Journal of Financial Stability 74 (2024) 101313

Contents lists available at ScienceDirect

Journal of Financial Stability

journal homepage: www.elsevier.com/locate/jfs

Bank deregulation and corporate social responsibility☆

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ARTICLE INFO

Keywords:
CSR
Banking competition
Financial constraints

ABSTRACT

We show how external credit market development can affect corporate social responsibility. Using a sample of US public firms over the period 1991–2010, we find that bank deregulation negatively affects CSR performance. We argue that deregulation-induced banking competition enhances credit accessibility, thereby reducing firms' incentives to pursue CSR as a means of securing stakeholder rewards. Empirical evidence shows that firms increase their use of debt financing in response to the intensified banking competition, and these firms experience a more pronounced decline in CSR performance. We alleviate the potential concern that the observed decline in CSR could be attributed to changes in bank monitoring following deregulation. Further analyses find that firms reduce CSR regardless of their material nature, suggesting that the primary driver of CSR could be the trade-off between costs and returns. Overall, our findings shed light on the strategic motives of CSR, which exhibits adaptability in response to business dynamism.

1. Introduction

Numerous studies investigate the relationship between firm corporate social responsibility (CSR) performance and the characteristics of the markets in which they operate. Liang and Renneboog (2017) suggest that a country's legal origin plays a significant role in explaining firms' CSR adoption and performance. In addition to country-level characteristics, local market characteristics, such as the political leaning of the state (Di Giuli and Kostovetsky, 2014), the social capital of the region (Jha and Cox, 2015), and industrial competition (Flammer, 2015; Ryou et al., 2022), also significantly influence CSR practice adoptions. However, little is known about how credit market competition affects firm CSR performance.

Credit market competition has dual implications for firms' CSR. From the perspective of "doing good by doing well", CSR is akin to luxury goods that only firms with sufficient financial resources can afford (Hong et al., 2012; Sun and Gunia, 2018). Intensified credit market competition can potentially limit interest rates that creditors can charge to borrowers, thereby reducing borrowing costs (Petersen and Rajan, 1995; Zarutskie, 2006). In such scenarios, firms may increase their CSR engagement given the increased financial resources resulting from a more competitive credit market.

Conversely, there is an argument that firms might curtail their CSR investment in a fiercely competitive credit market. Previous literature finds that superior CSR performance rewards firms with both economic benefits–like increased firm value, improved financial performance, and reduced cost of capital–and non-economic benefits, including improved firm reputation, customer loyalty, and employee relations (Albuquerque et al., 2019; Deng et al., 2013; Goss and Roberts, 2011). Recent studies also suggest that firms exhibiting better past CSR performance are more likely to receive support from their stakeholders in times of distress (Ding et al., 2021; Lins et al., 2017). Particularly in the context of financial stakeholders such as banks, one motive behind CSR engagement could be to maintain a harmonious relationship with banks, thereby facilitating easier access to credit. Given this, we hypothesize that increased credit accessibility, induced by a competitive credit market, may lead to a reduction in firms' CSR engagement. The rationale behind this hypothesis is that improved access to external credit markets diminishes the significance of financial stakeholders, particularly banks, thereby reducing the necessity for firms to engage in CSR as a means to secure financial support.

To investigate the above two competing predictions, in this study we employ the staggered deregulation of interstate bank branching laws in the United States as an exogenous intensification of credit market

☆ We thank the Editor (Iftekhar Hasan) and three anonymous referees for insightful comments and suggestions.
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https://doi.org/10.1016/j.jfs.2024.101313
Received 18 September 2023; Received in revised form 18 July 2024; Accepted 24 July 2024
Available online 27 July 2024

competition. The Interstate Banking and Branching Efficiency Act (IBBEA), which allows unrestricted interstate banking, was passed by US Congress in 1994. However, the process of deregulation differed among states and continued until 1997, when the IBBEA was uniformly adopted across all US states. Rice and Strahan (2010) find that the IBBEA led to an increase in new branch openings and competition. Existing research documents that this heightened banking competition expands the viability of credit within a state, reduces the cost of capital, and improves firms' access to bank financing (Krishnan et al., 2015; Rice and Strahan, 2010). Following Rice and Strahan (2010) and Cornaggia et al. (2015), we use the *Deregulation* index to capture the degree of deregulation across various states and over time. The *Deregulation* index ranges from 0 to 4, indicating how many barriers are removed in terms of the four aspects of interstate branching. Firms in states that are most open to competition (i.e., having a *Deregulation* index value of 4) have easier and cheaper access to bank financing than firms in the least open states (i.e., with a *Deregulation* index value of 0).

Following the CSR literature (e.g., Di Giuli and Kostovetsky, 2014; Flammer and Kacperczyk, 2016; Kacperczyk, 2009), we measure CSR using data from the Kinder, Lydenburg, and Domini (KLD) database. Our findings suggest that bank deregulation has a significantly negative impact on firms' CSR, indicating that firms tend to reduce their CSR engagement in the face of heightened local credit market competition. Specifically, we find that a one-unit increase in the deregulation index results in approximately a 0.032 decrease in CSR score, which corresponds to about 6.94 % of a standard deviation of the CSR score. Our result is robust in analyses controlling for firm-level characteristics, or different levels of fixed effects, including firm-, state-, and time-fixed effects. Furthermore, the reductions in overall CSR are driven by both decreases in socially responsible activities (strengths) and increases in socially irresponsible activities (concerns).

We explore the possibility that there may be a pre-existing trend of firms' CSR change, which is parallel to the timing of the bank deregulation change. We examine the dynamic effect of banking deregulation on firms' CSR performance by adding leads and lags around the deregulation year. We do not find such a pre-existing trend. In addition, the decrease in CSR performance occurs in the year of bank deregulation, suggesting an immediate effect. Moreover, such a decrease in CSR after deregulation continues to remain statistically significant for at least five years after the banking deregulation, increasing in magnitude over time.

We conduct several robustness tests to validate our finding from the baseline regression. First, we conduct a placebo test to address potential confounding factors other than the branching deregulation. We randomly assign deregulation years to states and rerun the baseline specification. We find no significant result, and the magnitude of the coefficient is much smaller than the baseline results. This result indicates that it is unlikely that an omitted variable unrelated to the branching deregulation drives the decrease in CSR performance. One may argue that an increasingly competitive credit market may attract a substantial number of smaller firms from outside the state that happen to engage in fewer CSR activities (Ferrell et al., 2016; McWilliams and Siegel, 2001). To address this possible coincidence, we restrict our sample observations to firms that have never changed their headquartered state over the sample period and exist both before and after bank deregulation. The results are further strengthened by the robustness tests using the sample excluding the 2008–09 financial crisis, to avoid the credit supply disruption, and using alternative bank deregulation measures introduced by Krishnan et al. (2015). Lastly, we implement a cohort-stacked DiD approach to deal with the drawbacks of two-way fixed effect regression in the setting of staggered treatment timing and treatment heterogeneity. Our results still hold.

We provide further evidence on how regulatory shocks in banking can affect firms' CSR. Previous literature documents that deregulation induces bank competition, relaxes credit supply in the market, and reduces financing costs (Black and Strahan, 2002; Rice and Strahan, 2010). If firms benefit from this policy shock, we expect an increase in their use of debt financing post-deregulation. Indeed, our findings confirm that firms increase their use of debt financing following deregulation. Firms that use more debt financing post-deregulation experience a more pronounced decline in CSR. This observation indicates that firms respond to deregulation induced credit market competition, and the reduction in CSR post-deregulation is a consequence of such shock. This supports our main argument that relaxed credit access diminishes the value of the rewards from bank stakeholders, consequently reducing firms' engagement in CSR which was previously pursued to secure stakeholder rewards.

We conduct several cross-sectional analyses to provide evidence on the possible mechanism by which bank deregulation reduces firms' CSR. First, if deregulation induced bank competition reduces firms' engagement in CSR, this effect should be more pronounced for firms located in states more exposed to deregulation. Our empirical results support this prediction. Second, we posit that deregulation would particularly benefit firms that are more dependent on external financing or bank loans. Our findings reveal that bank deregulation has a stronger negative impact on firms that rely more heavily on external financing or bank loans. This evidence supports our argument that the relaxed credit supply decreases the value of bank stakeholders' resources, inducing firms to reduce their CSR activities which were previously engaged to secure these stakeholder resources.

