the difference in Environment Score between passing and failing peers is significant. In Panel D which comprises peer firms associated with proposals related to workforce diversity, their reaction in the Diversity dimension is the strongest. In Panel E with only proposals related to Employee Relationship, only the estimate of Employee Relationship Score is significant, i.e., peer firms only significantly improve their engagement in issues related to employee relationship. Overall, the empirical evidence in Table 8 suggests that firms react to their competitor's CSR adoption by engaging more in solidifying their CSR strengths and matching with the specific CSR strategies of their competitor.

[Insert Table 8 about here]

5. Channels of Peer Effects: Subsample Analysis

The previous results demonstrate that strong CSR-peer effects exist among firms in the same product market and industry. In this section, we try to explore several potential channels that may account for such peer effects by conducting a few subsample analyses. These subsample analyses—including the roles of the voting and peer firms' competitive relation, as well as peer firms' financial constraints, information transparency, and corporate governance—also enable us to further rule out some alternative explanations for the above findings.

[Insert Table 9 about here]

5.1. The role of competitive relations

We first examine how the competitive relation between the voting firm and its peers affects the peer effects of CSR. If the competitive advantage argument holds, we should expect higher competitive

pressure to magnify the peer effects, because any incremental competitiveness in the voting firm may force the non-voting peers out of the product market. Therefore, the differences in the stock market reaction and the subsequent CSR performance are expected to be more pronounced in the subsample with higher level of competitive pressure. To test the above argument, we rely on the variable *Fluidity*, an ex-ante, forward-looking measure of a firm's competitive threats (Hoberg, Phillips, and Prabhala (2014)), which captures changes in competing firms' products relative to the firm's products. This fluidity variable is constructed according to how competitors are changing the product words, which overlap with the focal firm's vocabulary of the product description section in the 10-Ks. When *Fluidity* is greater, the firm's products are more similar to its peers' and thus the competitive threat is greater.[21] Specifically, we partition the peer firms into two groups according to their associated voting firms' *Fluidity* level in the year before the vote, and the high *Fluidity* group is subject to more competitive pressure than the low *Fluidity* group. A High *Fluidity* group is defined as peer firms whose corresponding voting-firm's *Fluidity* score is above the median of the whole voting-firm sample, and a Low *Fluidity* group is defined as peer firms whose corresponding voting-firm's Fluidity score is below the median of the whole voting-firm sample. The results based on this *Fluidity* measure are reported in Panel A of Table 9. Consistent with the competitive advantage argument, we find that the results are only significant in the subsample in which the competitive pressure is high (the high *Fluidity* group). That is, peer effects are stronger when the rival (the voting firm) with higher competitive pressures adopts CSR strategy.

5.2. The role of the non-voting firm's financial constraints

Second, we explore the role of peer firms' financial constraints, which can limit both a firm's competitiveness (Campello (2006)) and its capability to be socially responsible—that is, firms are more likely to engage in CSR when they have fewer financial constraints, which is usually dubbed as "doing good by doing well" (e.g., Hong et al. (2012)). Following this logic, the negative effects on passing peers' (compared to failing peers') stock returns should be stronger in firms with *more* financial constraints because the competitive threats are stronger. In addition, the positive effects on peer firms' subsequent increase in CSR level should be stronger in firms with *less* financial constraints

[21] We do not use a traditional HHI measure or market share because peers are identified by the product, rather than by a specified industry. *Fluidity*, which is obtained from 10-K files, shows the competitive dynamics between a firm and its peers identified through a text-based analysis. We admit that the usage of *Fluidity* fails to capture the competition between one firm and one specific peer firm.

because they have more financial flexibility to engage in CSR. Several measures of financial constraints exist, but according to Hadlock and Pierce (2010) (hereafter "HP"), most of these measures generally suffer from containing too much noise from various firm attributes besides firm size and age. Therefore, we use the financial constraints index developed by HP and partition our peer sample into a high financially constrained sample and a low financially constrained sample. [22]

The results are reported in Panel B of Table 9, which gives support to our hypothesis on the role of financial constraints. In Panel A with the HP index as the financial constraints measure, passing peers with a higher level of financial constraints experience lower announcement-period CARs (column (1)) and a moderate increase in following-year CSR scores (column (3)), while less financially constrained firms experience no significantly lower announcement-period CARs (column (2)) and a stronger increase in following-year CSR scores (column (4)), all relative to failing peers. These results are consistent with the notion that the likelihood of peer firms' future adoption of a similar CSR strategy to catch up with their competitor is anticipated by their investors and is reflected in these peers' stock returns. When investors expect that their firms have greater capability (lower financial constraints) of catching up in the future, they "punish" their firms less on the stock market (thus less negative CARs).

5.3. The role of the non-voting firm's corporate information environment

Third, we investigate the role of the corporate information environment in shaping the magnitude of CSR-peer effects. A transparent environment enables investors to access corporate information in a timely manner. Therefore, the competitive threats caused by an increased CSR performance in the voting firm will attract more investor attention and lead to a more pronounced market reaction when there is less information opacity. In addition, transparency also motivates firms to behave in a socially responsible way. On the one hand, firms that are more visible could create higher value from being socially responsible (Servaes and Tamayo (2013)). On the other hand, irresponsible behaviors are more likely to be identified when the firm has a less opaque information environment—e.g., followed by more financial analysts (Dong, Lin, and Zhan (2015)). Therefore, we expect that passing peers that are

[22] To check the robustness of this result, we also conduct the same analysis on the subsamples partitioned by alternative measures of financial constraints, including the Whited and Wu (2006) Index and a indicator of whether the non-voting peer firm distributed dividends in year *t-1* (Denis and Sibilkov (2010)). The results are similar to the results using the HP index.

more visible will increase their engagement in CSR activities more significantly compared with failing peers.

We use financial analyst coverage to capture the information transparency in non-voting peer firms. Specifically, we split the peer sample into a high financial analyst coverage group and a low financial analyst coverage group according to the number of unique financial analysts following the firm in year *t-1*. In Panel C of Table 9, we tabulate the empirical results. Consistent with the above argument, we only find a significant (at the 1% level) lower market reaction for passing peers in the high financial analyst coverage group, with a point estimate of -0.75%. The result in the low financial analyst coverage group is not statistically significant. Column (2) of Panel C reports the results for the subsequent-year CSR score for the two subgroups and peer firms with more financial analyst coverage increases their CSR performance to a larger extent when the voting firm passes a CSR proposal.

Taken together, our subsample analyses confirm that the peer effects of CSR come from the competitive relation between the voting firm and its non-voting product market peers. In addition, the magnitude of differences in market reaction and subsequent-year CSR performance between passing peers and failing peers is affected by peer firms' financial constraints and information transparency. In our unreported tests, we also investigate the role of corporate governance on following-year CSR performance.[23] Better corporate governance could help mitigate the conflicts of interest between managers and shareholders. As the passage of a CSR proposal increases competitive threats that reduce shareholder value, better-governed firms are expected to be more responsive and thus enhance their CSR engagement to a greater extent. Using the G-Index as a proxy for corporate governance quality, we find consistent results with this argument.[24]

5.4. Peer Effects on Long-Run Operating Performance

If CSR is an effective tool to gain competitive advantage on the product market, its adoption will have substantial effect on a firm's operating performance over the long term. Therefore, in this session we evaluate the effects of the voting firm's CSR adoption on its peers' long-run outcomes, as opposed to short-run market reaction and following-year CSR adoption. In particular, we compare the difference in operating performance between passing peers and failing peers two years after the passage of the

[23] These results are available upon request.

