Estimating the Effect of Corporate Social Responsibility (CSR) on Firm Value Using Geographic Identification

Pornsit Jiraporn
Pennsylvania State University – Great Valley School of Graduate Professional Studies

Pandej Chintrakarn
Mahidol University International College

Travis Davidson
Ohio University

Napatsorn (Pom) Jiraporn
State University of New York at Oswego

Abstract

We argue that firms located close to one another tend to have similar CSR policies, due to investor clienteles, local competition, as well as social interactions. Our results are consistent with this notion. In particular, firms located in the same 3-digit zip code exhibit a similar degree of CSR. Exploiting the variation in CSR across the zip codes, we estimate the effect of CSR on firm value. Part of the firm's CSR is induced by the surrounding firms in the same zip code and can be considered exogenous as it is determined outside the firm. Because zip code allocation is based on efficiency in mail delivery, and not on corporate policies or outcomes, it is likely exogenous. Our instrumental variable (IV) analysis reveals that more socially responsible firms enjoy significantly higher firm value. We confirm the results using phone number area codes, instead of zip codes, and reach the same conclusion.

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I. Introduction

The issue of corporate social responsibility (CSR) has recently captured a great deal of attention both in the media and in academics. Each year, corporations spend enormous amounts of money on CSR. Mutual funds that pursue investment strategies based on CSR command billions of dollars around the world.[1] In academics, research on this issue has spanned a number of disciplines, such as management, marketing, economics, and finance. The importance of CSR thus cannot be overemphasized. There are two major strands of research in this area. First, researchers have attempted to determine factors that influence a firm's CSR policy (Barnea and Rubin, 2005; Jo and Harjoto, 2011). Second and more importantly, what is the impact of CSR on firm value? An immense volume of research has been dedicated to the intensely debated question: does CSR improve firm value? (Soloman and Hansen, 1985; Pava and Krausz, 1996; Preston and O'Bannon, 1997; Stanwick and Stanwick, 1998; Verschoor, 1998; Ruf et al., 2001; Soloman and Hansen, 1985; Bauer, Koedijk, and Otten, 2002; Becchetti, Ciciretti, and Hasan, 2009). In spite of the tremendous volume of research and the large expenditures on CSR by corporations, there is surprisingly no conclusive evidence on the effect of CSR on firm value.

Our study is related to both strands of the literature in CSR. First, we investigate the effect of geography on CSR. Due to market segmentation, investor clienteles, social interactions, and local competition, we hypothesize that firms located geographically close to one another tend to have similar CSR policies.[2] Second, we exploit the variation in CSR across geographic locations and estimate the effect of CSR on firm value. Our geographic identification is based on

[1] In the U.S., the professionally managed assets of socially screened portfolios reaches $2.3 trillion in 2003, growing by 1,200% from $162 billion in 1995 (Renneboog, Horst, and Zhang, 2007).

[2] Following the literature, we identify firm location using the location of the headquarters. More discussion on this issue can be found in Davis and Henderson (2004) and Pirinsky and Wang (2010)

zip codes. The U.S. Postal Service (USPS) allocates the zip codes based on efficiency in mail delivery. Zip code changes are also rare and usually reflect changes in macroeconomic factors such as demographics and urban development. Thus, zip code assignments are unlikely related to corporate policies or outcomes and can be considered exogenous.

We start our analysis by exploring the geographic peer effects on CSR. A number of prior studies find that geographic proximity has tangible effects on a wide range of corporate activities, such as charitable actions (Glaskiewicz and Wasserman, 1989 and Marquis, Glynn, and Davis (2007), political contributions (Mizruchi, 1989, acquisition decisions (Haunschild, 1993), anti-takeover provisions (Davis and Greve, 1997; John and Knyazeva and Knyazeva, 2008), and corporate compensation policy (Kedia and Rajgopal, 2009). We apply this concept to CSR. Corporations that invest in CSR have strong incentives to publicize their CSR activities and make them as visible as they can because social spending is "akin to advertising" (Webb and Farmer, 1996). Therefore, CSR activities are highly observable. We argue that the observable nature of CSR makes it likely that firms are influenced by their geographic peers when formulating their own CSR policy. Our results strongly confirm this argument. In particular, the empirical evidence shows that the degree of CSR of a given firm is significantly influenced by the average degree of CSR of the geographically-proximate firms. Our geographic identification is based on zip codes. In particular, firms situated in the same 3-digit zip code exhibit similar CSR policies.[3] The influence of the surrounding firms on CSR remains significant even after controlling for a number of firm characteristics such as firm size, leverage, profitability, R&D

[3] Our results reveal that the zip code where firms have the highest CSR is in Hartford, Connecticut, whereas the zip code with the worst CSR is in Fayetteville, Arkansas. Most zip codes with highest CSR are concentrated in the Mid-West, while those with poor CSR are distributed across various regions in the country.

spending, capital expenditures, advertising, as well as possible variation over time and across industries.

One critical question that has been asked in the literature is; does CSR affect firm value? This question has been fiercely debated in the past thirty years. Supporters of CSR argue that CSR improves the reputation of the firm and helps attract investors, ultimately resulting in higher firm value. Opponents of CSR, on the contrary, contend that CSR can be viewed as an agency cost as corporate executives engage in CSR to maximize their own private benefits at the expense of shareholders. CSR is thus ineffective or even deleterious to firm value.[4] In spite of the fierce debate and an extensive volume of research, the answer to this question is still elusive. The empirical evidence is highly inconclusive, showing a positive effect, an adverse effect, or mixed results.[5] One crucial stumbling block for empirical research in this area is the problem of endogneity. CSR may lead to higher firm value. However, at the same time, firms with better performance can engage in more CSR activities. Endogeneity has confounded the impact of CSR on firm value and prevented researchers from drawing conclusive inferences.

Our study pursues a unique identification strategy. We take advantage of the notion that a firm's CSR is determined at least in part by the CSR policies of the neighboring firms in the same 3-digit zip code. The variation in CSR across the zip codes can be regarded as exogenous for the U.S. Postal Service (USPS) assigns zip codes based on mail delivery efficiency, not on corporate policies or outcomes. For instance, when the surrounding firms raise their CSR, the

[4] There is a middle ground as to whether CSR is an agency cost or value maximizing device. It comes from Jensen's (2001, 2002) Enlightened Value Maximization theory. There is a strong link between stakeholder theory and CSR in that firms that try to maximize the welfare of their stakeholders are generally viewed as socially responsible. Jensen's theory is that companies cannot ignore their stakeholders to achieve value maximization. So, value maximization is the goal and CSR is just a way to get there.

[5] For studies that find a positive effect of CSR, see Soloman and Hansen (1985), Pava and Krausz (1996), Preston and O'Bannon (1997), Stanwick and Stanwick (1998), Verschoor (1998), and Ruf et al. (2001).

firm is likely under pressure to be more responsible too. As a result, part of the firm's CSR that can be attributed to its neighbors comes from outside the firm and can be considered exogenous. It is this variation in CSR across geographical locations that we exploit in our empirical strategy. Using the average CSR level of the surrounding firms as an instrumental variable, we estimate a two-stage least squares (2SLS) analysis and demonstrate that a higher degree of CSR leads to higher Tobin's q. Therefore, more socially responsible firms do indeed enjoy higher firm value. To ensure that our results are robust, we replicate the 2SLS analysis using phone number area codes. Telephone companies assign area codes to maximize the efficiency of the telephone networks. Area code allocation is thus unrelated to corporate financial policies and can be considered exogenous as well. The results based on the phone number area code are consistent, showing that higher CSR brings about higher firm value.[6]

Finally, to alleviate concerns for endogeneity due to unobservable firm characteristics, we exploit the insight from Altonji, Elder, and Taber (2005). Their study suggests that selection on observables can be used to estimate the potential bias generated by unobservables, i.e. how much stronger selection on unobservables, relative to selection on observables, would have to be to explain away the full estimated effect. Our tests indicate that the effect of unonservables would have to be 5.17 times stronger than selection on observables. It appears unlikely that the estimated effect of CSR on firm value is mainly driven by unobservables.