We further examine the impact of bank deregulation on CSR by examining actual lender-borrower relationships. Deregulation facilitates bank expansion across state borders, which can disrupt local banking markets and damage lending relationships (De Franco et al., 2024; Hombert and Matray, 2017).[1] Given this evidence, we hypothesize that the negative impact of bank deregulation on CSR is more pronounced for firms that borrow from existing relationship lenders. To test this prediction, we employ the syndicated loan data from Deal-Scan, which enables us to identify real borrower-lender relationships. Our findings reveal that firms borrowing from existing lenders experience a more significant decline in CSR post-deregulation, whereas this finding is not observed in firms borrowing from new lenders. This evidence supports our prediction that incumbent banks protecting their rents from existing relationships are likely to compromise a further decline in borrower firms' CSR.

An alternative explanation is that intensified banking competition changes banks' screening and monitoring, consequently lowering firms' CSR performance. On one hand, bank deregulation allows banks to expand geographically, and it is associated with the adoption of new screening and monitoring technologies (Jayaratne and Strahan, 1998; Amore, Schneider, and Žaldokas, 2013; D'Acunto et al., 2018; Dang et al., 2022). Strengthened bank monitoring can lead to a reduction in borrowing firms' agency costs, therefore discouraging firms from undertaking wasteful CSR investments and lowering CSR score. This is consistent with the "shareholder expense" view that CSR performance is a signal of firms suffering from high agency costs of free cash flow (Barnea and Rubin, 2010; Friedman, 2007). On the other hand, banks switch from original relationship lending to more transactional lending post-deregulation, and this may damage lending relationships and bank monitoring (Hombert and Matray, 2017). Firms may reduce their CSR activities as a result of the reduced bank monitoring. Therefore, the impact of bank deregulation on firms' CSR could be through the mechanism of bank monitoring, but the exact mechanism is not clear ex-ante in theory. To explore this alternative explanation, we investigate banks' monitoring through the lens of covenants in syndicated loans.

[1] For example, Hombert and Matray (2017) find that bank competition damages lending relationships, which consequently reduces the number of innovative firms, especially those that depend more on relationship lending. De Franco et al. (2024) suggest that incumbent banks might attempt to protect their interests in existing lending relationships by allowing borrowers to provide lower-quality financial statement information.

Specifically, we find that bank deregulation does not change banks' ex-ante or ex-post monitoring levels. In addition, firms' CSR does not respond differently to more or less stringent bank monitoring. Given this evidence, we conclude that the negative impact of bank deregulation on firms' CSR performance is less likely through changes in bank monitoring.

Finally, we attempt to investigate if firms differentiate different types of CSR engagement that they would reduce after bank deregulation. The Sustainability Accounting Standards Board (SASB) has developed industry standards to distinguish material and immaterial issues of firm CSR activities. Material issues are those activities that directly contribute to a company's core business and have a direct impact on a firm's financial condition and operating performance, while immaterial issues refer to a firm's peripheral practices. CSR engagement can provide benefits to stakeholders, but these benefits often come at the direct expense of firm value, with even material sustainability issues reaching a point beyond which they are associated with declining financial performance (Eccles et al., 2014). Therefore, a key factor influencing management decisions on CSR engagement is the trade-off between costs and returns. If bank deregulation diminishes the value of CSR engagement, firms may assess these activities based on costs, regardless of their material nature. Given this context, we anticipate that firms will not differentiate between the materiality of CSR activities when making reductions, focusing instead on the cost implications of such engagements. We use the SASB's industry materiality guidelines to identify material and immaterial CSR issues for firms in different industries (Chen et al., 2020; Khan et al., 2016). We find that after bank deregulation, firms significantly reduce both their material and immaterial CSR. This result confirms our hypothesis, suggesting that firms adjust their CSR engagement based on shifting economic benefits rather than the intrinsic importance of these activities.

This paper contributes to the research on CSR in several ways. First, our study adds to the growing body of work that examines how a firm's CSR attributes relate to the characteristics of the markets in which they operate. Prior studies suggest that country-level determinants, such as legal origin, institutions, and culture, play an important role in shaping firms' CSR practices and adoptions (Cai et al., 2016; Liang and Renneboog, 2017). Additionally, within-country market characteristics, such as political leaning and social capital, also contribute to the variation in firms' CSR practices (Di Giuli and Kostovetsky, 2014; Jha and Cox, 2015). In this study, we shed light on the causal relationship between external credit market dynamism and firms' CSR. Unlike previously mentioned factors that are largely static, regulatory induced changes in the business environment can frequently occur, leading to significant changes in firms' CSR responses.[2] Our study adds new evidence underscoring the importance of local market characteristics in shaping firms' CSR profiles.

Second, our paper contributes to the discussion regarding the motivations behind CSR activities. In the vein of "doing well by doing good", managers engage in CSR to maintain harmonious relationships with stakeholders who then reciprocate by rewarding the firm (Cheng et al., 2014; Deng et al., 2013; El Ghoul et al., 2011; Goss and Roberts, 2011). By contrast, the literature also suggests that well-performing firms can afford to invest in CSR, implying a relationship of "doing good by doing well" (Hong et al., 2012; Sun and Gunia, 2018). The exogenous shock on credit market competition introduces a new dimension to this conversation. While the intensified competition enhances financial resource accessibility, it also diminishes the perceived intrinsic value of stakeholder rewards. Our findings lean more towards the first view when both effects of credit market competition come into play. This highlights a crucial insight that strategic motives play a central role in shaping decisions related to CSR.

Finally, our paper contributes to the ongoing discussion of material and immaterial CSR engagement. Recent studies highlight that these two types of CSR activities can have different impacts on firms, such as affecting firms' valuation and unintentionally biasing investors' perceptions of firms' fundamental value (Elliott et al., 2014; Guiral et al., 2020; Khan et al., 2016). Eccles et al. (2014) suggest that overinvestment in material sustainability issues could also reduce firms' financial performance. Our findings indicate that a critical factor influencing CSR is the trade-off between costs and returns, with firms reducing their engagement as returns diminish. Previous research has focused on why firms engage in immaterial CSR issues, proposing that agency problems, the failure to distinguish material issues, and "greenwashing" incentives could drive such engagement. Our study adds to the literature by exploring the motivations for firms to scale back their CSR engagement. Our results suggest that management primarily weighs the balance between costs and benefits. Firms adapt their CSR engagement in response to reduced economic benefits, rather than the intrinsic importance of these activities.

The rest of the paper is organized as follows. Section 2 presents the hypotheses development. Section 3 summarizes the data, variable constructions, and sample statistics. Section 4 reports the main regression results. Section 5 concludes the paper.

2. Literature review

To derive the theoretical predictions on the firms' CSR and the impact of external credit market development, we draw from different strands of the literature. We begin this section by introducing the background of bank deregulation and the research on the real effects and consequences of deregulation. Next, we discuss the nature of CSR and how CSR activities may be affected by this exogenous shock in the credit market. In the end, we put forward two contradictory predations based on the discussion in this section.

2.1. Institutional background

A cluster of studies in finance examines the impact of deregulation on banks and the spillover effects on firms. Prior to interstate deregulation, interstate bank branching was not allowed until the passage of the Interstate Banking and Branching Efficiency Act of 1994 (IBBEA). It was passed in 1994, but states had the discretion to set up their interstate bank branching regulations under the IBBEA any time before 1997 (Krishnan et al., 2015; Rice and Strahan, 2010). Specifically, states could set barriers to interstate branching in terms of four aspects: (1) the minimum age of the target institution; (2) *de novo* interstate branching; (3) the acquisition of individual branches; and (4) a state-wide deposit cap.