[24] We measure a firm's internal governance by using the G-index developed by Gompers, Ishii, and Metrick (2003), which has been updated to the year 2008 by the IRRC. The G-index is updated biannually. For years without coverage by the G-index, we take the previous year's index value for that year's governance score.

voting firm's CSR proposal. The two-year horizon is chosen because, on one hand, it follows the sequence of dynamic competition: the voting firm adopts CSR in year *t*, its competitors follow in year *t+1*, and these competitors' operating performance improves in year *t+2*. On the other hand, considering longer time horizon (beyond *t+2*) may introduce more noises which make it difficult to gauge the true effects of CSR on performance. We consider three measures of long-run performance: return on equity (ROE), return on sales (ROS), and sales growth rate.

The results on these long-run performance measures are shown in Table 10. Panel A shows the RDD estimates of the difference between ROE, ROS, and sales growth rate between passing peers and failing peers two years after their affiliated voting firm passed the close-call CSR proposal. The results indicate that all these operating performance measures are significantly higher in passing peer firms, consistent with the notion that the catch-up strategy of CSR by the passing peers helps them regain some competitive advantages. In Panel B, we partition our sample firms into those with high financial constraints and those with low financial constraints using the Hadlock-Pierce Index. Similar to the results shown in Panel B of Table 9, the significant improvement in operating performance of peer firms following their catch-up in CSR exclusively comes from those with low levels of financial constraints. That is, the regained competitive advantage is mostly realized in peer firms without financial burdens to do so. Overall, these results suggest that there is a long-lasting improvement in operating performance in peer firms that catch up with their CSR practice, and are consistent with the notion that CSR can be value-enhancing.

[Insert Table 10 about Here]

6. Alternative Interpretations and the Evidence from Strategic Alliances

Thus far, we have interpreted lower CARs around voting days and higher following-year CSR performance of peer firms as indicative of CSR creating competitive advantages. Yet, there are alternative interpretations we need to consider. One is a "learning" hypothesis, which suggests that the higher level of following-year CSR is due to peer firms observing the positive market reaction of the passage of the voting firm's CSR proposal. That is, peer firms "learn" from the voting firm's positive stock returns and expect implementing CSR will also enhance their own firm value. This learning hypothesis is somewhat related to our competitive advantage hypothesis as both suggest that peer firms

will implement more CSR with the intention to increase value. However, the two hypotheses differ in explaining what motivates such CSR implementation by peer firms. While the competitive advantage hypothesis suggests that it is motivated by competitive threats created by other firms' CSR adoption (thus lower contemporary CARs due to lost in competition), the learning hypothesis suggests it is induced by learning from other firms' stock returns. The latter would then predict that passing peers also have higher announcement CARs than the failing peers, as their investors anticipate such positive link between future CSR implementation and value. Our empirical evidence that passing peers initially experience lower CARs does not support this learning explanation.

Another alternative interpretation of our results is a "herding" explanation. That is, after the voting firm's adoption of CSR, peer firms "herd" in engaging more in CSR activities due to peer pressures or industry norms, even though the costs of doing so might be high. Investors of peer firms expect such mimicking behavior of their firms in engaging in costly CSR which may be a deviation from value maximization, and the lower announcement CARs reflect their negative reaction to this expectation. To investigate the validity of this herding explanation, we turn to a setting in which firms are in a non-competing (and ideally cooperative) relationship with the same voting firms, such as partnership in strategic alliances.[25] A large literature exists on the value creation through alliance partners (e.g., Berg and Friedman (1981), Gomes-Casseres, Hagedoorn, and Jaffe (2006), McConnell and Nantell (1985), Chan, Kensinger, Keown, and Martin (1997), Robinson (2008)), and some recent studies also examine the spillover effects among alliance partners (Boone and Ivanov (2012), Cao, Chordia, and Lin (2015)). While the competitive advantage hypothesis suggests that alliance partners of a firm that adopts new CSR proposals are more likely to benefit from such a competitive advantage through their alliance connection which leads to higher returns and enhancement of their own CSR practice, the "herding" hypothesis predicts negative announcement CARs for alliance partners due to their investors' expectation about costly CSR investment in the future induced by those alliances' herding behavior.

[25] Some examples of strategic alliance partnership include the joint venture between Starbucks and PepsiCo in 1994 to market ready-to-drink coffee products including Starbucks® bottled Frappuccino, the strategic alliance formed by Tivo Inc. (a provider in television services for digital video recorders) and Domino's pizza in 2008 which enable all broadband connected TiVo users order Domino's pizza using the TiVo® service. Moreover, for 16 years, American Express (AmEx) partnered with COSTCO and was the only credit card accepted at the store. Their partnership failed to renew in 2015 and Visa, Inc. replaced AmEx.

We retrieve the sample of alliances from the Securities Data Company (SDC) platinum database,[26] which includes both joint ventures and non-joint ventures. We keep only alliance deals that have at least two U.S. public companies traded on the NYSE, AMEX, or NASDAQ. We define firms in a deal as partners and then match the alliance data with Compustat and CRSP to construct the links among partners.[27] In the contract, an alliance has a start date and an expiration date. For the start date, we set it as being from the next month of the deal announcement date to ensure that all partner relations in our sample are publicly known ones. For the termination date, however, only 2% of alliance deals in our sample have available termination dates as disclosed in the database. Therefore, for deals with valid termination dates, we consider the partnership as lasting until the deal termination date; for deals with missing termination dates, we assume the partnership lasts for five years from the dates of the deal announcement.[28] Thus, our CSR test sample starting in 1997 could still be affected by previous alliances that began as early as 1992. After matching the firm-partner link data with CSR proposals and KLD data, the sample contains 9,148 (non-voting) partner-vote observations from 1,392 unique U.S. public firms from 1997 to 2011.[29]

Using the same analogy for peers, we call the alliance partners of the firm that marginally passes the CSR proposal "passing partners," and those partnered with the firm that marginally rejects the CSR proposal "failing partners." Table 11 presents the results: columns (1)—(3) report the difference in the AR on the announcement day, the CAR over the event window [0,+1], and the CAR over the event window [-1,+1], respectively; columns (4)—(5) report the difference in following-year adjusted KLD score and the change of adjusted KLD score from one year before the vote to one year after the vote. The differences in the CARs between passing partners and failing partners are all positive and statistically significant above the 10% level throughout columns (1)—(3). The economic magnitudes are even larger than the previously identified effects for product market peers. For example, the difference in the three-day CARs (column (3)) between passing partners and failing partners is

[26] SDC collects the alliance announcement data from sources such as SEC filings, trade publications, and public news. A random check on Factiva suggests the media promptly covers alliance formations.

[27] We use the SDC's 6-digit historical CUSIP (NCUSIP) to match with the CRSP common stocks 8-digit NCUSIP at the time of alliance announcements. For companies with multiple common shares, we keep the one with the largest market cap on the announcement dates.

[28] Cao et al. (2015) also use a five-year duration for alliances without valid termination dates. In the online appendix, it is shown that the results are consistent for alternative assumptions of a three-year duration or until 2012.

[29] This sample is smaller than the (non-voting) peer firm-vote sample (38,630 observations) for two reasons: (1) the number of firms with available alliance partners is much less than the firms with text-based peers provided by Hoberg and Philips (2010, 2014); and (2) on average, a firm is linked to 2.65 partners each year and the median number of partners is one, which is much less than the number of linked text-based peers.

1.17%, compared to -0.58% between passing peers and failing peers. The positive difference in the CARs suggests that the investors tend to have a positive reaction when their firms' partner in an alliance or joint venture marginally passes a CSR proposal. This result is consistent with prior studies that have demonstrated that the adoption of CSR proposals is positive news for the firm (Flammer (2015a)) and causes spillover effects of positive news to the firm's alliance partners (Cao et al. (2015)).