[6] We also run a robustness check, where we use as our instrumental variable the average CSR of the surrounding firms in the same zip code from the earliest year in the sample. This instrument is highly likely exogenous because it comes, not only from outside the firm (from the surrounding firms), but also from another time period (the earliest year instead of year *i*). The result of this alternative test reinforces the conclusion that higher CSR leads to higher firm value.

The results of our study make several contributions to the literature. First, we demonstrate that geography plays an important role in shaping a firm's CSR policy. Geographic location has been found to influence a number of corporate policies and outcomes (Becker, Ivkovic, and Weisbenner, 2011; Gao, Ng, and Wang, 2011; Loughran, 2008; Kedia and Rajgopal, 2009; John and Kadyrzhanova, 2008; Bouwman, 2011). Second, the standard economic theory does not recognize the role of peer effects, social interactions, and investor clienteles. We argue that these factors are crucial and induce similarity in the CSR policies of geographically-close firms. Third, we provide evidence on one of the most debated questions in the literature; does CSR have an impact on firm value? In spite of the large number of studies that examine this question, there is no conclusive evidence. Most empirical tests are complicated by the endogeneity bias. We exploit the geographic variation in CSR, which is likely exogenous, and estimate its impact on firm value. Although our study is not the first to show that CSR improves firm value, ours is among the first to employ an empirical strategy that plausibly overcomes the endogeneity bias.

In addition, the results of our study have crucial investment implications. Individual as well as institutional investors collectively invest billions of dollars in mutual funds that focus on CSR. Despite such enormous investments, there is inconclusive evidence as to whether these CSR-based strategies produce reasonable returns. Although our study does not directly assess the performance of CSR-related mutual funds, we do offer evidence that CSR does not conflict with firm value maximization.

II. Literature Review

a. Geography and corporate outcomes

The recent literature in corporate finance has documented the impact of firm geographic location on various corporate outcomes. Because the literature in this area is quite large, we review only selected studies that are recent and relevant to our investigation. Becker, Ivkovic, and Weisbenner (2011) analyze the effects of local stock preferences of investors on corporate dividend policies. They find that, in locations where seniors constitute a large fraction of the population, firms are more likely to pay and to initiate dividends, and conditional on doing so, they have a higher dividend yield. The authors conclude that regional clienteles can explain firm payout policies. Gao, Ng, and Wang (2011) show that corporate geographic location helps explain the cross-sectional variations of firm capital and payout policies. Corporations located in the same metropolitan areas exhibit similar leverage ratios and have similar level of cash holdings. They attribute the results in large part to investor preferences for local stocks.

Loughran (2008) investigates the impact of firm location on equity issuance and discover that rural firms are less likely to conduct seasoned equity offerings than firms located in urban areas because the costs in generating information are higher for rural firms. Kedia and Rajgopal (2009) examine the "neighborhood effects" in corporate compensation policy, where the peer effects are clearly location-based. They find that firms grant more options to executives when a higher fraction of firms in the local community grant more broad-based options. Along the same line, Bouwman (2011) examines whether geography affects CEO compensation. She finds that the CEO salary of a given firm is significantly influenced by the average CEO salary of the geographically firms. Further analysis reveals that envy is the most plausible explanation.

b. Corporate Social Responsibility (CSR) and Firm Value

Corporate social responsibility can increase firm value to the extent that it improves the reputation of the firm and helps attract more investors. On the contrary, agency theory suggests that, due to the agency conflict, managers may adopt a CSR policy that maximizes their own private benefits, at the expense of shareholders. In this sense, CSR is viewed as wasteful and ultimately detrimental to firm value. There has been a fierce debate on the net effects of CSR on firm value. An immense volume of research has investigated the effects of CSR on firm economic and financial performance. The empirical evidence is mixed.

Some prior studies identify a positive link between CSR and corporate performance (Soloman and Hansen, 1985; Pava and Krausz, 1996; Preston and O'Bannon, 1997; Stanwick and Stanwick, 1998; Verschoor, 1998; Ruf et al., 2001). Other studies document a negative impact of CSR on firm performance (Preston and O'Bannon, 1997; Freedman and Jaggi, 1982; Ingram and Frazier, 1983; and Waddock and Graves, 1997). Finally, inclusive results are also reported (McWilliams and Siegel, 2001; Freedman and Jaggi, 1986; Aupperle, Caroll, and Hatfield, 1985). The results of these early studies are difficult to interpret as they are confounded by endogeneity, a problem that did not receive much attention at the time.

The more recent literature in this area refines considerably the empirical methodology and report interesting findings. For instance, Barnea and Rubin (2005) demonstrate that the decision to invest in CSR is negatively related to insider ownership. The authors interpret this finding in the light of an overinvestment hypothesis. CSR is beneficial to shareholders up to a certain level, but insiders may have an interest to overinvest in it to improve their reputation, and they are more likely to do so when their ownership share is lower. Bauer, Koedijk, and Otten (2002) compare active strategies of ethical and traditional investment funds and report mixed

results. Geczy, Stambaugh, and Levin (2005) estimate the cost of imposing socially responsible investment constraints in term of risk-adjusted returns. They find that it is costly for mutual funds to pursue socially responsible strategies. The magnitude of the costs depends on several factors, including assumptions on the asset pricing models and manger skills. Finally, relying on an event study, Becchetti, Ciciretti, and Hasan (2009) examine the announcement effects of additions to and deletions from the Domini Index. They report that the market reaction is significantly negative when a stock is deleted from the Index.

III. Theoretical Background and Hypothesis Development

a. Geographic Proximity and Corporate Social Responsibility

The central hypothesis of this study is that the degree of corporate social responsibility (CSR) of a firm is influenced by that of the geographically-proximate firms. Several arguments can be made in support this hypothesis. The first argument is based on geographic segmentation and investor clienteles. A large number of prior studies document that professional money managers and individual investors show preferences for geographically-proximate investments (Coval and Moskowitz, 1999; Ivkovic and Weisbenner, 2005; Zhu, 2002; and Massa and Simonov, 2006; Grinblatt and Keloharju, 2001). Local investors in different geographical locations likely exhibit different preferences for CSR. For instance, in an area where environmental problems are more severe, local investors probably expect the local firms (of which they are stockholders) to be more environmentally conscious.[7] Even if these local

[7] Consistent with this notion, Pirinsky and Wang (2010) argue that the local preference of investors naturally creates a clientele of investors from the same region, which could have an influence on major corporate policies. For example, a company that is headquartered in Boston would have a disproportionately large number of (local) institutional investors, which could affect its corporate financial policies.

investors are not stockholders, they can still exert influence through the local community. Naturally, firms have no incentives to alienate the community in which the firm is located and likely take into account the desire of the local community. Hence, firms that are situated geographically close to each other are affected by the same local factors and preferences and should exhibit similarity in their CSR policies.