The IBBEA effectively permitted bank holding companies to enter other states without permission and to operate branches across state lines. Deregulation increases competition/consolidation of banks and reduces the share of small banks at the state level (Black and Strahan, 2002). Competition in local banking markets also affects the market structure of non-financial sectors. As a consequence of bank expansion, the rate of new incorporation increases. Cetorelli and Strahan (2006) find that potential entrants in markets with concentrated banking face greater difficulty gaining access to credit than in markets in which banking is more competitive. Furthermore, firms in states more open to branching enjoy a lower interest rate than firms operating in less open states; firms in open states are more likely to borrow from banks (Rice

[2] One study closely related to ours is Dejan et al. (2022), who also use the IBBEA as a shock to bank competition to explore its impact on CSR. A key difference between our work and theirs lies in their argument that deregulation induced bank competition also increases product market competition, leading firms to curtail CSR to cut costs. However, based on the evidence presented in our paper, we argue that the primary driver of reduced CSR post-regulation is relaxed credit access, which diminishes the value of stakeholder resources. Consequently, firms are less incentivized to invest in CSR, which previously aimed at securing these resources.

and Strahan, 2010). Also, banking competition can foster innovation and business productivity, especially for small firms, which benefit from the greater credit supply provided by banks (Cornaggia et al., 2015). Jiang et al. (2020) find that bank deregulation can reduce corporate risk, especially for those who heavily rely on bank finance. This is because the eased credit constraints reduce corporate volatility when firms experience adverse shocks and reduce the procyclicality of borrowing.[3]

In summary, the enactment of the IBBEA amplifies competition in the credit market, leading to an increase in credit availability. Such heightened competition could produce spillover effects on non-financial firms through the lending relationships.

2.2. Hypotheses development

Current research suggests that financial condition is a key factor impacting CSR performance. According to the resource-based view, firms must devote resources to generate CSR characteristics (McWilliams and Siegel, 2000; Waddock and Graves, 1997). The resources include capital, materials, and services, such as special equipment and machinery. Human resources is also needed to implement policies and manage practices that are relevant to CSR. Previous studies suggest that firms' financial performance is positively related to CSR activities. Empirical findings in Hong et al. (2012) suggest that financially constrained firms do fewer CSR activities and their goodness will temporarily increase once their financial constraints are temporarily relaxed. Similarly, Sun and Gunia (2018) find that firms' financial resources are negatively related to CSR concerns. Bank deregulation served as an exogenous shock to banking competition, which increases credit supply and provides firms with greater access to external bank financing. If a firm's CSR performance is positively associated with the spare resources they have, firms should be more likely to invest in CSR when the financial resources are relaxed. Therefore, we make the following prediction:

H1a. : Bank deregulation is positively related to firms' CSR.

On the other hand, based on the profit-maximizing view and stakeholder theory, CSR is treated as a strategic investment that is used to meet corporate strategic needs. An underlying assumption in this view is that CSR engagement would affect target stakeholders. CSR strategies enhance shareholder value through improving stakeholder relationships (Deng et al., 2013; Ding et al., 2021; Lins et al., 2017; Servaes and Tamayo, 2013). For example, firms can use CSR engagement to differentiate themselves from competitors and be rewarded by this strategy (Campbell, 2007; Flammer, 2015; McWilliams and Siegel, 2001). Flammer (2015) suggests that CSR acts as a product differentiation strategy for domestic firms to compete against their foreign rivals, the strategy responds to the tariff reductions that increase competition in the local market. Besides, better CSR performance indicates more transparency, a lower level of informational asymmetry between firms and investors, and a lower likelihood of negative regulatory, legislative, or fiscal action. Given this, firms with superior CSR performance are also rewarded with financial benefits. For example, Goss and Roberts (2011) find that lower CSR performance firms face higher loan spreads and shorter maturities. Cheng et al. (2014) find that firms with better CSR performance face significantly lower capital constraints. A study by Dharmapala and Khanna (2018) suggests that when the reward of CSR activities is not held to the same level as before, a firm's voluntary engagement in CSR activities will be reduced. Section 135 of India's Company Act of 2013 requires firms that meet specific size or profit thresholds to spend a minimum of 2 % of their net profit on CSR. Their study finds that firms initially spending less than 2 % increased their CSR activity after the implementation of the act. This evidence suggests CSR is employed to obtain certain benefits from their stakeholders. However, when the benefits from stakeholders diminish, firms also reduce their engagement in CSR activities. In the setting provided in our paper, when the banking market is less competitive, firms are more likely to be dependent on banks and invest in CSR to secure better financial accessibility from them. However, bank deregulation increases the supply of credit and eases access to bank financing, which in turn reduces the value of CSR engagement. Therefore, we make the following prediction, which is contradictory to the previous one:

H1b. : Bank deregulation is negatively related to firms' CSR.

3. Sample and summary statistics

3.1. Data

To assess the effect of deregulation induced banking competition on CSR performance, we compile our dataset from several databases. We first gather data on the timing of deregulation of each state from Rice and Strahan (2010) to proxy state-level banking competition. The CSR data is obtained from the MSCI ESG/Kinder, Lydenberg, and Domini Inc. (KLD) database. The KLD database begins in 1991 and covers approximately 650 companies, including the Domoni 400 Social SM Index and Standard & Poor's (S&P) 500, and expands its coverage to more than three thousand firms, including the Russell 3000, since 2003. To construct firm-level control variables, we collect financial statement items from Compustat. One concern with firm location as recorded in Compustat is that it only records the current principal executive office instead of the historical headquarters location. In this study, we rely on a firm's headquarters location to identify their exposure to banking competition. To address potential bias estimation, we derive firm historical headquarters information from the header section of 10-K/Qs (and all variants) filed on EDGAR.[4] We use the business address of the firm to identify the location of its headquarters. We focus on firms headquartered in the US and exclude all financial industry firms (SIC from 6000 to 6999). Lastly, we merge these datasets and keep observations only when consolidated data is available. The total number of observations in the baseline analysis is 9867 for 1608 unique companies from 1991 to 2010.

3.2. Measure of CSR

The KLD database is widely used in existing studies in CSR (Abeysekera and Fernando, 2020; Bhandari and Javakhadze, 2017; Deng et al., 2013; Lins et al., 2017, among others). This dataset includes more than 80 binary indicators across eight broad dimensions related to CSR, including environment, community activities, human rights, employee relations, diversity, product quality, corporate governance,

[3] We note the concerns regarding the reuse of natural experiments, as highlighted by Heath et al. (2023). Considering our extensive endogeneity and robustness tests, we affirm the causal link between bank deregulation and firm CSR performance. The placebo tests substantiate the inference that our results are less likely to be driven by confounding factors. In further analyses, we illustrate the sequence by which bank deregulation induced bank competition impacts firm-level CSR performance. Therefore, bank deregulation appears to satisfy both the relevance and exclusion restriction as a natural experiment in our setting. In addition, based on the simulation in Heath et al. (2023), the adjusted critical value of the t-statistic given 20 prior results for staggered shock is about 2.98. Most of our results exceed this modified threshold for statistical significance, which corrects for multiple hypothesis testing. With these efforts, we cautiously posit that the intensified bank competition following deregulation appears to be a plausible explanation for our baseline observations.

[4] The 10-X Header Data is shared by the Notre Dame Software Repository for Accounting and Finance (SRAF). The sample begins in 1994; therefore, we complete the headquarters information for years 1991–1993 by using the earliest identified location. Our results are unchanged if we use a sample period from 1994 to 2010.

and involvement in controversial business issues. In this study, we exclude the dimension of a) corporate governance, focusing instead on benefits to stakeholders; b) human rights, which is only applicable to a small number of sample firms with overseas operations; and c) involvement in controversial business issues, as these items reflect firms' involvement in particular industries and only represent concerns (Amin et al., 2020; Chen et al., 2020).

The KLD dataset refers to indicators as 'strengths', which proxies social responsibility, and other indicators as 'concerns', which proxies social irresponsibility. We give one point if a firm receives a rating in a strength (concern) item, and zero if the firm does not have a rating. Higher scores indicate greater social (ir)responsibility. Simply using the additive indices by subtracting all concerns index from all strength index can lead to a biased assessment of firm CSR performance. The "net" KLD index fails to provide a valid measure of CSR since the "strengths" and "concerns" lack convergent validity (Mattingly and Berman, 2006). To mitigate the potential drawbacks of the KLD data, we follow existing literature (Deng et al., 2013; Cheung, 2016) and use the relative aggregation method to proxy firm CSR performance. Specifically, we derive the adjusted CSR score by dividing the strength and concern score for each dimension by the respective number of strength and concern indicators to derive adjusted strength and concern scores for that dimension and then taking the difference between the adjusted total strength concern scores. We use this adjusted CSR score as our main dependent variable to proxy a firm's CSR performance.