[Insert Table 11 about here]

The difference in subsequent-year CSR between passing partners and failing partners is also positive and statistically significant. This indicates that when a voting firm adopts a CSR initiative, its alliance partners will also significantly increase their CSR practice. Such alliance effects of CSR may be due to at least three reasons. First, firms in an alliance interact more frequently and are thus more likely to learn from their partners' value-enhancing strategies such as CSR engagement. Second, firms in an alliance might be more likely to merge in the future (e.g., Cao, Chordia, Lin, and Zhan (2015)). Such a likelihood of merger and integration at a higher level may make alliance partners become more "similar" in their corporate policies and strategic plans such as CSR policies. Third, as CSR is sometimes costly, firms in an alliance network may need collaborations from their partners on CSR activities. Hence, depending on their bargaining powers, they might encourage or even demand their partners to engage more in CSR in the future to support their own CSR initiatives.

	Hypotheses		
Expected sign of market reaction	Economic linkages (Competition vs. Collaboration)	Learning from peers (CSR is value-enhancing)	Herding in the market (CSR is costly)
Competing peers	–	+	–
Collaborating peers	+	+	–
Consistent with the finding?	√	×	×

In this section, we test the validity of two alternative hypotheses on the peer effects of CSR. Combining with the market reaction of collaborating peers, we reinforce our previous argument on

peer effects—that is, they are primarily induced by *economic linkages* among peers. Our evidence of peer effects goes beyond the "learning" and the "herding" explanations and highlights the importance of economic relationship.

7. Conclusion

Despite the well-developed literature on the determinants and value consequences of CSR, little is known about how the CSR practice can influence or be influenced by peer firms or industry dynamics. In this paper, we present evidence on the peer effects of corporate social responsibility, with a focus on the reaction of peer firms' stock returns and subsequent CSR strategies. Specifically, we adapt the regression discontinuity design approach to the analysis of event studies and apply it to the outcome of votes on CSR proposals in shareholder meetings. By focusing on peer firms' reactions to the "locally" exogenous implementation of CSR, our paper provides novel insight into the dynamics of CSR and whether it has strategic value.

We find that on the days immediately before and after a shareholder meeting, a CSR proposal that passes by a narrow margin of votes yields a cumulative abnormal return of its non-voting peer firms that is -0.6% to -1% higher compared to a CSR proposal that fails marginally. In addition, the difference in CSR scores between passing peers and failing peers is 0.16 points (30% of the standard deviation of the CSR score) on average in the year after the focal firm's CSR proposal vote. These results are robust with randomly drawn peer samples and with different definition of peers based on SIC 3-digit industry classification. We further find that the competitive relationship between voting-firms and non-voting firms plays an important role in influencing the peer effects, which are stronger when the competitive pressure is higher. Consistent with the competitive pressure argument, we find that peers with more severe financial constraints experience more negative abnormal returns and less CSR adoption following the passage of the voting firm's CSR proposal. In addition, such peer effects are stronger in peer firms with greater information transparency—i.e., followed by more financial analysts. As a whole, our analysis uncovers the dynamics of firms in product markets in regard to their social performance and suggests strong peer effects of CSR on peer firms' stock returns and strategies.

Our empirical results lend additional support to the competitive advantage hypothesis of CSR. By documenting a *lower* market return of firms when their peer firm passes a CSR proposal, we confirm that increased CSR in a firm creates competitive threats to its product market peers. By documenting a *higher* subsequent CSR performance in the passing peers compared with the failing

peers, we show how CSR activity interacts with product market competition and that peer effects can promote good practice among peers. Taken together, our study echoes the literature that takes a positive view on CSR and considers it to be a strategically valuable tool. Our findings also have policy implications in that policymakers aiming at promoting corporate socially responsible behaviors could initiate such activities in a few firms and the competitive nature of the market would leverage the impact of the policy and help achieve an overall improvement in CSR on the market.

Of course, the analysis presented in this paper is subject to some caveats. The most notable limitation is that, like most RDD studies, the identified variations come from a relatively small number of observations, namely those that are close to the majority threshold. In a comprehensive discussion of the external validity of her RDD results, Flammer (2015a) suggests that companies whose shareholders are more inclined toward CSR also have higher levels of CSR (more CSR provisions in place) and are more likely to submit CSR proposals, and they are on average larger in size. Consequently, close-call CSR proposals are more likely to have performance implications (i.e., they are tied more closely to the focal firm's financial performance) than are non-close proposals. This echoes our Figure 1, in which the vast majority of CSR proposals receive little support at shareholder meetings, possibly indicating that the competitive implications of CSR proposals that are far away from the threshold may be fundamentally different from those of close-call CSR proposals. Although these differences do not bias our estimate of the treatment effect, they do indicate that our findings may not necessarily apply to the average public firm. Nevertheless, we argue that such external validity issue is less of a concern (compared to that of Flammer (2015a) and Cuñat et al. (2012)) in our setting, since the competitive effect matters most for larger companies in relatively oligopolistic industries, in which players compete on similar and most value-enhancing strategies, such as the close-call CSR proposals in our context.

Keeping in mind these limitations, there are many other policy-relevant questions that our results cast light on, which are beyond the scope of this paper but worth addressing. For example, do active institutional investors and other types of controlling shareholders play a role in affecting the magnitudes of CSR peer effects? What are the "net effects" on all shareholders and stakeholders in the society at large from the social welfare perspective? We leave these questions for future research.

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Figure 1

Distribution of Non-Voting Peers against the Percentage of CSR Votes

This figure plots the histogram of the percentage of non-voting peer firms in our sample per each voting share interval (each interval represents 5% of voting shares). Our sample contains 1,407 unique CSR votes retrieved from the RiskMetrics and SharkRepellent databases from 1997 to 2011. We obtain non-voting peers from Hoberg-Phillips industry classifications based on firm pairwise similarity scores from textual analysis of firm 10-K product descriptions. Our sample contains 38,630 unique (non-voting) peer-votes from 3,452 unique U.S. public firms (non-voting peer).