Second, local competition is expected to be a critical factor. CSR is usually viewed positively by investors. How investors view a firm's CSR policy may depend in part on the CSR policies of the neighboring firms. Investors may have a negative view of a firm if its CSR policy is much weaker than those of the surrounding firms. On the contrary, a firm may be particularly admired by local investors if they outperform their neighbors in terms of CSR. Local investors who are particularly conscious of CSR may shun away from a company with poor CSR if there are other firms nearby with stronger CSR. For this reason, when formulating its CSR policy, a firm must take into consideration the CSR policies of the surrounding firms. Local competition to attract investors forces the CSR policies of geographically-proximate firms to be similar.

Third, social interactions and peer effects can be particularly important for corporate decision makers. Managers who work in the same geographic area usually have opportunities to network and build valuable relationships with their peers, exchanging ideas and learning from one another's experience (Pirinsky and Wang, 2010). For instance, they may attend the same CEO clubs or meetings or they may belong to the same regional business leadership associations, such as local charitable organizations and chambers of commerce.[8] When formulating a CSR policy, corporate executives may turn to their peers for ideas about appropriate strategies or

[8] Davis and Greve (1997) note that the country club cliché that much business is traded over golf games is surprisingly accurate, according to discussions with directors.

mimic one another's behavior through direct contact.[9] The social interactions and peer effects of the executives in the same geographic area make the CSR policies of the neighboring firms more similar.

b. Corporate Social Responsibility and Firm Value

One of the most intensely debated issues in the literature is the effect of CSR on firm value. This debate cuts across several academic disciplines including management, finance and economics. There are two possible reasons why firms engage in CSR. First, engaging in CSR is a rational business decision. Alternatively, CSR engagement is a self-motivated managerial perquisite.[10] CSR may enhance shareholder value by boosting sales, raising employee morale and productivity (Navarro, 1988, Greening and Turban, 2000), stimulating innovation, or improving relations with regulators and special interest groups (Barron, 2001; Neiheisel, 1994). On the contrary, CSR may represent an agency cost (Williamson, 1964; Jensen and Meckling, 1976). Critics of CSR argue that managers engage in CSR to further their own objectives and community status (Balotti and Hanks, 1999), to the detriment of shareholders.

Between the two extremes discussed above, there is a middle ground based on Jensen's (2001, 2002) enlightened value maximization theory. Jensen (2001, 2002) recognizes that value maximization is the firm's primary objective. However, to reach this goal requires optimally managing relations with the firm's stakeholders. Others have made similar propositions (Graves

[9] Recent studies suggest that social interactions with peers has tangible effects on a variety of activities such as charitable actions (Galakiewicz and Wasserman, 1989; Marquis, Glynn, and Davis, 2005), political contributions (Mizruchi, 1989), acquisition decision (Haunschild, 1993), corporate borrowing (Mizruchi and Stearns, 2004) and adoption of anti-takeover provisions (Davis and Greve, 1997).

[10] A third possible reason is that CSR engagement is truly altruistic, providing no benefit to the firm's shareholders or its managers. Either managers or individual investors may be altruistic. There is, however, scant empirical evidence on a purely altruistic motive.

and Waddock, 2000; Davis, 2005). Jensen's (2001, 2002) model differs from traditional instrumental stakeholder theory as his model provides a basis for making trade-offs between stakeholder groups. The company's relations with its stakeholders must be rooted in the company's strategies and must be a means to an end, that of value maximization. This perspective seems to suggest that CSR is at least not in conflict with firm value maximization.

Consequently, in theory, it is unclear what the impact of CSR is on firm value. This issue thus becomes an empirical issue. Previous research on this topic has been confounded by endogeneity. In this study, we propose an empirical strategy based on geographic identification that is less vulnerable to the endogeneity bias.

IV. Sample Construction and Data Description

a. Sample Formation

Our CSR sample is from Kinder, Lydenberg, and Domini's (KLD's) database. The KLD database is the most widely recognized and reliable database in the CSR literature, being referenced by over 40 peer-reviewed articles. We obtain data on corporate headquarters location and other financial and accounting characteristics from COMPUSTAT. We classify firm geographic location by the 3-digit zip code. A 3-digit zip code is included if it has at least 10 corporate headquarters.[11] Our final sample comprises a total of 4,328 firm-year observations from 1995 to 2007.

b. Corporate Social Responsibility (CSR) Score

[11] We also check the robustness of our results using 2-digit zip codes and obtain similar results.

One challenge for research in CSR is the measurement of CSR. Prior research uses a number of alternative CSR measures. However, KLD is the most recognized and accepted in the literature.[12] KLD includes strength ratings and concern ratings for 13 dimensions; community, diversity, corporate governance, employee relations, environment, human rights, product, alcohol, gambling, firearms, military, tobacco, and nuclear power. KLD assigns strengths and concerns in the first 7 dimensions, whereas the final 6 dimensions are just exclusionary screens and firms can only register concerns in those categories. For instance, a company can receive credit for a strong environment policy at the same time a concern is registered for its environment record. We do not include the exclusionary screen as part of the total CSR score. The total of the strengths minus the concerns is the composite CSR score (Goss and Roberts, 2012)

c. Firm Location

The modern firm has fuzzy boundaries as its operations and management could encompass numerous countries around the globe. The academic literature usually defines a firm's location as the location of its corporate headquarters. Corporate headquarters are usually close to corporate core business activities. More importantly, corporate headquarters are the place where corporate decision makers reside and are the center of information exchange between the firm and its suppliers, service providers, and investors (Davis and Henderson, 2008; Pirinsky and Wang, 2010).

[12] Although there are other alternative measures of CSR, KLD is the most widely accepted. Other CSR measures can be found in Carroll (1991), Aupperle (1991), Hansen and Wernerfelt (1989), and Waddock and Greves (1997).

In this study, we follow the literature and define a firm's location by the location of its headquarters. We identify the zip code of the headquarters location and classify firms as "geographically-proximate" if they are located in the same 3-digit zip code. This method of geographic identification has several advantages. First, zip codes are easily identifiable and have clear boundaries, facilitating geographic identification. Second, the zip code is determined by the U.S. Postal Service to maximize efficient mail delivery. Thus, it is unlikely related to corporate financial characteristics. Zip code changes are also rare. The U.S. Postal Service does not modify zip codes based on corporate performance.[13] For these reasons, a geographic location based on a zip code is likely exogenous.

d. Summary Statistics

Table 1 shows the descriptive statistics. A few observations are worth noting. On average, the sample firms are profitable, as indicated by the average EBIT ratio of 0.0460 (median 0.0744). The average debt ratio is 0.1968 (median 0.1353). About 51% of the sample firms are included in the S&P 500 Index. These are large firms that operate nationally or even internationally. Following the literature, we use Tobin's q to represent firm value. The average Tobin's is 1.819 (median 1.360).[14] The average CSR score is -0.0765. The CSR score is simply the number of KLD strengths minus the number of KLD concerns. So, on average, the number of concerns is higher than the number of strengths. This is why the average score is slightly

[13] Zip codes are occasionally reassigned based on demographics and mail delivery efficiency. For instance, when a rural area becomes suburban, a new zip code is introduced. But, it is unlikely that corporate financial policies influence how the U.S. Postal Service re-allocates the zip code. In this sense, geographic identification based on zip codes is probably exogenous.