3.3. Measure of banking competition

Following Rice and Strahan (2010), we use four aspects of state powers to build the *Deregulation* index: (1) the minimum age of the target institution; (2) *de novo* interstate branching; (3) the acquisition of individual branches; and (4) a state-wide deposit cap. We add one to the index when a state removes any of the four barriers described. Therefore, the *Deregulation* index can range from zero to four, with zero indicating the most restrictive stance toward interstate entry and four indicating the most open stance toward interstate entry. Higher values indicate more competition.

3.4. Control variables

We control for a vector of firm-level characteristics that may affect CSR performance. We first control firm *Assets* (measured as logarithm value of total assets) to control the effect of firm size, as large firms have greater visibility and therefore more incentives to engage in CSR activities (McWilliams and Siegel, 2001; Waddock and Graves, 1997). We then control firms' profitability and financial slack, measured by *Leverage* (total debt to total assets), *ROA* (operation income before depreciation divided by total assets), *Slack* (cash and short-term investment scaled by total assets), and *Dividend* (cash dividend scaled by total assets), as firms with more resources can invest more in CSR activities (Hong et al., 2012; Sun and Gunia, 2018). We add the level of innovation, measured by *R&D* (R&D expenditure scaled by sales), level of capital expenditure by *Capex* (capital expense scaled by total assets), and level of tangible assets holding by *Tangibility* (value of tangible assets scaled by total assets), as firm innovation and capital investment can be associated with CSR merits (McWilliams and Siegel, 2001). In addition, we control for firm growth opportunities by adding *Tobin's Q* (the market value of equity minus the book value of equity plus the book value of assets, scaled by the book value of assets). A comprehensive list of variables and definitions can be found in Appendix A.

3.5. Summary statistics

Table 1 provides the summary statistics of the variables used in this research. *CSR* is our dependent variable, with a mean of −0.110 and a standard deviation of 0.461. The negative mean value of *CSR* indicates that, on average, firms experience higher CSR concern scores than strength scores. These results are consistent with existing studies (e.g., Deng et al., 2013; Dutordoir et al., 2018; Amin et al., 2020). The key independent variable is the *Deregulation* index, with an average value of 1.865, indicating that states on average have nearly two barriers when they open their local markets to outside banks.

Table 1
Summary statistics.

variable	N	Mean	SD	p25	Median	p75
CSR	9867	−0.110	0.461	−0.333	−0.075	0.092
CSR_Strengths	9867	0.230	0.411	0.000	0.000	0.292
CSR_Concerns	9867	0.340	0.375	0.000	0.333	0.533
Deregulation	9867	1.865	1.361	1.000	1.000	3.000
Assets	9867	6.848	1.768	5.523	6.675	7.985
Leverage	9867	0.152	0.202	0.000	0.096	0.243
Tobin's Q	9867	2.370	1.938	1.324	1.822	2.763
ROA	9867	0.092	0.244	0.064	0.124	0.182
Sales growth	9867	0.107	0.374	0.004	0.089	0.197
Slack	9867	0.240	0.233	0.051	0.158	0.369
R&D	9867	0.314	1.260	0.006	0.037	0.142
Capex	9867	0.045	0.042	0.018	0.033	0.058
Dividend	9867	0.013	0.048	0.000	0.000	0.015
Tangibility	9867	0.215	0.175	0.079	0.166	0.301

This table reports summary statics for the firm-year observations from 1991 to 2010 in this paper's baseline sample, including dependent, independent, and control variables. Definitions of the variables are in Appendix A.

The average firm size in our sample is around $6562 million (logarithm value of total assets 6.848), which indicates that the firms included in this study are relatively large. These firms on average have a low leverage ratio (15.2 %) but high financial slack of 24 %. They tend to spend 4.5 % of their assets on capital expenditures and 3.14 % on *R&D*. They on average have healthy financial performance, with a 10.7 % sales growth rate, and contribute to 9.2 % *ROA* and 2.37 *Tobin's Q*. These statistics are similar to previous studies (Amin et al., 2020; Cheng et al., 2014; Cornaggia et al., 2015; Deng et al., 2013; Flammer, 2015).

4. Empirical results

4.1. Empirical strategy

Our main econometric model focuses on the impact of bank deregulation and firm corporate social responsibility. The empirical specification we estimate is as follows:

$$Y_{ijt} = \alpha + \beta Deregulation_{jt} + \delta Z_{ijt} + Year_t + Firm_i + \varepsilon_{ijt} \quad (1)$$

The independent variable Y_{ijt} is a measure of corporate social responsibility of firm i located in state j in year t. The variable of interest is $Deregulation_{jt}$, which is the banking competition index proxy for state j in year t. The coefficient, β, indicates the impact of bank competition level on corporate social responsibility. A positive and significant β suggests that greater deregulation induced banking competition improves the performance of corporate social responsibility, while a negative and significant β means that the intensified banking competition exerts a negative effect on corporate social responsibility. Z_{ijt} is a set of controls that includes *Assets, Leverage, Tobin's Q, ROA, Sales growth, Slack, R&D, Capex, Dividend,* and *Tangibility*. We control for year fixed effects in $Year_t$ for nationwide shocks and trends that may potentially influence corporate social responsibility performance, such as economic cycles, national changes in regulations and laws, etc. We also control for firm fixed effects in $Firm_i$ for time-invariant, unobserved firm characteristics that may affect a firm's performance on social responsibility. ε_{ijt} is the error term. We cluster standard errors at the firm level.

4.2. Main results

We report the estimation of the impact of the deregulation induced

banking competition on firm CSR performance in Table 2. Overall, the results show that banking competition is negatively related to CSR performance. In Column (1), we estimate the impact of banking competition on firms' CSR without any fixed effect. In Column (2), we add firm fixed effects and year fixed effects but no control variables. In Column (3), we further add control variables. We find that the coefficient on *Deregulation* index is negatively and significantly associated with CSR at the 1 % significance level. Economically, a one-unit increase in the bank deregulation index is associated with a 0.032 reduction in the CSR score. This represents approximately 6.94 % (=0.032/0.461) of a standard deviation of CSR score. For extreme cases, firms located in the most competitive states, which are completely open to interstate branching, will decrease CSR by 0.128 (=0.032×4) points compared to firms located in the least competitive states with the greatest restriction on interstate branching. This equates to around 27.77 % of a standard deviation in CSR. For contextual comparison, we examine the influence of bank deregulation on CSR against that of *Tobin's Q*, another significant predictor identified in our regression results. Specifically, a one-standard-deviation increase in *Tobin's Q* is linked to a 0.017 (=1.938×-0.009) reduction in CSR score, or about 3.7 % (=0.017/0.461) of a standard deviation of the CSR score. This comparative analysis suggests that the impact of bank deregulation on a firm's CSR is not only statistically significant but also holds substantial economic meaning.

We add year-state fixed effects to control linear time trends for each state and report the results in Column (4). This approach addresses the potential concern that unobservable state characteristics omitted in the baseline regression can affect state openness decisions and can be correlated with firm CSR performance. If there are different time trends in CSR performance across states or industries that correlate with banking competition, then we should observe the coefficient on *Deregulation* index would be altered when we add additional state/industry fixed effects to our baseline regression. The main results hold. Given that bank deregulation is an event occurring at the state level over time, clustering standard errors at the state level helps to control for correlations introduced by state-level shocks affecting all firms within the state. Accordingly, in Column (5), we cluster the standard error at the state level. The results remain similar to our initial findings.

Additionally, we estimate the impact of banking competition on firms' CSR strengths and concerns respectively. Previous results suggest that overall CSR performance declines with the intensification of banking competition. We are curious whether these declines in CSR are because firms are "doing less good" or "bringing more harm". The estimation results are presented in Columns (6) and (7). We observe that the coefficient on *Deregulation* index is negatively related to firm CSR strengths and positively related to concerns. The evidence suggests that enhanced banking competition not only reduces firms' incentive in making CSR merits, but also that firms are more likely to engage in socially irresponsible activities. Therefore, overall CSR performance drops sharply, followed by intensified banking competition.

In terms of control variables, we find *Tobin's Q* and *Dividend* are associated with firm CSR, which is consistent with existing findings (Abeysekera and Fernando, 2020; Adhikari, 2016; Fernando et al., 2017). High growth opportunity and more dividend payout may reduce the available financial resources allocated to CSR investment and are therefore negatively associated with low CSR performance. We do not observe a significant relationship between other control variables and CSR; this may be a result of firm fixed effects we added in the regression model. This is in line with the literature (Cai et al., 2016; Liang and Renneboog, 2017) that the market characteristics better explain firm's CSR practices and adoption than other firm operations and financial factors.