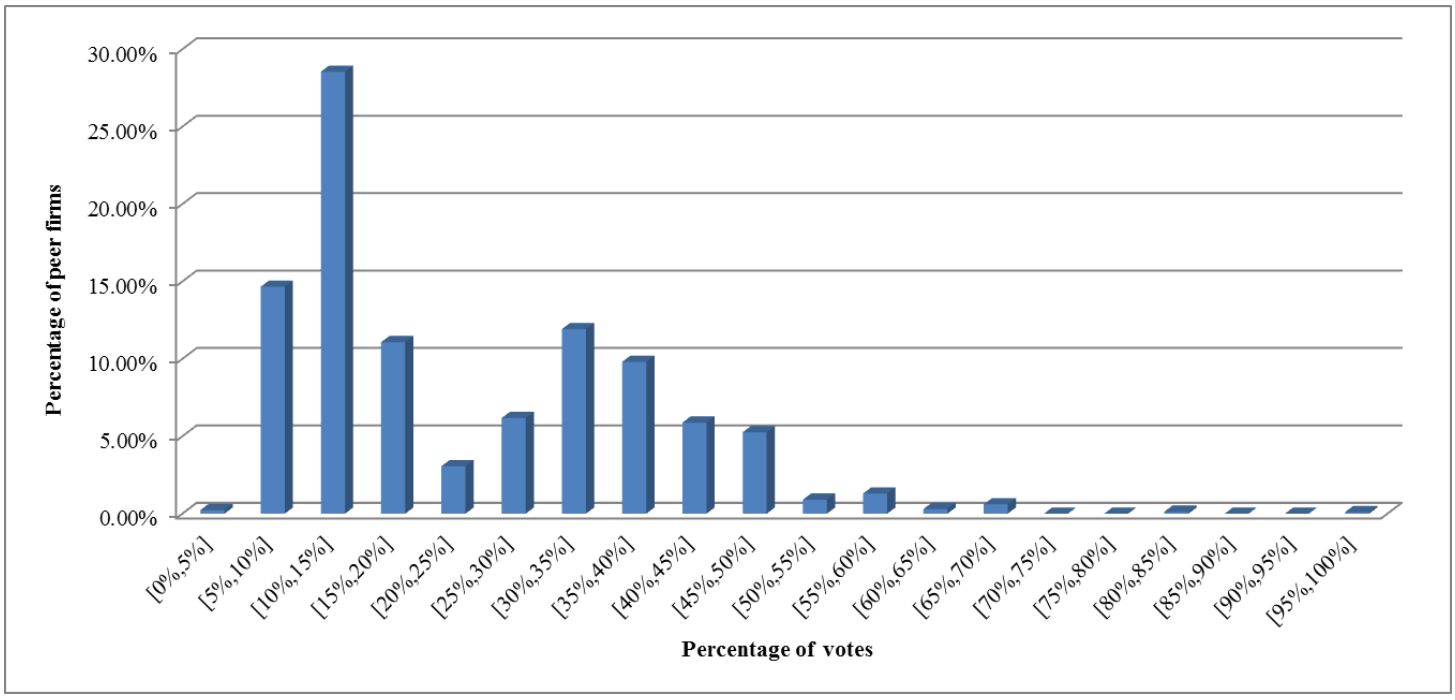

Figure 2

Density of CSR Vote Shares

This figure plots the density of CSR vote shares following the procedure in McCrary (2008). The x-axis is the distance (in percentage of votes) from the majority threshold of passing a proposal. The dots depict the density estimate. The solid line represents the fitted density function of the forcing variable (the number of votes).

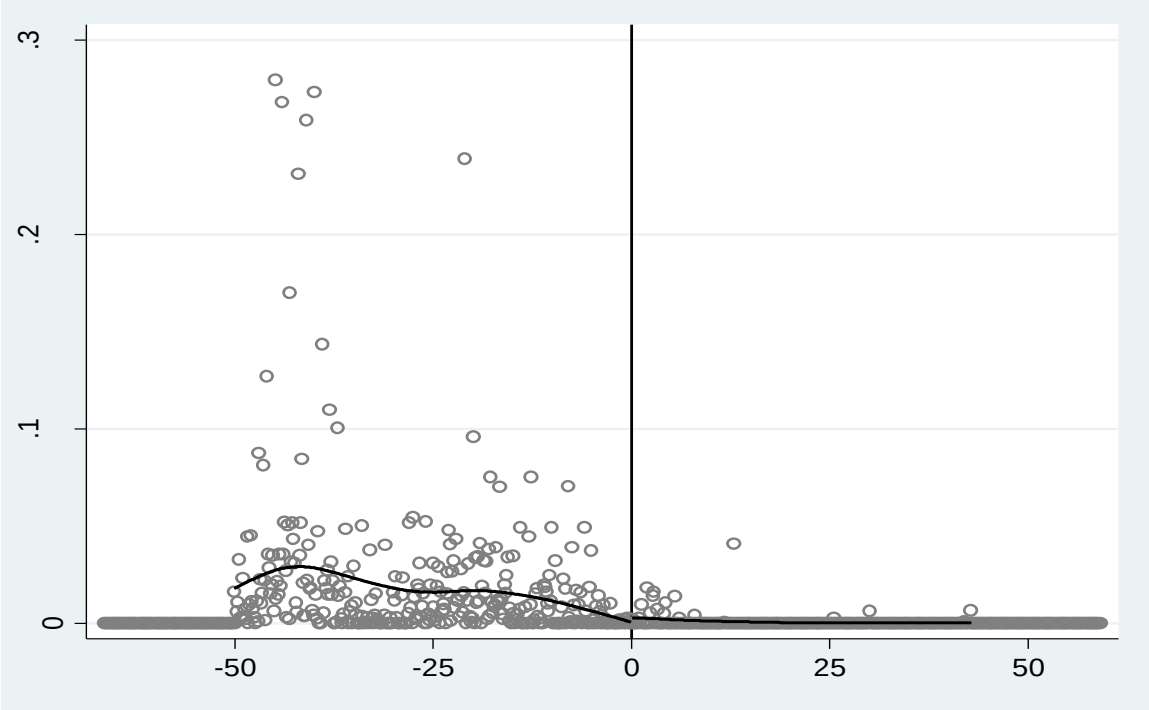

Figure 3

The Peer Effects of CSR: Regression Discontinuity Plots

The figures present regression discontinuity plots using a fitted quadratic polynomial estimate with 95% confidence level. The x-axis is distance (in percentage of votes) from the majority threshold of passing a proposal. The dots represent the responses from non-voting peer firms. We plot the figures according to 20 equally-spaced bins (with a bin width being 5% of vote shares), and the dashed lines represent their confidence intervals. Figure 3a plots the average [-1, +1] market-model CAR of non-voting peer firms in each bin. Figure 3b plots the average adjusted KLD Score in year *+1* of non-voting peer firms in each bin.

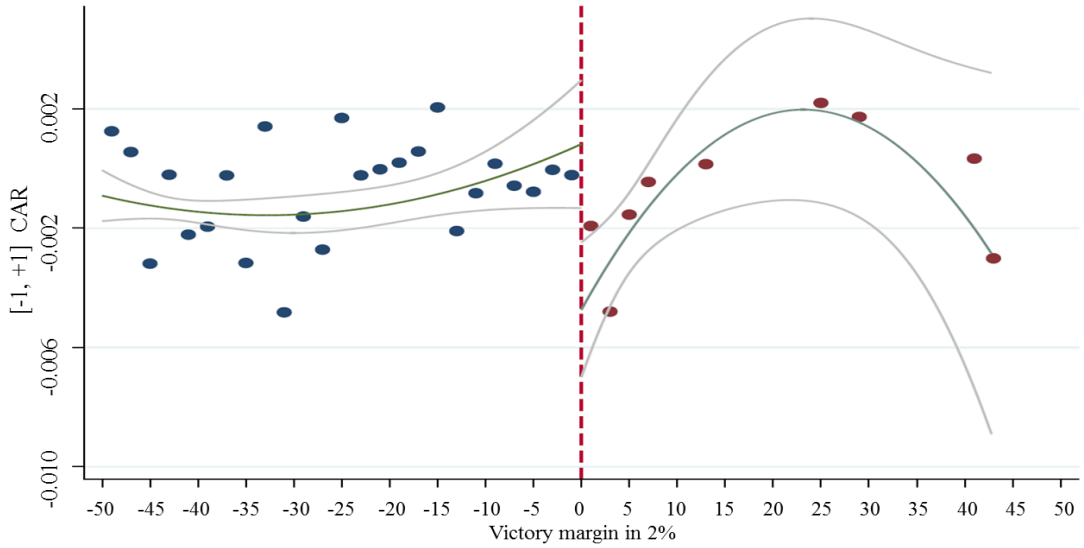

Figure 3a. Three-Day Cumulative Abnormal Returns of Peer Firms around the 50% Majority Threshold of the CSR Proposal