[14] We calculate Tobin's q based on Chung and Pruitt (1994).

negative. However, the median CSR score is zero. So, half of the sample firms have positive CSR scores and the other half negative.

e. Control Variables

Based on the literature, we control for a number of firm characteristics that have been found to influence CSR. We control for firm size by including the log of total assets. Large firms tend to attract more attention and pressure to respond to stakeholders' demands (Burke, Logsdon, Mitchell, Reiner, and Vogel, 1986). Large firms are expected to show more social responsibility. We control for profitability by including the ratio of EBIT to total assets. Evidently, more profitable firms can better afford to be more socially responsible. We also include the ratio of debt to total assets to control for financial leverage. McWilliams and Siegel (2001) argue that R&D expenditures have an impact on CSR. Accordingly, we include the ratio of R&D expenditures to total assets.

Furthermore, we control for advertising intensity by including the ratio of advertising expenditures to total assets. Because CSR promotes the reputation of the firm, it may substitute for advertising. We also control for corporate investments by including the ratio of capital expenditures to total assets. Firms that make heavy investments may have less funds left for CSR. Firms included in the S&P 500 enjoy more visibility and may be expected to be more socially responsible. Therefore, we include a dummy variable indicating whether or not the firm is part of the S&P 500 Index. The awareness on CSR has increased over the years. We thus control for variation over time in CSR by including year dummies. Finally, it is critical to account for possible industry effect. We control for industry effects by creating industry dummies corresponding to the first 2 digits of the SIC code. In certain regressions where it is

econometrically impossible to include industry dummies, we include industry-average CSR to control for possible industry effects.

V. Geographic Proximity and Corporate Social Responsibility

a. Analysis based on Location Dummies

We begin our analysis by using the same method as Gao, Ng, and Wang (2011). In particular, we construct a location dummy variable for each 3-digit zip code. We regress the CSR score on all the control variables, including the industry dummies and the location dummies. Then, we test whether the location dummies are jointly significant. The F-statistics are significant, suggesting that geographic location does matter to CSR. The large F-statistics allow us to reject the null hypothesis that geographic location bears no effects on CSR. It is important to note that the industry dummies are also included and are jointly significant. Thus, the location effects are above and beyond those explained by industry. The F-statistics are always significant, regardless of how we define a location, whether based on the 3-digit zip code or 2-digit zip code, whether we require a minimum of ten firms in each zip code or twenty.[15]

b. Analysis based on the average CSR score of the geographically proximate firms

Following the method in Bouwman (2011) and Jiraporn, Jiraporn, Boeprasert, and Chang (2014), we determine the impact of geography on CSR by exploring how a particular firm's CSR is influenced by the average CSR score of the geographically-proximate firms, while controlling for other firm characteristics. The regression results are shown in Table 2. The dependent variable is the CSR score. The t-statistics are adjusted for standard errors due to clustering at the

[15] To conserve space, we do not show the results, although they are available upon request.

firm level. Each zip code in our sample contains at least ten firms. We compute the average CSR score of all the firms in the same zip code. In Model 1, the coefficient is positive and highly significant for the average CSR score of the geographically close firms. We control for industry effects by including the average CSR score of the industry peers (based on the 2-digit SIC code). Thus, after controlling for other firm-specific factors as well as for industry effects, the result shows that a particular firm's CSR is highly related to the CSR levels of the surrounding firms.

To ensure that our result is robust, we run a number of additional tests. First, it could be argued that the association in Model 1 may be simply mechanical because the CSR score of firm *i* is included in the calculation of the average CSR. To alleviate this concern, we raise the minimum number of firms in each zip code from ten to twenty. If a zip code has fewer than twenty firms located inside, it is excluded. The idea is that, with at least twenty firms, the influence of firm *i* on the average CSR should be minimal, reducing the possibility of a spurious association. In Model 2, the average CSR continues to show a positive and significant coefficient. In Model 3, we use an alternative method to control for industry effects, i.e. we include industry dummies in the regression, instead of using the industry average CSR. The coefficient of the average CSR remains positive and significant in Model 3.

Second, to further corroborate the results, we re-calculate the average CSR by excluding firm *i* all together from the calculation. In Model 4, the coefficient is positive and significant for the average CSR (excluding firm *i*). The magnitude of the coefficient in Model 4 is smaller than those in the previous models, suggesting that, by excluding firm *i* from the calculation of the average CSR, the association becomes weaker but remains significant. Finally, in Model 5, we include industry dummies, instead of using the industry average. Thus, the result is robust to

whether or not we include firm *i* in the calculation of the average CSR and to alternative methods of controlling for industry effects. The results of the control variables are also largely consistent with expectations. For instance, large firms and more profitable firms show more social responsibility. The adjusted R^2 ranges from 17.66% to 21.86%, which is considered normal in the literature. Below, we discuss further robustness checks.

c. Robustness checks

Alternative requirements for the minimum number of firms in each zip code

Table 3 displays further robustness tests. In Model 1, we impose the requirement that each zip code must have at least twenty firms and we exclude firm *i* from the calculation of the average CSR. In Model 2, we increase the minimum number of firms in each zip code to thirty. Note that the coefficient of the average CSR remains positive and significant both in Model 1 and Model 2.

Alternative methods of geographic identification

In Model 3 and Model 4, instead of computing the average CSR based on the 3-digit zip code, we define each area based on the 2-digit zip code. The average CSR still shows a positive and significant coefficient. Thus, even when we change the way we define a geographic location, the result remains consistent and hence appears to be robust.

Analysis based on the median CSR score

The average CSR may be influenced by extreme values. To mitigate this concern, we use the median CSR score of the geographically-proximate firms. The results are shown in Table 4.

The median CSR score carries a positive and significant coefficient in all of the regression models. Thus, using the median instead of the average does not materially change the result.

Geographic identification based on the phone number area code

So far, we define a location based on the zip code. As a robustness test, we now define an area based on 3-digit phone number area codes. Table 5 shows the regression results. The average CSR is positive and significant in all of the regression models. Even when an alternative approach of geographic definition is used, the result remains consistent.

Evidence from the S&P 500 firms

Firms that are included in the S&P 500 Index are large and are expected to be less affected by local influences such as local competition and investor clienteles. If our results are indeed driven by the effect of geographic proximity, we expect the effect to be weaker for the S&P 500 firms, which operate nationally as well as internationally. To test this conjecture, we construct a dummy variable equal to one if the firm is part of the S&P 500 Index and zero otherwise. Then, we interact this variable with the average CSR score of the surrounding firms. The coefficient of this interaction term should reveal the relative effects of the average CSR score on S&P 500 versus non-S&P 500 firms. The coefficient turns out to be negative and significant, suggesting that the average CSR score of the neighboring firms has a much weaker effect on the CSR of the S&P 500 firms. This is consistent with our expectations and with the notion that our results are driven by geographic proximity.[16]

[16] Because COMPUSTAT reports only the current address, it is possible that some sample firms relocated their headquarters and thus did not have the same addresses throughout the sample period. This problem is not particularly serious as headquarters relocations are quite rare (Pirinsky and Wang, 2006; Alli, Ramirez, and Yung,

d. Fixed-effects Regression Analysis

To gain further insights, we execute a fixed-effects regression analysis. One critical advantage of the fixed-effects analysis is that it captures only the variation over time. Hence, it controls for the possible effects of unobservable firm characteristics that remain constant over time, therefore minimizing the omitted-variable bias. Table 6 shows the results of the fixe-effects regressions. In Model 1, the average CSR score of the geographically close firms has a positive and significant coefficient. The result suggests that, when the neighboring firms become more socially responsible, firm *i* also increases its own CSR. In Model 2, we replace the average CSR score with the median CSR score. The result remains similar.