Table 2
Baseline results.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dependent Variable	*CSR*	*CSR*	*CSR*	*CSR*	*CSR*	*CSR Strengths*	*CSR Concerns*
Deregulation	−0.024***	−0.031***	−0.032***	−0.042***	−0.032**	−0.015**	0.017**
	(0.007)	(0.011)	(0.011)	(0.013)	(0.013)	(0.008)	(0.008)
Assets	0.053***		0.003	0.005	0.003	0.020	0.016
	(0.011)		(0.028)	(0.032)	(0.046)	(0.018)	(0.017)
Leverage	−0.112**		0.066	0.058	0.066	0.089**	0.022
	(0.045)		(0.044)	(0.042)	(0.041)	(0.036)	(0.031)
Tobin's Q	0.027***		−0.009**	−0.006	−0.009**	−0.003	0.006**
	(0.004)		(0.003)	(0.004)	(0.003)	(0.003)	(0.002)
ROA	0.130***		−0.021	−0.020	−0.021	−0.041**	−0.020
	(0.032)		(0.029)	(0.033)	(0.024)	(0.019)	(0.020)
Sales growth	−0.025**		0.008	0.013	0.008	0.007	−0.002
	(0.011)		(0.010)	(0.011)	(0.013)	(0.006)	(0.008)
Slack	0.032		0.051	0.084	0.051	0.076*	0.025
	(0.045)		(0.054)	(0.058)	(0.072)	(0.042)	(0.042)
R&D	0.013***		0.002	0.003	0.002	0.002	−0.001
	(0.005)		(0.006)	(0.008)	(0.008)	(0.005)	(0.004)
Capex	0.651***		0.174	0.104	0.174	0.113	−0.061
	(0.246)		(0.198)	(0.170)	(0.241)	(0.114)	(0.170)
Dividend	0.166		−0.161**	−0.179**	−0.161	−0.082	0.079
	(0.137)		(0.076)	(0.080)	(0.096)	(0.079)	(0.051)
Tangibility	−0.206**		−0.070	−0.031	−0.070	−0.050	0.020
	(0.083)		(0.158)	(0.155)	(0.167)	(0.105)	(0.130)
Firm FE	No	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	No	Yes	Yes	No	Yes	Yes	Yes
Year*State	No	No	No	Yes	No	No	No
N	9867	9867	9867	9867	9867	9867	9867
adj. R-sq	0.055	0.539	0.540	0.560	0.540	0.668	0.633

This table reports baseline regression estimates of the impact of bank deregulation on CSR. The dependent variable is *CSR*, which measures corporate social responsibility performance. *Deregulation* is the index of state banking competition from Rice and Strahan (2010). Columns (1) to (5) present the prediction of competition measured by *Deregulation* on CSR with control variables and fixed effects. Columns (6) and (7) report the estimation of *Deregulation* on *CSR Strengths* and *CSR Concerns*, respectively. Standard errors are clustered at firm level except Column (5) which is clustered at state level. Standard errors are reported in parentheses. *, **, and *** indicate significance level at 10 %, 5 %, and 1 %, respectively. Definitions of the variables are in Appendix A.

4.3. Endogeneity concerns and robustness tests

4.3.1. Parallel trend check

In the previous section, we find that deregulation induced banking competition negatively affects CSR, and the result is robust after considering heterogeneity across states over time. Although the staggered deregulation of interstate branching represents an exogenous shock to banking competition, state-level factors (such as firm CSR performance) that manifest differently across states could affect the timing of deregulation in different states (Kroszner and Strahan, 1999). To alleviate the potential endogeneity concern, we follow the previous literature (Beck et al., 2010; Chava et al., 2013; Cornaggia et al., 2015) and examine the dynamics of firm CSR performance surrounding the deregulation year. If the findings from the baseline regression derive from reverse causality, we should observe changes in firm CSR performance prior to bank deregulation. We do this by including a series of dummy variables in Eq. (1) to trace out the year-by-year effects of interstate deregulation on CSR performance. We employ the following regression:

$$Y_{ijt} = \alpha + \beta_{-5}DeregEvent_{j\ t-5} \ldots + \beta_{-1}DeregEvent_{j\ t-1} + \beta_{1}DeregEvent_{j\ t+1} \ldots + \beta_{5}DeregEvent_{j\ t+5} + \delta Z_{ijt} + Year_t + Firm_i + \varepsilon_{ijt} \quad (2)$$

where i indexes firm, j indexes state, and t indexes year. In specification 2, we replace the *Deregulation* index with dummy variables *DeregEvent* for each year from five years before to five years after. The deregulation dummy variables, $DeregEvent_{j\ t}$, are set to one in year t where the state in which the firm is located adopts interstate bank branching deregulation, and zero otherwise. $DeregEvent_{j\ t-n}$ ($DeregEvent_{j\ t+n}$) equals one for state j in the nth year before (after) deregulation. $DeregEvent_{j\ t-5}$ ($DeregEvent_{j\ t+5}$) includes years up to and including the fifth year before (after) bank deregulation. The omitted year in this regression is the year of banking deregulation (t_0); therefore, we can estimate the dynamic effect of deregulation induced bank competition on CSR performance relative to the year of deregulation.

Fig. 1 plots the coefficients on *DeregEvent* and their associated 95 % confidence intervals as represented by the vertical bars of Eq. (2), which includes a series of dummy variables corresponding to pre-treatment lead (years up to and including t_{-5}, …, t_{-1}) and post-treatment lags (t_0, …, t_5, and years t_5 and all subsequent years). We observe that the coefficients on the deregulation dummy variables are insignificantly different from zero for all the years before deregulation ($DeregEvent_{j\ t-5}$ to $DeregEvent_{j\ t-1}$). If deregulation induced banking competition caused a change in CSR performance but not vice versa, then the CSR performance in the year before deregulation should be statistically indistinguishable from all other years prior to deregulation. This is exactly what we observe from Fig. 1, which means reverse causality is of little concern in our setting. Next, we observe that there is a statistically significant decrease in CSR performance after bank deregulation ($DeregEvent_{j\ t+1}$ to $DeregEvent_{j\ t+5}$), and such a decrease remains for at least five years after banking deregulation, with increasing magnitude over time. Taken together, these findings relieve the concern of reverse causality.

4.3.2. Placebo tests

Another concern that prevents us from drawing a causal interpretation of banking competition on CSR performance from our baseline regressions is the omitted variables problem: unobservable shocks or variables that are omitted from our analysis but which coincide with national-level deregulatory events could drive our results. To address this concern, we conduct placebo tests to check whether our results disappear when we use a false deregulation year instead of the actual deregulation year. Following Cornaggia et al. (2015), we randomly assign deregulation years to states according to the empirical distribution provided by Rice and Strahan (2010). By doing so, we can maintain the distribution of deregulatory years from our baseline specification, but it disrupts the proper assignment of deregulation years to states. Therefore, if an unobserved national shock occurs at approximately the same time as the deregulation induced banking competition, we should still observe a significant result from the regression with falsified regulation years. However, if no such shock exists, then the artificially assigned deregulation year should show as insignificant when we run the baseline regression. The results are reported in Table B1 Appendix B. We find that the coefficient estimates on *Deregulation* are statistically insignificant, and the magnitude of the coefficient is much smaller than the one in the baseline. Regarding the control variables, we observe that both the significance and magnitude of their coefficients closely align with those in our baseline results. This consistency of the control variables not only strengthens the reliability of our findings but also importantly suggests that the impact attributed to bank deregulation is unlikely to be confounded by other omitted factors.