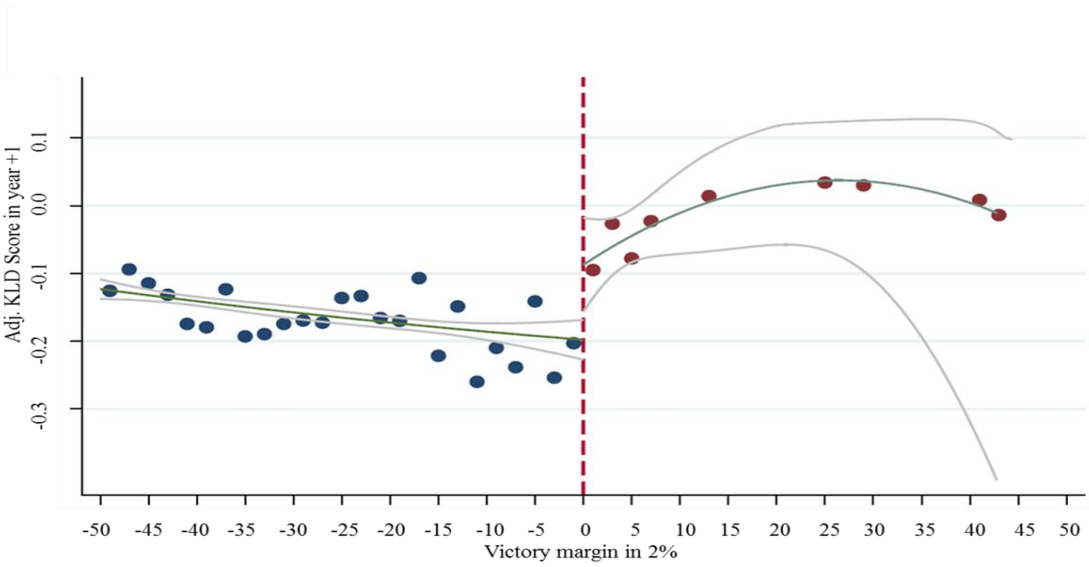

Figure 3b. Following-Year KLD Scores of Peer Firms around the 50% Majority Threshold of the CSR Proposal

Table 1

Sample Distribution of CSR Proposals

This table presents the distributions of CSR proposals and of the affected non-voting peers. Panel A reports the sample distribution by year and Panel B reports the sample distribution by the type of CSR proposals. Our sample contains 1,407 unique CSR votes retrieved from the RiskMetrics and SharkRepellent databases over the period of 1997-2011. We obtain non-voting peers from Hoberg-Phillips industry classifications based on firm pairwise similarity scores from text analysis of firm 10-K product descriptions. Our sample contains 38,630 unique (non-voting) peer-vote observations that correspond to 3,452 unique U.S. public firms.

Panel A: Distribution of Events across Years

Year	# of Votes	# of Non-Voting Peers	Cumulative Percentage
1997	60	690	1.79%
1998	61	686	3.56%
1999	50	584	5.07%
2000	82	1,031	7.74%
2001	82	1,015	10.37%
2002	89	1,330	13.81%
2003	86	2,980	21.53%
2004	106	3,640	30.95%
2005	108	3,712	40.56%
2006	115	3,886	50.62%
2007	112	3,760	60.35%
2008	112	3,778	70.13%
2009	122	3,860	80.12%
2010	120	3,894	90.20%
2011	102	3,784	100.00%
Total	1,407	38,630	

Panel B: Distribution of Events across Proposal Types

Type	# of Votes	# of Non-Voting Peers	Percentage
Community	84	2,592	6.71%
Corporate Governance	59	3,367	8.72%
Diversity	185	3,586	9.28%
Employee Relationship	204	3,765	9.75%
Environment	431	10,809	27.98%
Human Rights	95	2,941	7.61%
Others (Alcohol, Military, Nuclear, Tobacco)	73	939	2.43%
General Social Responsibility Issues	276	10,631	27.52%
Total	1,407	38,630	100%

Table 2

Summary Statistics

This table reports the descriptive statistics of the key variables. Based on the 1,407 unique CSR proposals that were being voted, our sample consists of 38,630 unique (non-voting) peer-vote observations from 3,452 unique U.S. public firms over the period 1997-2011. All variables are winsorized at the 5th and 95th percentiles. Variable definitions are provided in Appendix B.

Variable	# of Obs	Mean	Std. Dev.	P25	Median	P75
CAR [-1, +1]	38,630	-0.0013	0.0289	-0.0191	-0.0012	0.0170
Fama-French (1993) Three-Factor CAR [-1, +1]	38,630	-0.0005	0.0302	-0.0185	-0.0004	0.0174
Carhart (1997) Four-Factor CAR [-1, +1]	38,630	-0.0006	0.0298	-0.0183	-0.0005	0.0171
Total Assets (millions US$)	38,630	7,589	11,994	715	2,273	7,941
Market-to-Book	38,630	1.69	0.87	1.08	1.30	1.98
Leverage	38,630	0.21	0.17	0.06	0.19	0.33
ROA	37,634	0.08	0.10	0.02	0.09	0.15
Adj. KLD Score	38,630	-0.13	0.42	-0.33	-0.14	0.13
Raw KLD Score	38.630	0.04	2.59	-1.00	0.00	1.00
Adj. KLD Strengths	38,630	0.22	0.37	0.00	0.13	0.29
Adj. KLD Concerns	38,630	0.41	0.43	0.00	0.33	0.58
Adj. KLD Environment Score	38,630	-0.01	0.12	0.00	0.00	0.00
Adj. KLD Employee Relationship Score	38,630	-0.04	0.16	-0.20	0.00	0.00
Adj. KLD Diversity Score	38,630	-0.07	0.26	-0.33	0.00	0.13
Adj. KLD Community Score	38,630	0.00	0.14	0.00	0.00	0.00
Product Market Fluidity	38,067	9.38	5,45	5.57	8.41	11.87
Adj. KLD Score Gap	38,630	-0.05	0.79	-0.49	-0.01	0.43
Analyst Coverage	36,442	13.00	9.63	6.00	11.00	19.00
HP Index	38,290	-3.74	0.60	-4.29	-3.65	-3.30
Dividend Dummy	38,228	0.58	0.49	0.00	1.00	1.00
ROE $_{t+2}$	29,108	0.08	0.58	0.03	0.14	0.23
ROS $_{t+2}$	28,993	0.05	0.36	0.02	0.09	0.12
Sales Growth $_{t+2}$	28,933	0.11	0.79	-0.01	0.05	0.16

Table 3

Validity for CSR Vote as Regression Discontinuity Design (Pre-Existing Difference)

This table shows differences in several observable characteristics—adjusted KLD score, firm size, market-to-book ratio, leverage ratio, and ROA—between (non-voting) peer firms that are associated with a passage ("Pass") of CSR proposal in voting firms and those that are associated with a rejection ("Fail") of CSR proposal in voting firms by a small margin. We define the margin as the optimal bandwidth following Imbens and Kalyanaraman (2012).

	(1)		(2)		(3)		(4)	
	Fail		Pass		Difference (Fail v.s. Pass)		Difference within *small margin* (optimal bandwidth)	
	Obs.	Mean	Obs	Mean	Estimate	p-value	Estimate	p-value
Adj. KLD Score	37,685	-0.19	945	-0.18	-0.015	0.313	-0.011	0.653
Size	37,685	7.76	945	8.16	-0.399	0.000	-0.138	0.156
Market-to-Book	37,685	1.70	945	1.42	0.276	0.000	0.046	0.261
Leverage	37,685	0.21	945	0.20	0.013	0.018	0.011	0.284
ROA	36,706	0.08	928	0.08	0.006	0.073	0.007	0.156

Table 4

Responses of Non-Voting Peers to the Passage of a CSR Proposal: Baseline Results

This table presents RDD estimations from local linear regression as specified in Equation (1) using the optimal bandwidth following Imbens and Kalyanaraman (2012). We report results across alternative bandwidths, including 50% of optimal bandwidth (narrower bandwidth), 75% of optimal bandwidth (narrower bandwidth), and 150% of optimal bandwidth (wider bandwidth). Results using both the rectangular and the triangular kernels are reported. *, **, and *** denote significance at 10%, 5% and 1% level, respectively.