In Model 3, we average the CSR score for each firm over time. Thus, the regression in Model 3 captures only the cross-sectional variation. The coefficient of the average CSR score is positive and significant. In Model 4, we replace the average CSR with the median CSR. Thus, when we look only at the cross-sectional variation, we still obtain consistent results. Finally, in Model 5 and Model 6, we conduct a random-effects regression analysis. Again, the results confirm our prior conclusion.

In addition, we perform a regression analysis based on changes in the variables, i.e. we regress changes in the average CSR score of the neighboring firms on changes in the CSR score

1991). In any event, we execute additional tests that should alleviate this problem. First, Pirinsky and Wang (2006) find that the vast majority of the headquarter relocations in their sample come from small firms. Large firms rarely relocate their headquarters. We thus concentrate on the S&P 500 firms. These firms are large and are highly unlikely to have their headquarters relocated. Consequently, this subsample is considerably less vulnerable to the relocation bias. Using only the S&P500 firms, we obtain similar results. Second, we focus on the subsample of firms in the last year of the sample, where we know with certainty that the addresses are current. Evidently, the relocation bias cannot influence this subsample. We obtain similar results. It thus appears that the relocation bias does not unduly affect our conclusion.

of a given firm. An analysis based on changes in the variables is less vulnerable to the endogeneity bias. The result reveals that changes in the average CSR score is positively related to changes in the CSR score of a given firm, corroborating our prior results.[17]

e. Reverse causality

Our fixed-effects analysis helps alleviate concern for the omitted-variable bias, which is one type of endogeneity. The other type of endogeneity is caused by reverse causality. So far, we assume that the direction of causality runs from the average CSR score of the neighboring firms to the CSR score of a given firm. Reverse causality would imply that the CSR score of a given firm influences the average CSR score of the geographically-proximate firms. Reverse causality is unlikely because we require that each zip code contains at least ten firms. Thus, the influence of a single firm on the other nine firms should be relatively small. Moreover, our result holds when we increase the minimum number of firms to twenty, thirty, and even sixty. When one zip code contains sixty firms, the influence of one firm on the other fifty nine firms in the same area should be negligible. Therefore, the possibility that our results are driven by reverse causality is quite weak.[18]

In any case, we execute additional empirical tests to mitigate the concern for reverse causality. First, we lag the average CSR score of the geographically close firms by one period, i.e. we regress the CSR score of a given firm at time *t* on the average CSR score of the

[17] Results not shown but available upon request.

[18] Another possible argument for reverse causality is that firms may choose geographic location based on CSR. In other words, firms with high CSR choose to be located close to other firms with high CSR too. This is highly unlikely. Headquarters relocations are rare. It is implausible that firms change location in response to CSR. Furthermore, CSR has received much more attention recently. Thus, CSR has increased significantly over the years. Yet, firms still rarely change their headquarters locations. If reverse causality were valid, we would observe many more corporate relocations as CSR levels change over the years.

surrounding firms in year *t-1*. We continue to obtain consistent results. Moreover, we identify the first year when each firm shows up in the sample. Then, we replace the average CSR score of the neighboring firms in each year by the value in the earliest year. The logic is that the average CSR score in the earliest year could not have resulted from the CSR score in any of the subsequent years. The regression result does hold when we use the value in the earliest year.[19] These additional tests increase our confidence that the endogeneity bias due to reverse causality is unlikely in our sample.

VI: Effect of Corporate Social Responsibility on Firm Value

Prior studies that examine the impact of CSR on firm value have been plagued by endogeneity. Determining causality is a critical issue that has prevented researchers from drawing robust conclusions. Firms with better CSR may enjoy higher firm value. At the same time, better-performing firms can afford to invest more in CSR. Thus, it is unclear whether the direction of causality runs from CSR to firm performance or vice versa. One possible solution to the endogeneity problem is the instrumental variable (IV) technique. The idea is to identify a variable that is highly correlated with CSR and yet does not influence firm value, except through CSR. It is challenging to find such a variable as financial variables tend to be correlated. Geographic location has been used as an instrumental variable in many prior studies as it is fixed and more likely to be exogenous.

We have earlier shown robust evidence that the degree of CSR of a given firm in a particular area is influenced by the CSR of the geographically proximate firms in the same area. Our geographic identification is based on zip codes. We thus propose an empirical strategy, i.e.

[19] Results not shown but available upon request.

exploiting the variation in CSR across the zip codes and estimating the impact of CSR on firm value. In particular, we employ as our instrumental variable the average CSR score of the surrounding firms in the same 3-digit zip code. This variable should be a legitimate instrument for two reasons. First, this variable is clearly related to the CSR score of a given firm, as demonstrated earlier. So, it does meet the relevance requirement for an instrumental variable. Second, it plausibly meets the exclusion requirement, i.e. it is not directly correlated with firm performance (except through the CSR of firm *i*). The U.S. Postal Service (USPS) allocates zip codes exclusively based on efficiency in postal delivery. As a result, zip code assignments are unlikely related to corporate financial policies or corporate outcomes. Thus, the variation in CSR across the zip codes is likely exogenous. As is typical in the literature, we measure firm value using Tobin's q. Our Tobin's q is calculated based on Chung and Pruitt (1989).

The two-stage least squares (2SLS) results are shown in Table 7. Model 1 is the first stage regression, where we estimate the CSR score using the average CSR score of the surrounding firms.[20] We include all the control variables as well as the year and industry dummies. As expected, the average CSR score of the geographically close firms carries a positive and significant coefficient.[21] Model 2 is the second stage regression, where we take the

[20] Our instrument is the average CSR score of the geographically proximate firms in the same 3-digit zip code, excluding firm *i.* We require that each zip code must have at least ten headquarters. We also increase the minimum number of firms in each zip code to twenty and obtain qualitatively similar results. Given such a large number of other firms in the same zip code, the average CSR score is likely exogenous as it comes from outside the firm and is calculated based on a large number of other firms. Although firm value of a given firm may be related to the CSR of its own firm (possibly causing reverse causality), it is highly unlikely that it is related to the CSR of other firms.

[21] Instrumental variables may suffer from the weak instrument problem (Bound, Jaeger, and Baker, 1995; Nelson and Startz, 1990; and Staiger and Stock, 1997). This problem, however, is usually serious in settings with a large number of instruments, each of which is weakly correlated with the endogenous variable(s), but collectively have satisfactory explanatory power (Angrist, Imbens, and Krueger, 1999). When the number of instruments is low, IV results are neither particularly biased nor generate excess precision. Because we use a single instrument, the weak instrument bias would not be a concern in our study. In any event, we test the strength of our instrument in the

instrumented value of the CSR score from the first stage and regress it on Tobin's q. The coefficient of the instrumented CSR score is positive and highly significant. Thus, the evidence suggests that CSR improves firm value significantly.[22]

To further corroborate the result, we employ an alternative instrumental variable. Instead of using the average CSR score of the surrounding firms in the *same* year, we now use the average CSR score of the neighboring firms from the *earliest* year in the sample. This instrumental variable is even more unlikely related to Tobin's q because, not only does it come from outside the firm (average CSR of other firms in the same zip code), it also comes from another time period (the earliest year instead of year *i* for each firm). Therefore, it is far removed from the value of firm *i* along both dimensions (both in terms of time as well as in terms of space). This instrument is thus probably exogenous. In Model 3, we regress the CSR score on the average CSR in the earliest year and the control variables. Not surprisingly, the coefficient of the average CSR score in the earliest year is positive and significant. In Model 4, we regress Tobin's q on the CSR score instrumented from the first stage. The coefficient of the instrumented CSR score is significantly positive, again corroborating the conclusion that higher CSR leads to higher firm value.