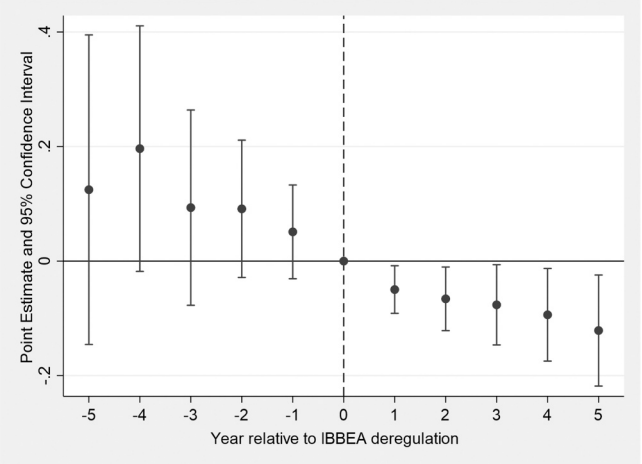

Fig. 1. The dynamic effect of IBBEA deregulation on CSR. This figure presents the dynamic impact of bank deregulation on CSR. The impact of deregulation on CSR is presented by the connected dots; the vertical bars correspond to 95 % confidence intervals with firm-level clustered standard error. All estimates are relative to the year before deregulation. Specifically, we report estimated coefficients from the following regression: $Y_{ijt} = \alpha + \beta_{-5}DeregEvent_{j\ t-5} \ldots + \beta_{-1}DeregEvent_{j\ t-1} + \beta_{1}DeregEvent_{j\ t+1} \ldots + \beta_{5}DeregEvent_{j\ t+5} + \delta Z_{ijt} + Year_t + Firm_i + \varepsilon_{ijt}$. Y_{it} is the CSR performance measure derived from the KLD dataset of firm i in year t. $DeregEvent_{jt}$ is a dummy variable set to one if the state j in which the firm is located adopts IBBEA in year t, and zero otherwise. $DeregEvent_{j\ t-5}$ is set to one for years up to and including five years prior to IBBEA deregulation, and zero otherwise. $DeregEvent_{j\ t+5}$ is set to one for all years five years after IBBEA deregulation, and zero otherwise. The omitted variable in this regression is the year of banking deregulation ($t=0$). $Year_t$ and $Firm_i$ are year and firm fixed effects, respectively.

4.3.3. Robustness tests

In this section, we conduct further robustness tests to address concerns that our results may be sensitive to sample construction. A possible argument that can undermine our main finding is that deregulation induced banking competition reduced firms' bank financing costs at the state level (Rice and Strahan, 2010); therefore, states that are more open to branching may also attract firms from states that are less open, as evidenced in Black and Strahan (2002). If this is the case, our observation in the baseline regression could be driven by these new move-in and start-up companies, which tend to have lower CSR performance. To address this concern, we restrict our sample by including firms that a) have never changed their headquartered state over the sample period, and b) exist both before and after deregulation. With these two additional requirements, the observation number of our sample drops to 7418, and the regression estimation result is reported in Column (1),

Table 3
Robustness tests.

Panel A: Alternative samples and measures			
	(1)	(2)	(3)
Dependent Variable	*CSR*	*CSR*	*CSR*
Deregulation	−0.038***	−0.026***	
	(0.013)	(0.010)	
Deregulation (Krishnan et al., 2015)			−0.028***
			(0.010)
Assets	−0.004	−0.001	0.004
	(0.033)	(0.037)	(0.028)
Leverage	0.091*	0.053	0.067
	(0.053)	(0.045)	(0.044)
Tobin's Q	−0.010**	−0.005	−0.009**
	(0.004)	(0.004)	(0.003)
ROA	−0.038	0.013	−0.021
	(0.069)	(0.065)	(0.029)
Sales growth	0.003	0.002	0.008
	(0.014)	(0.012)	(0.010)
Slack	0.026	0.024	0.049
	(0.070)	(0.058)	(0.054)
R&D	−0.002	0.000	0.002
	(0.008)	(0.006)	(0.006)
Capex	0.102	0.191	0.172
	(0.246)	(0.221)	(0.198)
Dividend	−0.133	−0.075	−0.162**
	(0.121)	(0.070)	(0.077)
Tangibility	−0.046	0.082	−0.069
	(0.179)	(0.183)	(0.160)
Firm Fixed Effect	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes
N	7418	6739	9867
adj. R-sq	0.547	0.655	0.539

Panel B: Stacked DiD sample				
	(1)	(2)	(3)	(4)
Dependent Variable	*CSR*	*CSR*	*CSR Strengths*	*CSR Concerns*
Deregulation	−0.027***	−0.027**	−0.010	0.017**
	(0.010)	(0.012)	(0.007)	(0.008)
Assets	0.012	0.012	0.024**	0.013
	(0.016)	(0.036)	(0.011)	(0.010)
Leverage	0.036	0.036	0.051**	0.015
	(0.026)	(0.040)	(0.020)	(0.020)
Tobin's Q	−0.008***	−0.008**	−0.003**	0.005***
	(0.002)	(0.004)	(0.002)	(0.001)
ROA	0.022	0.022	−0.029	−0.051*
	(0.036)	(0.024)	(0.023)	(0.026)
Sales growth	−0.007	−0.007	0.002	0.009*
	(0.006)	(0.011)	(0.004)	(0.005)
Slack	0.036	0.036	0.051**	0.015
	(0.031)	(0.067)	(0.022)	(0.024)
R&D	−0.002	−0.002	0.002	0.005
	(0.005)	(0.010)	(0.004)	(0.004)
Capex	0.084	0.084	0.048	−0.036
	(0.105)	(0.202)	(0.070)	(0.079)
Dividend	−0.027	−0.027	−0.006	0.021
	(0.060)	(0.105)	(0.050)	(0.036)
Tangibility	0.054	0.054	0.062	0.008
	(0.091)	(0.137)	(0.067)	(0.065)
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Cohort FE	Yes	Yes	Yes	Yes
N	23049	23049	23049	23049
adj. R-sq	0.642	0.642	0.773	0.729

This table presents a series of robustness tests of the impact of bank deregulation on CSR. The dependent variable is *CSR*, which measures corporate social responsibility performance. In Panel A, we adopt alternative samples and measures of *Deregulation*. In Column (1), we only include firms that never changed their headquartered state, and that exist both before and after deregulation. In Column (2), we exclude crisis year observations and use a sample period from 1991 to 2007. In Column (3), we construct the deregulation index based on Krishnan et al. (2015). Specifically, we consider whether states require reciprocity as an alternative measure of *Deregulation*. Firm-clustered robust standard errors are reported in parentheses. We adopt a stacked DiD approach in Panel B to construct the sample and rerun the baseline regression. Standard errors are clustered at firm level except for column (2), which is clustered at state level, and are reported in parentheses. *, **, and *** indicate significance level at 10 %, 5 %, and 1 %, respectively. Definitions of the variables are in Appendix A.

Panel A of Table 3. The coefficient on *Deregulation* is still negative and significant at the 1 % level.

Another concern may result from our choice of the sample period, which covers the 2008–10 (post)financial crisis period. CSR performance may have been distorted by the external economic environment shock. We hence conduct a robustness test to exclude the (post)financial crisis period and keep our sample period from 1991 to 2007. The results are reported in Column (2). Still, we observe a significant and negative coefficient on *Deregulation*, although the magnitude of the coefficient tends to be smaller compared to our baseline result.

In addition, we use an alternative measure of deregulation stringency following Krishnan et al. (2015). Different from Rice and Strahan (2010), Krishnan et al. (2015) consider whether states offer the four provisions of interstate branching with reciprocity. This requirement allows a particular action by an out-of-state bank so long as the laws of the home state of that out-of-state bank are reciprocal, permitting the same level of interstate banking. Following Krishnan et al. (2015), on top of the previous four dimensions of bank deregulation provisions, we add one to the bank *Deregulation* index if states do not require reciprocity. Therefore, we construct the *Deregulation and reciprocity* index, which ranges from 0 to 5, where higher values indicate greater openness to interstate branching, and therefore greater banking competition. We use the *Deregulation and reciprocity* index as the independent variable and estimate the baseline specification. The results are reported in Column (3). The negative relationship between bank deregulation and CSR still holds.

Last, staggered DiD regression could be susceptible to biases introduced by treatment effect heterogeneity (Baker et al., 2022). Following the existing literature and the suggested practice (Baker, Larcker, and Wang, 2022; Cengiz et al., 2019; De Franco et al., 2024), we assess the robustness of our analyses by running the stacked regression model. Specifically, for each deregulation event, we construct a cohort of treatment and control firms for the five years before and after the deregulation event. Within each cohort, we identify firms headquartered in the state that experienced deregulation in an event year as the treatment group. The control firms are selected from those not yet treated within the [-5, +5] years window surrounding the event year for their respective cohort.[5] We repeat this procedure for each cohort and stack all cohorts together.[6] We run the stacked DiD analysis on this pooled sample, and the results are reported in Panel B of Table 3. In Column (1), we report the stacked DiD estimation of the baseline specification. In Column (2), we cluster the standard errors at state level. Columns (3) and (4) report the impact on CSR strengths and concerns, respectively. Overall, the results are similar to the baseline. This consistency in results suggests that the potential biases associated with our primary model are small.