Panel A: Market Response of Non-Voting Peer Firms to the Passage of a Voting Firm's CSR Proposal

CAR [-1, +1]	Pass v.s. Fail				
	(1)	(2)	(3)	(4)	(5)
	Optimal Bandwidth	50% of Optimal Bandwidth	75% of Optimal Bandwidth	150% of Optimal Bandwidth	Optimal Bandwidth
Estimate	-0.0058***	-0.0069*	-0.0076***	-0.0068***	-0.0046***
t-stat	-4.11	-1.70	-2.78	-4.76	-2.77
Obs.	5,173	1,817	3,519	11,466	5,173
Kernel	Rectangular				Triangular

Panel B: Following-Year Strategic Response of Non-Voting Peer Firms to the Passage of a Voting Firm's CSR Proposal

Adj. KLD Score *t+1*	Pass v.s. Fail				
	(1)	(2)	(3)	(4)	(5)
	Optimal Bandwidth	50% of Optimal Bandwidth	75% of Optimal Bandwidth	150% of Optimal Bandwidth	Optimal Bandwidth
Estimate	0.16***	0.10**	0.16***	0.12***	0.14***
t-stat	6.18	2.28	4.31	4.26	4.37
Obs.	5,507	1,884	3,900	12,385	5,507
Kernel	Rectangular				Triangular

Table 5

Responses of Non-Voting Peers to the Passage of a CSR Proposal:

Global Polynomial Regression Discontinuity

This table presents RDD results from estimating a polynomial model as specified in Equation (2). The dependent variables are three-day [-1, +1] CARs using the market model and Adjusted KLD Score in year *t+1* of (non-voting) peers. Column (1) and (2) do not include control variables, and Column (3) and (4) include the following control variables: Size, Market-to-Book, Leverage, and ROA. Variable definitions are provided in Appendix B. Standard errors are clustered at the firm level and reported in parentheses. *, **, and *** denote significance at 10%, 5% and 1% level, respectively.

	(1)	(2)	(3)	(4)
	CAR [-1, +1]	Adj. KLD Score *t+1*	CAR [-1, +1]	Adj. KLD Score *t+1*
Pass	-0.0104***	0.24***	-0.0108***	0.098**
	(0.27)	(0.05)	(0.27)	(0.04)
Constant	0.0003	-0.16***	-0.0025	-1.26***
	(0.13)	(0.02)	(0.16)	(0.03)
Polynomial Order	3	3	3	3
Controls	No	No	Yes	Yes
Obs.	38,630		37,634	

Table 6

Responses of Non-Voting Peers to the Passage of a CSR Proposal: Alternative Measures

This table reports the RDD estimates using alternative measures of three-day [-1, +1] CAR (Panel A) and of CSR performance (Panel B). The Average CARs in Column (1) of Panel A are the portfolio average CARs of all associated non-voting peers of each voting firm, and are estimated using the market model. The CARs in Columns (2) and (3) are estimated using the Fama-French three-factor model and the Carhart four-factor model, respectively. Following-year CSR performance in Columns (1), (2) and (3) of Panel B are the portfolio average KLD score of all associated non-voting peers of each voting firm in year [t+1], Raw KLD Score in year [t+1], and the change of the adjusted KLD score from year [t-1] to year [t+1]. We follow Imbens and Kalyanaraman (2012) and estimate the effects of the passage of a close-call CSR proposal using local linear regression with the optimal bandwidth. Variable definitions are provided in Appendix B. *, **, and *** denote significance at 10%, 5% and 1% level, respectively.

Panel A: Alternative Measures of CAR			
Pass v.s. Fail			
	(1)	(2)	(3)
	Average CAR [-1, +1] Market Model	CAR [-1, +1] Three-Factor	CAR [-1, +1] Four-Factor
Estimate	-0.0085***	-0.0071***	-0.0034***
t-stat	-2.73	-4.12	-2.90
Obs.	150	2,823	1,905

Panel B: Alternative Measures of CSR Score			
Pass v.s. Fail			
	(1)	(2)	(3)
	Average Adj KLD Score *t+1*	Raw KLD Score *t+1*	Δ Adj KLD Score *t-1 to t+1*
Estimate	0.26***	0.69***	0.10***
t-stat	2.91	6.08	3.69
Obs.	74	6,278	6,910

Table 7

Responses of Non-Voting Peers to the Passage of a CSR Proposal: Robustness

This table presents the RDD estimates using alternative peer-firm samples. We follow Imbens and Kalyanaraman (2012) and estimate the effects of the passage of a close-call CSR proposal using local linear regression with the optimal bandwidth. In Panel A (a), we re-define peer firms as non-voting firms in the same 3-digit SIC industries (104,083 non-voting firm-vote observations). Panel A (b) and Panel A (c) show sub-period results. In Panel B, we arbitrarily assign a maximum number of non-voting peers for each voting firm and randomly select its peer firms from the pool of all its non-voting peers into the sample: maximum 30 peers for (d), maximum 40 peers for (e), and maximum 50 peers for (f). In Panel C, we conduct placebo tests using a matched non-peer sample. Specifically, for each peer firm, we find a matched non-peer firm based on firm size, market-to-book and leverage. In Panel D, we conduct placebo tests by examining the reactions of peer firms to the passage of non-CSR proposals. Variable definitions are provided in Appendix B. *, **, and *** denote significance at 10%, 5% and 1% level, respectively.

Panel A: Alternative Industry Classifications and Sample Periods

	a. 3-digit SIC peers		*b. 2003-2011*		*c. 2005-2011*	
	Pass v.s. Fail		Pass v.s. Fail		Pass v.s. Fail	
	(1)	(2)	(3)	(4)	(5)	(6)
	[-1, +1] CAR	Adj. KLD Score *t+1*	[-1, +1] CAR	Adj. KLD Score *t+1*	[-1, +1] CAR	Adj. KLD Score *t+1*
Estimate	-0.0074***	0.25***	-0.0064***	0.14***	-0.0033**	0.14***
t-stat	-5.49	6.77	-4.73	4.90	-2.12	4.15
Obs.	8,169	6,800	5,450	5,478	3,836	1,584

Panel B: Randomly Selected Sample with Arbitrarily Assigned Numbers of Peers

	d. 30 peers		*e. 40 peers*		*f. 50 peers*	
	Pass v.s. Fail		Pass v.s. Fail		Pass v.s. Fail	
	(1)	(2)	(3)	(4)	(5)	(6)
	[-1, +1] CAR	Adj. KLD Score *t+1*	[-1, +1] CAR	Adj. KLD Score *t+1*	[-1, +1] CAR	Adj. KLD Score *t+1*
Estimate	-0.0059***	0.12**	-0.0062***	0.11**	-0.0083***	0.12**
t-stat	-2.81	2.06	-3.40	1.96	-4.77	2.26
Obs.	3,680	2,253	4,323	3,872	3,377	3,529