We execute further tests to ensure robustness. The prior 2SLS analysis is exactly identified, i.e. there is one endogenous variable and one instrumental variable. When a model is exactly identified, it is not possible to calculate Sargan's (1958) statistics to test whether the instrument is valid. As a consequence, we add one more instrument to make the model over-

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first stage using F-statistics (Staiger and Stock, 1997; Stock, Wright, and Yogo, 2002; and Stock and Yogo, 2005). We can reject the null hypothesis of weak instruments in all our reported first-stage regressions.

[22] We also use the average CSR score of the surrounding firms in the same 2-digit, instead of 3-digit, zip code and obtain consistent results.

identified, enabling us to execute a test of over-identifying restrictions and compute Sargan's (1958) statistics. Several prior studies employ an industry average as an instrument. The logic is that firm value may be related to firm-level CSR. However, it is less likely related to industry-level CSR. Given that there are many firms in an industry, changes in CSR at the industry level are more likely exogenous (This argument is especially compelling, considering that the average number of firms in each industry in our sample is 30, the median 23). Therefore, we use industry-average CSR as an additional instrument. The result of the first stage regression is in Model 5, where we use as our instruments the average CSR score of the neighboring firms and the industry-average CSR score. Both instruments have significant explanatory power as indicated by their positive and highly significant coefficients. Then, in Model 6, which is the second stage regression, we regress Tobin's q on the CSR score instrumented from the first stage. The coefficient of the instrumented CSR score is positive and highly significant. Again, the evidence reveals that firms that engage in more CSR enjoy higher firm value. It is important to note that we now can conduct a test of over-identifying restrictions. Sargan's (1958) statistics in Model 4 is 1.86 (with a corresponding p-value based on the Chi-squared distribution of 0.17, which is statistically insignificant). Because Sargan's (1958) statistics is not significant, our instrumental variables appear to be valid.

Robustness check based on telephone area codes

As an additional robustness test, we replicate the 2SLS analysis but identify firm location based on the telephone number area code, instead of the zip code. Telephone number area codes are allocated to maximize the efficiency of the telephone networks from the technical viewpoint. They are therefore unlikely related to corporate financial policies or outcomes. Thus, similar to

the zip code, the variation in CSR across the phone number area codes is likely exogenous. We exploit this variation and use the average CSR score of the geographically close firms in the same area code as our instrument. The result remains consistent. We also execute a test where we use two CSR averages based on the zip code and the phone number area code as our instruments. Although a zip code and a phone number area code may overlap, they do not completely coincide, thus increasing the geographical variation in CSR in the model. Again, the result remains similar. Finally, it could be argued that the effect of CSR on firm value may not manifest itself immediately, but rather reveal itself over time. To capture the long-term benefit of CSR, we replace Tobin's q with the average Tobin's q over the subsequent three years. We obtain consistent results.[23]

Estimating the effect of the unobservables

The above tests are meant to alleviate concerns for reverse causality. Yet, there is another type of endogeneity that could produce a spurious relationship. It is possible that both firm value and CSR are related to unobservable firm characteristics that are omitted in the model. We address this potential problem by exploiting the insight from Altonji, Elder, and Taber (2005). Their study suggests that selection on observables can be used to estimate the potential bias generated by unobservables, i.e. how much stronger selection on unobservables, relative to selection on observables, would have to be to explain away the full estimated effect.[24]

[23] We also use the average Tobin's q over the subsequent five years. However, using the five-year average reduces our sample size significantly, making it impossible to draw conclusive inferences.

[24] Altonji et al. (2005) consider the situation where the explanatory variable is a binary variable. Bellows and Miguel (2006) develop an analogous test for the case where the variable of interest is continuous. Full details of the test are provided in the working version of their study, Bellows and Miguel (2006).

This potential bias can be estimated this way, consider two regressions: one with a restricted set of control variables, and one with a full set of controls. Denote the estimated coefficient for the variable of interest from the first regression β^R (where R stands for Restricted) and the estimated coefficient from the second regression β^F (where F stands for Full). Then, the ratio can be computed as $\beta^F/(\beta^R - \beta^F)$.[25] The intuition behind the formula is straightforward. First, consider why the ratio is decreasing in $(\beta^R - \beta^F)$. The smaller the difference between β^R and β^F, the less the estimate is affected by selection of observables, and the stronger selection on unobservables needs to be (relative to observables) to explain away the entire effect. Then, consider the intuition behind β^F in the numerator. The larger β^F, the greater is the effect needs to be explained away by selection on unobservables, and therefore the higher the ratio.

We apply this method to our sample and estimate two regressions where the dependent variable is Tobin's q: one with no controls and another with a full set of control variables. The ratio calculated from the two coefficients of CSR from the two regressions turns out to be 5.17. Consequently, to attribute the entire estimate to selection effects, selection on unobservables would have to be at least 5.17 times stronger than selection on observables. It appears unlikely that the estimated effect of CSR on firm value is primarily driven by unobservables. This provides a certain degree of comfort that our results are not spurious due to possibly omitted variables.

Controlling for location-specific characteristics and local Tobin's Q

[25] See Bellows and Miguel (2006) for the formal derivation. As well, see Altonji et al. (2005) for details of the underlying assumptions.

To minimize the possibility of the omitted-variable bias further, we execute the following robustness tests. First, it may be possible that some location-specific variables may drive the results. To address this concern, we add as our control variables a number of area-specific variables, such as total population, median household income, per capita income, land area, and the number of firms located within the zip code. The idea is that, by increasing the number of control variables, we reduce the possible endogeneity bias induced by omitted variables. The results are shown in Table 8. Model 1 shows the second-stage regression where Tobin's Q is the dependent variable. The CSR score is instrumented from Model 1 in Table 7. The coefficient of instrumented CSR remains positive and significant. Thus, even after controlling for location-specific characteristics, we continue to find that CSR improves firm value.

Second, we use an alternative method to control for unobservable characteristics that remain constant over time in a given location. We add location-specific dummies based on zip codes. These zip code-specific dummies help reduce the effect of possibly omitted variables in each location. Also, it could be argued that Tobin's Q of firms in the same area may be correlated. To alleviate this concern, we include as a control variable the median value of Tobin's Q of the surrounding firms.[26] The idea is that any location-specific unobservable variables that might be omitted are reflected in the median Tobin's Q in the same zip code. Table 8 Model 2 shows the result. The coefficient of instrumented CSR retains its positive and significant coefficient. The result implies that the effect of CSR on firm value is above and beyond the effect of median Tobin's Q in a given zip code. The additional tests reveal that our

[26] Tobin's Q has a skewed distribution. The median is therefore more appropriate than the mean.

conclusion does not appear to be particularly vulnerable to the omitted-variable bias and therefore the favorable effect of CSR on firm value seems to be robust.