Overall, in this section, we conduct a series of robustness tests and find no evidence that our casual inference of bank deregulation and CSR suffers from sample construction.

4.4. Deregulation and external financing source

As we argue above, intensified banking competition enhances the credit availability in the market; therefore, firms are flexible to change lenders and are less trapped by financial stakeholders. To establish the relationship between the credit market competition and firms' CSR activities, we investigate whether firms respond to the eased credit

[5] In line with the methodology introduced by De Franco et al. (2024), we classify firms headquartered in states that reduce the number of barriers further, more than five years following their initial decrease, as another treatment firm observation in a new cohort. Subsequently, we select corresponding control firms to match these treatment firms.

[6] Repeated observation can exist in multiple cohorts; therefore, the observation in the stacked regression approach is greater than the baseline.

accessibility by using more external debt after deregulation. Should intensified banking competition boost credit accessibility and lower the cost of debt financing, we would expect firms to lean towards debt financing rather than equity financing. Specifically, we use two variables to measure external financing source (Bhandari and Javakhadze, 2017): a) *DebtFin*, which is the annual change in total debt, measured as the change of debt in current liabilities plus the change in long-term liabilities, scaled by total assets; and b) *EqFin*, which is the annual change in total equity capital, measured as the change in book equity plus change in deferred taxes minus the change in retained earnings, scaled by total assets. If the argument above is accurate, we anticipate that firms will increase their reliance on debt financing as a direct response to the heightened bank competition resulting from deregulation.

The results are reported in Table 4. From Column (1) and Column (2), we observe that *Deregulation* is positively correlated with *DebtFin* but negatively correlated with *EqFin*, indicating that heightened banking competition leads to an increase in the use of debt financing. In untabulated results, we find firms' leverage ratio (measured as long-term liability scaled by total assets) remains unaffected by the intensified banking competition. This implies that the primary increase in debt financing predominately stems from short-term debt financing. Next, we examine how firms' CSR responses to intensified banking competition are influenced by their external financing practices. In Column (3) (Column (4)), we introduce the full interaction terms between *Deregulation* and *DebtFin_High* (*EqFin_High*). *DebtFin_High (EqutyFin_High)* is defined as a dummy variable that equals one if *DebtFin* (*EquityFin*) is above the median value, and zero otherwise. Specifically, in Column (3), the coefficient of *Deregulation* remains of a similar magnitude to the baseline results, while the interaction between *Deregulation* and *DebtFin_High* shows a significantly negative coefficient. This suggests that firms that increase their reliance on debt financing in response to intensified competition tend to reduce their CSR performance more compared to firms that do not increase their reliance on debt financing. Bank deregulation leads to a decrease in CSR of 0.041, with an additional decrease of 0.013 if a firm's increase in debt financing exceeds the median. This finding provides further support for the argument that firms reduce their CSR engagement when the perceived rewards from financial stakeholders, such as credit accessibility, become less valuable. However, as illustrated in Column (4), we find no such evidence for external equity financing, given the insignificant coefficient between *Deregulation* and *EqFin_High*. This finding suggests that while intensified banking competition reduces firms' reliance on equity financing, the decrease in CSR is unlikely to be driven by shareholders who demand less CSR.

Table 4
Deregulation and external financing source.

	(1)	(2)	(3)	(4)
Dependent Variable	*DebtFin*	*EquityFin*	*CSR*	*CSR*
Deregulation	0.010**	−0.133***	−0.041***	−0.027**
	(0.004)	(0.021)	(0.014)	(0.012)
Deregulation×DebtFin_High			−0.013**	
			(0.005)	
DebtFin_High			0.026**	
			(0.013)	
Deregulation×EquityFin_High				−0.000
				(0.006)
DebtFin_High				0.009
				(0.016)
Baseline Controls	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes
N	9849	9519	9849	9519
adj. R-sq	0.153	0.344	0.540	0.552

This table reports the estimates of the impact of deregulation on CSR conditional on external financing source use. In Columns (1) and (2), we present the regression estimation of the impact of bank deregulation on external financing. *DebtFin* is the annual change in total debt, measured as the change of debt in current liabilities plus the change in long-term liabilities, scaled by total assets. *EquityFin* is the annual change in total equity capital, measured as the change in book equity plus change in deferred taxes minus the change in retained earnings, scaled by total assets. In Columns (3) and (4), we present the complete interaction between *Deregulation* and *DebtFin_High* and *EquityFin_High*, separately. *DebtFin_High (EqutyFin_High)* is a dummy variable that equals one if the *DebtFin* (*EquityFin*) is above the median value, and zero otherwise. Firm-clustered robust standard errors are reported in parentheses. *, **, and *** indicate significance level at 10 %, 5 %, and 1 %, respectively. Definitions of the variables are in Appendix A.

4.5. Cross-sectional analyses

So far, we have established a causal relationship between bank deregulation and its negative impact on firms' CSR performance. We find firms react to heightened credit market competition by increasing debt financing, which in turn leads to a more pronounced decline in their CSR performance. As we previously argued, bank deregulation enhances credit accessibility, thereby diminishing the perceived value of stakeholder rewards. In this section, to support our argument, we conduct several cross-sectional tests. Empirically, we employ triple-difference regression analyses, with an interaction between the main variable *Deregulation* and various proxies representing our cross-sectional constructs of interests. This methodology enables us to assess the effect of bank deregulation on CSR by considering heterogeneity across groups. The interaction term captures the differential effect of deregulation based on the factors of interest, which enhances our ability to draw more precise and nuanced inferences about deregulation's impact. Our analyses reveal that the impact of bank deregulation on firms' CSR is intensified by their level of exposure to bank deregulation and their dependence on external financing. For the sake of conciseness, we present only the key coefficient estimates.

4.5.1. State-level bank market conditions

If the negative impact of deregulation on CSR is through intensified banking competition, the effect should mainly be driven by firms in states whose local banking markets are strongly exposed to deregulation induced banking competition. Therefore, we conduct cross-sectional tests to examine the hypothesis that CSR performance declines as a result of the intensification of local banking market competition due to deregulation.

We construct the measures of state banking market conditions by using the Summary of Deposit (SOD) data from the Federal Deposit Insurance Corporation (FDIC). This data provides detailed historical information on bank branch office locations and reported deposits. Utilizing this dataset, we develop three proxies to assess the banking market conditions within each state. Our first proxy is branch growth, which quantifies the increase in bank branches within a state since 1994. The second, the number of out-of-state branches present within a state, and the third, banking market concentration, is measured by the Herfindahl-Hirschman Index (HHI) of deposits. For our regression analysis, we form three indicators from these measures to reflect firms' exposure to bank deregulation, specifically for those exhibiting above-median levels in these proxies. Following our hypothesis, if a decline in CSR derives from regulatory intensified banking competition, we expect that this effect should be stronger for firms located in states with a) a greater increase in total number of bank branches since 1994, b) a higher growth of out-state branches, and c) a less concentrated banking market.

In Table 5, we perform triple-difference regressions where we interact *Deregulation* with the indicators capturing the level of exposure to bank deregulation, as defined above. The results across all models show that the coefficients on the interaction terms of interest are significant and negative, suggesting that the negative impact of bank deregulation on firms' CSR performance is stronger for firms with greater exposure to bank deregulation. This evidence also supports our

Table 5
The role of state-level bank market conditions.