Panel C: Placebo Test on Non-Peers

	Pass v.s. Fail			
	(1)	(2)	(3)	(4)
	[0] AR	[0, +1] CAR	[-1, +1] CAR	Adj. KLD Score *t+1*
Estimate	0.0011	0.0011	-0.0005	-0.03
t-stat	1.00	0.81	-0.28	-0.98
Obs.	2,857	5,206	11,367	5,241

Panel D. Placebo Test on Non-CSR Proposals

	Excluding corporate governance proposals		*Randomly selected 1,407 proposals*
	Pass v.s. Fail	Pass v.s. Fail	Pass v.s. Fail
	(1)	(2)	(3)
	[-1, +1] CAR	Adj. KLD Score *t+1*	[-1, +1] CAR
Estimate	-0.0037***	0.13***	-0.0009
t-stat	-3.49	2.77	-0.95
Obs.	1,465	1,823	14,963

Table 8

Responses of Non-Voting Peers to the Passage of a CSR Proposal: Decomposing KLD Score

This table presents the effects of the passage of a CSR proposal on (non-voting) peers' following-year CSR performance by decomposing KLD Score into different dimensions. Panel A shows the RDD estimates for the adjusted KLD strengths score (column (1)) and the adjusted KLD concerns score (column (2)). Panel B shows the RDD estimates for three major sub-dimensional KLD scores: Environment (column (1)), Employee Relationship (column (2)), and Workforce Diversity (column (3)). Panels C, D and E replicate the analysis in Panel B on the three major sub-dimensional KLD scores, but within the subsample of environment-related proposals, of diversity-related proposals, and of employee relationship proposals, respectively. We follow Imbens and Kalyanaraman (2012) and estimate the effects of the passage of a close-call CSR proposal using local linear regression with the optimal bandwidth. Variable definitions are provided in Appendix B. *, **, and *** denote significance at 10%, 5% and 1% level, respectively.

Panel A: Following-Year KLD Strengths Score and Concerns Score of Non-voting Peers

	Pass v.s. Fail	
	(1)	(2)
	Strengths Score	Concerns Score
Estimate	0.07**	-0.02
t-stat	2.16	-0.79
Obs.	2,545	2,545

Panel B: Following-Year KLD Sub-Dimensional Scores of Non-voting Peers

	Pass v.s. Fail		
	(1)	(2)	(3)
	Adj. Environment Score	Adj. Employee Relationship Score	Adj. Workforce Diversity Score
Estimate	0.03*	0.02**	0.05*
t-stat	1.74	2.05	1.75
Obs.	3,000	3,865	2,644

Panel C: Environment-Related Proposals and Non-voting Peers' Following-Year KLD Sub-Scores

	Pass v.s. Fail		
	(1)	(2)	(3)
	Adj. Environment Score	Adj. Employee Relationship Score	Adj. Workforce Diversity Score
Estimate	0.20***	0.02	0.12*
t-stat	2.92	0.65	1.84
Obs.	1,233	1,233	1,966

Panel D: Diversity-Related Proposals and Non-voting Peers' Following-Year KLD Sub-Scores

	Pass v.s. Fail		
	(1)	(2)	(3)
	Adj. Environment Score	Adj. Employee Relationship Score	Adj. Workforce Diversity Score
Estimate	-0.05	0.52***	0.62***
t-stat	-1.37	2.98	6.32
Obs.	723	141	136

Panel E: Employee Relationship Proposals and Non-voting Peers' Following-Year KLD Sub-Scores

	Pass v.s. Fail		
	(1)	(2)	(3)
	Adj. Environment Score	Adj. Employee Relationship Score	Adj. Workforce Diversity Score
Estimate	-0.06	0.36***	0.00
t-stat	-0.94	3.47	0.01
Obs.	128	128	128

Table 9

Responses of Non-Voting Peers to the Passage of a CSR Proposal: Channels

This table reports the RDD estimates on subsamples. Panel A partitions the sample by the "competitive threats" between the voting- and non-voting firms in the year before the CSR vote. "Competitive threats" is proxied by the voting firm's *Fluidity*, which measures the similarity between the change in a firm's product space and the aggregate change in the competitors' product description. When *Fluidity* is greater, the firm's products are more similar to its peers' and thus the competitive threat is greater. A High *Fluidity* group is defined as peer firms whose associated voting-firm's *Fluidity* score is above the median of the whole voting-firm sample, and a Low *Fluidity* group is defined as peer firms whose associated voting-firm's Fluidity score is below the median of the whole voting-firm sample. Panel B partitions the sample by the "financial constraints" of the peer firms in the year before the CSR vote. "Financial constraint" is proxied by Hadlock-Pierce (HP) Index of the peer firms in year *t-1*. Specifically, for each vote, we define a High HP-Index group as non-voting peers whose HP-Index scores are higher than the median of the whole non-voting peers sample, and Low HP-Index group as non-voting peers whose HP-Index scores are lower than the sample median. Panel C partitions the non-voting peer firms into two subgroups according to the number of unique financial analysts following ("Analyst Coverage") in year *t-1*. For each vote, a High Analyst Coverage group is defined as non-voting peers whose numbers of analyst following are above the median of the whole non-voting peers sample, and Low Analyst Coverage group is defined as non-voting peers with the number of analyst following that is below the sample median. We follow Imbens and Kalyanaraman (2012) and estimate the effects of the passage of a close-call CSR proposal using local linear regression with the optimal bandwidth. Variable definitions are provided in Appendix B. *, **, and *** denote significance at 10%, 5% and 1% level, respectively.

Panel A: Competitive Threats (voting firms' *Fluidity* in year t-1)

	Pass v.s. Fail			
	[-1, +1] CAR		Adj. KLD Score t+1	
	(1)	(2)	(3)	(4)
	High	*Low*	*High*	*Low*
Estimate	-1.33%***	-0.29%	0.17**	0.05
t-stat	-5.48	-0.60	2.02	0.84
# of Obs	1,240	1,310	1,882	2,770

Panel B: Financial Constraints (peer firm's Hadlock Pierce Index in year t-1)

	Pass v.s. Fail			
	[-1, +1] CAR		Adj. KLD Score t+1	
	(1)	(2)	(3)	(4)
	High	*Low*	*High*	*Low*
Estimate	-0.59%***	-0.20%	0.08**	0.21***
t-stat	-2.94	-0.98	2.30	4.76
# of Obs	1,420	1,344	2,583	2,930

Panel C: Information Environment (peer firms' analyst coverage in year t-1)

	Pass v.s. Fail			
	[-1, +1] CAR		Adj. KLD Score t+1	
	(1)	(2)	(3)	(4)
	High	*Low*	*High*	*Low*
Estimate	-0.75%***	-0.19%	0.20***	0.09***
t-stat	-3.84	-0.99	4.56	3.06
# of Obs	1,449	1,316	1,520	1,643

Table 10

Long-Run Effects of the Passage of a CSR Proposal on Non-Voting Peers

This table presents the RDD estimates of peer firms' long-run operating performance two years after their affiliated voting firm passed the close-call CSR proposal. We follow Imbens and Kalyanaraman (2012) and estimate the effects of the passage of a close-call CSR proposal using local linear regression with the optimal bandwidth. Panel A reports the baseline RDD estimates on three operating performance measures: return on equity (ROE), return on sales (ROS), and sales growth rate. Panel B reports the RDD estimates of these three performance measures on subsamples partitioned by the level of a firm's financial constraints using the Hadlock-Pierce Index. Variable definitions are provided in Appendix B. *, **, and *** denote significance at 10%, 5% and 1% level, respectively.