VII: Concluding Remarks

The recent literature has shown that geographic location has significant effects on various corporate outcomes. We contribute to the literature in this area by examining how geography affects corporate social responsibility. Due to market segmentation, investor clienteles, local competition, and social interactions, a firm is likely to take into account the levels of CSR of the surrounding firms when formulating its own CSR policy. We find robust empirical evidence in support of this hypothesis. In particular, the degree of CSR of a given firm is significantly influenced by the average CSR of the neighboring firms. The effect survives even after controlling for a number of factors such as firm size, profitability, leverage, advertising, R&D spending, capital expenditure, as well as industry and time. We execute a number of robustness checks, including changing the minimum number of firms in each zip code, using the median instead of the average CSR score, using the 2-digit instead of the3-digit zip code, and defining a location based on the phone number area code instead of the zip code. All of the robustness tests yield consistent results.

After establishing that a firm' CSR is influenced by the CSR levels of the surrounding firms in the same zip code, we then exploit the variation in CSR across the zip codes to estimate the impact of CSR on firm value. Because zip code allocation is based strictly on efficiency in mail delivery, and not on corporate policies or outcomes, it is likely exogenous. Our two-stage least square results demonstrate that a high degree of CSR leads to significantly higher firm value. We confirm the results using the phone number area code and reach the same conclusion.

The role of geography on corporate policies and outcomes has been examined extensively in the recent literature. We aptly contribute to this area of the literature by showing that one corporate policy that is influenced by geographic location is corporate social responsibility. More importantly, we address one of the most fiercely debated questions in the literature; does CSR increase firm value? Our empirical strategy, which is less vulnerable to endogeneity, leads us to conclude that more socially responsible firms do indeed enjoy higher firm value.

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Table 1: Descriptive Statistics

Leverage is total debt divided by total assets. R&D intensity is R&D expenditures divided by total assets. Advertising intensity is advertising expenditures divided by total assets. The S&P 500 dummy is equal to one if the firm is included in the S&P 500 Index and zero otherwise. The CSR score is based on the KLD ratings and represents the total of the strengths minus the concerns.

	Mean	Median	S.D.	25^{th}	75th
Total Assets	5,181.44	843.62	26,425.40	277.66	2,761.38
EBIT/Total Assets	0.0460	0.0744	0.2012	0.0215	0.1301
Leverage	0.1968	0.1353	0.2474	0.0008	0.3071
R&D Intensity	0.0715	0.0366	0.1120	0.0029	0.1027
Advertising Intensity	0.0856	0.0000	1.1543	0.0000	0.0000
S&P 500	0.5090	-	-	-	-
Tobin's q	1.819	1.360	1.511	0.768	2.403
CSR Score	-0.0765	0.0000	2.2075	-1.0000	1.0000

Table 2: The Impact of Geography on Corporate Social Responsibility

Leverage is total debt divided by total assets. R&D intensity is R&D expenditures divided by total assets. Advertising intensity is advertising expenditures divided by total assets. The S&P 500 dummy is equal to one if the firm is included in the S&P 500 Index and zero otherwise. The CSR score is based on the KLD ratings and represents the total of the strengths minus the concerns. The industry dummies are based on the first two digits of the SIC codes. The geographically proximate firms are those located in the same 3-digit zip code as firm *i*. *, **, *** represent statistical significance at the 10%, 5%, and 1% levels respectively

	Model 1 (t-statistic)	Model 2 (t-statistic)	Model 3 (t-statistic)	Model 4 (t-statistic)	Model 5 (t-statistic)
	At least 10 Firms	At least 20 Firms	At least 10 Firms & Industry Dummies	At least 10 Firms & Excluding Firm i	At least 10 Firms & Excluding Firm i
Dependent Variable	CSR	CSR	CSR	CSR	CSR
Constant	-4.110***	-4.810***	-3.021***	-4.091***	-3.575***
	(-6.04)	(-4.90)	(-3.79)	(-5.89)	(-4.28)
Average CSR Score of geographically-close firms	**0.843*** (8.86)**	**0.838*** (6.51)**	**0.864*** (8.83)**	**0.233** (2.23)**	**0.254** (2.36)**
Average CSR Score of Industry Peers (2-digit SIC)	1.229***	1.249***	-	1.368***	-
	(9.54)	(5.92)		(9.79)	
Ln (Total Assets)	0.445***	0.473***	0.487***	0.473***	0.517***
	(7.32)	(6.03)	(7.70)	(7.39)	(7.74)
EBIT/Total Assets	0.740***	0.594	0.769**	0.757**	0.799**
	(2.36)	(1.54)	(2.38)	(2.34)	(2.35)
Leverage	-0.712***	-0.889***	-0.782***	-0.828***	-0.948***
	(-3.30)	(-3.20)	(-3.10)	(-3.70)	(-3.57)
R&D Intensity	2.120***	1.805**	2.446***	2.660***	2.995***
	(3.29)	(2.30)	(3.72)	(3.95)	(4.26)
Advertising Intensity	0.007	0.026	0.009	0.011	0.014
	(0.34)	(1.40)	(0.59)	(0.63)	(0.96)
Capital Expenditures Ratio	0.007	0.004	0.007	0.005	0.005
	(1.38)	(0.57)	(1.45)	(0.95)	(0.95)

S&P 500	0.016	0.050	-0.013	0.041	0.007
	(0.15)	(0.37)	(-0.12)	(0.38)	(0.06)
Year dummies	Yes	Yes	Yes	Yes	Yes
Industry dummies	No	No	Yes	No	Yes
Adjusted R^2	21.86%	19.84%	24.22%	17.66%	20.11%

Table 3: Regression Results based on Alternative Definitions of Geographic Areas

*, **, *** represent statistical significance at the 10%, 5%, and 1% levels respectively

	Model 1 (t-statistic)	Model 2 (t-statistic)	Model 3 (t-statistic)	Model 4 (t-statistic)
Geographic Definition	3-Digit Zip	3-Digit Zip	2-Digit Zip	2-Digit Zip
Sample Restrictions	At least 20 Firms & Excluding Firm i	At least 30 Firms & Excluding Firm i	At least 20 Firms & Excluding Firm i	At least 30 Firms & Excluding Firm i
Dependent Variable	CSR	CSR	CSR	CSR
Average CSR Score of geographically-close firms	0.442*** (2.83)	0.457** (2.36)	0.348*** (2.87)	0.424*** (3.26)
Control variables	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Adjusted R^2	21.20%	23.12%	21.86%	21.92%

Table 4: Regression Results Based on Median CSR Scores of Geographically-close Firms

*, **, *** represent statistical significance at the 10%, 5%, and 1% levels respectively

	Model 1 (t-statistic)	Model 2 (t-statistic)	Model 3 (t-statistic)
Geographic Definition	3-Digit Zip	3-Digit Zip	3-Digit Zip
Sample Restrictions	At least 10 Firms & Excluding Firm i	At least 20 Firms & Excluding Firm i	At least 10 Firms & Excluding Firm i
Dependent Variable	CSR	CSR	CSR
Median CSR Score of geographically-close firms	0.171*** (2.77)	0.373*** (3.47)	0.179*** (2.90)
Median CSR Score of Industry Peers (2-digit SIC)	-	-	0.741*** (6.43)
Control variables	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes
Industry dummies	Yes	Yes	No
Adjusted R^2	20.18%	21.36%	13.17%