Panel A: Full Sample

	Pass v.s. Fail		
	(1)	(2)	(3)
	ROE $_{t+2}$	ROS $_{t+2}$	Sales Growth $_{t+2}$
Estimate	0.04*	0.05***	0.03***
t-stat	1.72	2.23	2.52
Obs.	2,767	2,459	2,321

Panel B: Partitioned by Financial Constraints

	Pass v.s. Fail			Pass v.s. Fail		
	High Hadlock-Pierce Index			Low Hadlock-Pierce Index		
	ROE $_{t+2}$	ROS $_{t+2}$	Sales Growth $_{t+2}$	ROE $_{t+2}$	ROS $_{t+2}$	Sales Growth $_{t+2}$
Estimate	0.07	-0.03	0.01	0.12***	0.08***	0.05***
t-stat	1.23	-0.5	0.97	1.99	2.82	2.77
Obs.	1,698	235	723	470	1,155	652

Table 11

The Response of Non-Voting Strategic Alliance Partners to the Passage of a CSR Proposal

This table presents the RDD estimates for non-voting alliance partners' CAR and CSR performance. We consider a firm as a non-voting partner if it is in a valid strategic alliance with the voting-firm on the voting day. We follow Imbens and Kalyanaraman (2012) and estimate the effects of the passage of a close-call CSR proposal using local linear regression with the optimal bandwidth. We obtain strategic alliance announcement dates and partners information from SDC platinum. Our alliance partner sample contains 9,148 (non-voting) partner-vote observations from 1,392 unique U.S. public firms over 1997-2011. Variable definitions are provided in Appendix B. *, **, and *** denote significance at 10%, 5% and 1% level, respectively.

	Pass v.s. Fail				
	CAR			Adj KLD Score	ΔAdj KLD Score
	(1)	(2)	(3)	(4)	(5)
	[0]	[0,+1]	[-1,+1]	*t+1*	*t-1 to t+1*
Estimate	0.0127*	0.0128*	0.0117*	0.48**	0.63*
t-stat	1.93	1.82	1.81	2.19	1.76
Obs.	760	460	242	217	209

Appendix A: Examples of Close-Call CSR Proposals and Peer Firms' Reaction

	Panel A: Example of a Marginally Rejected CSR Proposal	Panel B: Example of a Marginally Approved CSR Proposal
Company Name:	Massey Energy Company	IDACORP, Inc
Company Descriptions:	The Company produces, processes and sells bituminous coal of various steam and metallurgical grades, primarily of a low sulfur content, through its 25 processing and shipping centers (Resource Groups), many of which receive coal from multiple mines.	The Company's principal operating subsidiary is Idaho Power Company, an electric utility engaged in the generation, transmission, distribution, sale, and purchase of electric energy. Its other subsidiaries include IDACORP Financial Services, and Ida-West Energy Company, etc.
Stock Ticker:	NYSE: MEE	NYSE: IDA
Date of Vote:	19-May-2009	21-May-2009
Proposal Type:	Environmental Issue	Environmental Issue
Proposal Contents:	Shareholders request a special report to be reviewed by a board committee of independent directors on how the Company is responding to the rising regulatory and public pressure to significantly reduce the social and environmental harm associated with carbon dioxide emissions from the Company's operations and from the use of its primary products. The report should be provided by November 1, 2009 at a reasonable cost and omit proprietary information.	Shareholders request that the Board of Directors adopt quantitative goals—based on current technologies—of reducing total greenhouse gas emissions from the Company's products and operations; and that the Company report to shareholders by September 30, 2009, on its plans to achieve these goals. Such a report will omit proprietary information and be prepared at reasonable cost.
Voting Results:	Rejected (45.6% of the votes)	Passed (51.2% of the votes)

	Non-Voting Peer Firms' Reaction			Non-Voting Peer Firms' Reaction		
All Peers	# of peers	Average 3-day CAR	Average Adj. CSR Score in year t+1	# of peers	Average 3-day CAR	Average Adj. CSR Score in year t+1
	49	0.0137	-0.62	55	-0.0068	-0.20
One Randomly Selected Peer	Peer Name	3-day CAR	Adj. CSR Score in year t+1	Peer Name	3-day CAR	Adj. CSR Score in year t+1
	Marathon Oil	0.0185	-0.75	Northwest Natural Gas	-0.0290	0.25

Appendix B: Variable Definitions

Variable	Description	Source
Firm Size	The logarithm of total assets (item 6) of a firm.	Compustat
Market-to-Book	Market value of assets over book value of assets: (item 6 (total assets)− item 60 (common equity) + item 25 (common share outstanding) × item 199 (fiscal year-end stock price))/item 6 (total assets).	Compustat
Leverage	Book leverage: All debt (item 9 (long-term debt) + item 34 (short-term debt)/Total assets (item 6).	Compustat
ROA	ROA is calculated as (item 13 (operating income before depreciation)/item 6 (total assets)).	Compustat
Adj. KLD Score	The sum of yearly adjusted community activities, diversity, employee relations, and environmental record KLD CSR Scores. Adjusted CSR is estimated by scaling the raw strength and concern scores of each category by the number of items of strength and concerns of that category in the year and then taking the net difference between adjusted strength and concern scores for that category.	KLD Database
Adj. KLD Strengths	The sum of yearly adjusted community activities, diversity, employee relations, and environmental record KLD STATS CSR Strengths Scores.	KLD Database
Adj. KLD Concerns	The sum of yearly adjusted community activities, diversity, employee relations, and environmental record KLD STATS CSR Concerns Scores.	KLD Database
Adj. KLD Environment Score	Adjusted environmental record KLD STATS CSR Score, calculated by scaling the raw environmental strength and concerns scores by the number of items of environmental strengths and concerns in the year and then taking the net difference between adjusted strengths and concerns.	KLD Database
Adj. KLD Employee Relationship Score	Adjusted employee relationship record KLD STATS CSR Score, calculated by scaling the raw employee strength and concerns scores by the number of items of employee strengths and concerns in the year and then taking the net difference between adjusted strengths and concerns.	KLD Database
Adj. KLD Diversity Score	Adjusted diversity record KLD STATS CSR Score, calculated by scaling the raw diversity strength and concerns scores by the number of items of diversity strengths and concerns in the year and then taking the net difference between adjusted strengths and concerns.	KLD Database
Adj. KLD Community Score	Adjusted community record KLD STATS CSR Score, calculated by scaling the raw community strength and concerns scores by the number of items of community strengths and concerns in the year and then taking the net difference between adjusted strengths and concerns.	KLD Database
Fluidity	Fluidity is a "cosine" similarity between a firm's products and changes in the peers' products and scaled between 0 and 1. Larger fluidity indicates greater product market threats. Details are in Hoberg, Phillips, and Prabhala (2014).	Hoberg-Phillips Data Library
Relative CSR Performance	The gap in adjusted KLD score between non-voting and voting firms in year before the vote.	KLD Database
Hadlock-Pierce Index	Hadlock and Pierce (2010) financial constraint index, with higher value indicating more financial constraint. $HP_{i,t} = -0.737 \times Size_{i,t} - 0.043 \times Size_{i,t}^2 - 0.040 \times Age_{i,t}$	Compustat
Dividend Payment	An indicator variable that equals one if the firm has a non-zero dividend (Data21) this year and zero otherwise.	Compustat
Analyst Coverage	Number of unique analysts following the company each year	I/B/E/S
ROE $_{t+2}$	Return on equity, calculated as (item 13 (operating income before depreciation)/item 60 (common equity)).	Compustat
ROS $_{t+2}$	Return on sales, calculated as (item 13 (operating income before depreciation)/ item 12 (sales)).	Compustat
Sales Growth $_{t+2}$	Sales growth rate, change in item 12 (sales) scaled by lagged item 12 (sales).	Compustat