Table 5: Regression Results Based on Phone Number Area Codes

*, **, *** represent statistical significance at the 10%, 5%, and 1% levels respectively

	Model 1 (t-statistic)	Model 2 (t-statistic)	Model 3 (t-statistic)
Geographic Definition	3-Digit Phone Area Code	3-Digit Phone Area Code	3-Digit Phone Area Code
Sample Restrictions	At least 10 Firms & Excluding Firm i	At least 20 Firms & Excluding Firm i	At least 20 Firms & Excluding Firm i
Dependent Variable	CSR	CSR	CSR
Average CSR Score of geographically-close firms	0.296*** (3.19)	0.305** (1.97)	-
Median CSR Score of geographically-close firms	-	-	0.411** (2.37)
Control variables	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes
Adjusted R^2	21.03%	24.75%	24.81%
N	3,320	1,850	1,850

Table 6: Within vs. Between Variation in Corporate Social Responsibility and Random-effects Regressions

*, **, *** represent statistical significance at the 10%, 5%, and 1% levels respectively

	Within (Fixed-effects)		Between (Group Means)		Random-effects	
	Model 1 (t-statistic)	Model 2 (t-statistic)	Model 3 (t-statistic)	Model 4 (t-statistic)	Model 5 (t-statistic)	Model 6 (t-statistic)
Dependent Variable	CSR	CSR	CSR	CSR	CSR	CSR
Average CSR Score of geographically-close firms	0.169** (2.22)	-	0.465*** (4.03)	-	0.255*** (3.57)	-
Median CSR Score of geographically-close firms	-	0.117*** (3.16)	-	0.378*** (5.11)	-	0.152*** (4.12)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	No	No	No	No	Yes	Yes
Industry dummies	No	No	Yes	Yes	Yes	Yes
Adjusted R^2	0.50%	1.69%	20.47%	21.06%	18.99%	19.04%
N	4,322	4,322	4,322	4,322	4,322	4,322

Table 7: Two-stage Least Squares (2SLS) Analysis of the Effect of CSR on Tobin's Q

Leverage is total debt divided by total assets. R&D intensity is R&D expenditures divided by total assets. Advertising intensity is advertising expenditures divided by total assets. The S&P 500 dummy is equal to one if the firm is included in the S&P 500 Index and zero otherwise. The CSR score is based on the KLD ratings and represents the total of the strengths minus the concerns. The industry dummies are based on the first two digits of the SIC codes. The geographically proximate firms are those located in the same 3-digit zip code as firm *i*. *, **, *** represent statistical significance at the 10%, 5%, and 1% levels respectively

	Model 1 (t-statistic)	Model 2 (t-statistic)	Model 3 (t-statistic)	Model 4 (t-statistic)	Model 5 (t-statistic)	Model 6 (t-statistic)
	First Stage	Second Stage	First Stage	Second Stage	First Stage	Second Stage
Dependent Variable	CSR Score	Tobin's Q	CSR Score	Tobin's Q	CSR Score	Tobin's Q
Constant	-3.575***	3.846***	-3.426***	4.758***	-3.979***	2.489***
	(-4.28)	(3.88)	(-3.59)	(4.37)	(-8.37)	(8.00)
Average CSR Score of geographically-close firms	**0.254****	-	-	-	**0.277*****	-
	(2.36)				**(3.65)**	
Average CSR Score of geographically-close firms (Earliest year)	-	-	**0.384*****	-		
			(5.38)			
Average CSR Score of Industry Peers (2-digit SIC)	-	-	-	-	**1.356*****	-
					(18.43)	
CSR Score (Instrumented)	-	**0.512*****	-	**0.769*****	-	**0.121*****
		(2.71)		**(4.41)**		**(3.58)**
Ln (Total Assets)	0.517***	-0.388***	0.484***	-0.520***	0.462***	-0.184***
	(7.74)	(-3.94)	(19.46)	(-5.64)	(19.55)	(-8.94)
EBIT/Total Assets	0.799**	2.508***	1.046***	2.220***	1.101***	2.931***
	(2.35)	(8.75)	(4.14)	(7.24)	(4.38)	(17.31)
Leverage	-0.948***	-0.369	-1.193***	-0.044	-1.131***	-0.798***
	(-3.57)	(-1.35)	(-6.82)	(-0.16)	(-6.79)	(-6.96)
R&D Intensity	2.995***	5.217***	3.519***	4.224***	3.328***	7.292***
	(4.26)	(6.32)	(6.90)	(5.14)	(7.16)	(21.62)
Advertising Intensity	0.014	0.006	0.025	-0.001	0.027	0.023

	(0.96)	(0.27)	(0.83)	(-0.03)	(0.90)	(1.18)
Capital Expenditures Ratio	0.005	-0.004	0.007	-0.005	0.007	-0.002
	(0.95)	(-0.51)	(0.76)	(-0.60)	(0.71)	(-0.39)
S&P 500	0.007	-0.010	0.005	-0.007	0.034	-0.096
	(0.06)	(-0.19)	(0.82)	(-0.11)	(0.51)	(-2.24)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	No	No
Adjusted R^2	20.11%	-	21.42%	-	18.59%	-
Sargan's (1958) Statistic	-	-	-	-	-	1.86

Table 8: Robustness Checks Controlling for Location-Specific Characteristics and Local Tobin's Q

Leverage is total debt divided by total assets. R&D intensity is R&D expenditures divided by total assets. Advertising intensity is advertising expenditures divided by total assets. The S&P 500 dummy is equal to one if the firm is included in the S&P 500 Index and zero otherwise. The CSR score is based on the KLD ratings and represents the total of the strengths minus the concerns. The industry dummies are based on the first two digits of the SIC codes. The geographically proximate firms are those located in the same 3-digit zip code as firm *i*. *, **, *** represent statistical significance at the 10%, 5%, and 1% levels respectively

	Model 1 (t-statistic)	Model 2 (t-statistic)
	Second Stage	Second Stage
Dependent Variable	Tobin's Q	Tobin's Q
Constant	1.363	1.221***
	(0.97)	(3.46)
CSR Score (Instrumented)	**0.675****	**0.079****
	(2.10)	**(1.98)**
Median Tobin's q of geographically-close firms		0.608***
		(11.03)
Ln (Total Assets)	-0.471***	-0.165***
	(-2.87)	(-7.60)
EBIT/Total Assets	2.363***	2.937***
	(5.83)	(17.68)
Leverage	-0.170	-0.782***
	(-0.40)	(-6.85)
R&D Intensity	4.668***	7.000***
	(3.72)	(21.39)
Advertising Intensity	-0.001	0.022
	(-0.04)	(1.16)
Capital Expenditures Ratio	-0.004	-0.004
	(-0.46)	(-0.62)
S&P 500	-0.006	-0.073*
	(-0.11)	(-1.72)

Ln (Total Population)	0.301	
	(1.49)	
Median Household Income	0.001	
	(-1.52)	
Per Capita Income	0.001	
	(0.99)	
	0.000	
Land Area	0.000	
	(-0.21)	
No. of Firms in the Zip Code	-0.001	
	(-0.38)	
Year Dummies	Yes	Yes
Industry Dummies	Yes	Yes
Zip Code Dummies	No	Yes
Adjusted R^2	45.49%	71.83%