	(1)	(2)	(3)
Dependent Variable	*CSR*	*CSR*	*CSR*
Deregulation	−0.024**	−0.008	−0.007
	(0.011)	(0.014)	(0.012)
Deregulation×BranchGrowth	−0.040**		
	(0.020)		
BrachGrowth	0.184***		
	(0.057)		
Deregulation×OutStateBranch		−0.032**	
		(0.014)	
OutStateBranch		0.094**	
		(0.046)	
Deregulation×DepositHHI			−0.032***
			(0.012)
DepositHHI			0.079***
			(0.029)
Baseline Controls	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes
N	9867	9867	9867
adj. R-sq	0.542	0.541	0.541

This table reports the cross-section tests of the impact of bank deregulation on CSR based on state-level bank market conditions. The dependent variable is *CSR*, which measures corporate social responsibility performance. *Deregulation* is the index of banking competition at state level from Rice and Strahan (2010). We employ three measures of state bank market conditions: a) *BranchGrowth,* a dummy variable that equals one if a state's increase in bank branches since 1994 exceeds the median level of the sample, and zero otherwise; b) *OutStateBranch,* a dummy variable that equals one if the number of out-of-state branches in the state is above the median level of the sample, and zero otherwise; and c) *DepositHHI*, a dummy variable that equals one if the deposit HHI index of the state is below the median level of the sample, and zero otherwise. Firm-clustered robust standard errors are reported in parentheses. *, **, and *** indicate significance level at 10 %, 5 %, and 1 %, respectively. Definitions of the variables are in Appendix A.

argument that deregulation induced bank competition drives the reduction of firms' engagement in CSR.

4.5.2. Dependence on external financing

CSR activities enhance stakeholder engagement, increasing their willingness to support a firm's operation (Deng et al., 2013; Ding et al., 2021). Thus, firms more dependent on external financing derive greater benefits from their superior CSR performance. Bank deregulation improves credit accessibility and reduces borrowing costs, which diminishes the value of stakeholder rewards associated with superior CSR performance. Following existing literature (Duchin et al., 2010; Hoberg and Maksimovic, 2015; Rajan and Zingales, 1998), we employ three proxies to measure firms' dependence on external finance: a) external finance dependence, which measures the amount of desired investment that cannot be financed through internal sources (Rajan and Zingales, 1998); b) a text-based measure of financial constraints that show how similar a firm is to a set of firms that are at risk of delaying their investments due to liquidity issues and plan to issue debt to solve their liquidity problems (Hoberg and Maksimovic, 2015); and c) dependence on bank loans, which is the cumulated bank loan scaled by a firm's total assets. Firms that rely on external financing have a stronger incentive to pursue CSR engagement, benefiting from harmonious stakeholder relations. Consequently, the adverse effects of bank deregulation on CSR should be more pronounced among firms with higher external financing dependence.

In our regression analysis, mirroring the approach in Section 4.5.1, we construct three indicator variables for firms exceeding the median level of external finance dependence. In Table 6, we perform the triple-difference regression, interacting *Deregulation* with each of these indicators. The results show that interactions between *Deregulation* and measures of external finance dependence yield significant, negative coefficients, indicating a stronger impact of bank deregulation on firms more reliant on external financing. This supports our previous argument that CSR engagement, as a strategic investment for stakeholder benefits, diminishes when the perceived value of such rewards declines, lending firms to reduce their CSR commitments.

Table 6
The role of external finance dependence.

	(1)	(2)	(3)
Dependent Variable	*CSR*	*CSR*	*CSR*
Deregulation	−0.022**	0.005	−0.017
	(0.010)	(0.015)	(0.014)
Deregulation×EFDep	−0.017**		
	(0.007)		
EFDep	0.047***		
	(0.017)		
Deregulation×DebtDelay		−0.015*	
		(0.009)	
DebtDelay		0.024	
		(0.022)	
Deregulation×BankLoan			−0.035**
			(0.016)
BankLoan			0.076*
			(0.045)
Baseline Controls	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes
N	9867	4842	5561
adj. R-sq	0.540	0.557	0.598

This table presents the results regarding the impact of bank deregulation on CSR conditional on firms' dependence on external financing. We employ three measures of external finance dependence: a) *EFDep*, a dummy variable that equals one if the firm's external finance dependence level is above the median, and zero otherwise; b) *DebtDelay*, a dummy variable that equals one if the text-based measure of financial constraints of the firm is above the median, and zero otherwise; and c) *BankLoan*, a dummy variable that equals one if the amount of cumulative bank loan is above the median, and zero otherwise. Firm-clustered robust standard errors are reported in parentheses. *, **, and *** indicate significance level at 10 %, 5 %, and 1 %, respectively. Definitions of the variables are in Appendix A.

4.6. Borrower-lender relationship: loan level analyses

In this section, we further explore the impact of bank deregulation on CSR, specifically through the lens of the actual lender-borrower relationship. We hypothesize that deregulation, by intensifying bank competition, enhances the value of existing lending relationships. Incumbent banks, aiming to maintain their client base, may negotiate firms' implicit commitments, including CSR activities, to retain their competitive edge. For example, De Franco et al. (2024) find that, in light of bank deregulation, incumbent banks might compromise the quality of financial reporting of client firms to protect their interests, safeguarding their interests and thereby complicating the evaluation of firms' financial health by new market entrants. This leads us to anticipate a more marked decline in CSR activities for firms with existing banking relationships.

To empirically investigate this, we employ syndicated loan data from Dealscan, which provides us with information about the lending relationship between firms and banks. We filter the data following the process in existing literature (Chava and Roberts, 2008; Hollander and Verriest, 2016) and use the Dealscan-Compustat Linking Database to merge syndicated loan data with our primary firm sample. As suggested by previous literature, we focus on loans at the facility level and arranged by lead lenders who, with monitoring and due diligence responsibilities, hold the largest fraction of the loan (Hollander and Verriest, 2016; Sufi, 2007). Our analysis encompasses 4544 firm-bank-facility observations. We define an existing lender-borrower relationship using the variable *RelationLender3 (RelationLender5)*, which is assigned a value of one if the lead lender of the facility is identified as a lead lender of a facility over the last three (five) years, and

zero otherwise. Our regression model includes an interaction term between *Deregulation* and *RelationLender3*, alongside loan-specific controls such as whether the loan is *Secured*, the *Facilit_Amount,* and the *Maturity* of the facility, as well as fixed effects for loan purposes. The findings, presented in Column (1) of Table 7, reveal a significantly negative interaction between *Deregulation* and *RelationLender3*, suggesting that the negative impact of deregulation on CSR is exacerbated for firms engaged with relationship lenders. Similar results are found in Column (2) when we define an existing lender-borrower relationship by using *RelationLender5*.

By contrast, for firms initiating loans with new lenders where there is no prior relationship, the impact of deregulation on CSR does not exhibit the same conditional variation. This may stem from the unclear expectations of new stakeholders and a potential desire to utilize CSR as a signaling mechanism to indicate firm quality, which is consistent with the view that firms strategically adjust their CSR engagement to align with stakeholders' needs. Thus, although firms broadly scale back CSR in response to increased banking competition, the reduction does not differentiate against new lender relationships. This prediction is further evidenced by the results in Column (3), where the interaction of *Deregulation* with *NewLender* is statistically insignificant, supporting the argument that the negative effect of deregulation on CSR does not vary conditional on new lender relationships.

Overall, the findings in this section enrich our understanding of the negative impact of bank deregulation on CSR, emphasizing that pre-existing banking relationships may drive firms to curtail their CSR activities more saliently, while such effect is not mirrored in the context of new banking relationships.

Table 7
Loan-level analyses: Lending relationship.

	(1)	(2)	(3)
Dependent Variable	*CSR*	*CSR*	*CSR*
Deregulation	−0.034*	−0.034*	−0.046**
	(0.019)	(0.019)	(0.019)
Deregulation×RelationLender3	−0.010**		
	(0.004)		
RelationLender3	0.034**		
	(0.014)		
Deregulation× RelationLender5		−0.007*	
		(0.004)	
RelationLender5		0.023*	
		(0.013)	
Deregulation×NewLender			0.003
			(0.010)
NewLender			−0.003
			(0.025)
Secured	0.016	0.015	0.016
	(0.033)	(0.034)	(0.034)
Facility_Amount	0.006	0.006	0.006
	(0.009)	(0.009)	(0.009)
Maturity	−0.025**	−0.025**	−0.024**
	(0.012)	(0.012)	(0.012)
Baseline Controls	Yes	Yes	Yes
Firm Fixed Effect	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes
Lender Fixed Effect	Yes	Yes	Yes
Loan Purpose Fixed Effect	Yes	Yes	Yes
N	4544	4544	4544
adj. R-sq	0.599	0.599	0.597

This table presents the estimation of the effect of bank deregulation on CSR conditional on lending relationship dependence. We employ the dataset at the firm-facility level with 4296 observations. Specifically, we introduce the interaction between the bank deregulation and lending relationship in the regression. We employ three measures of lending relationship: a) *RelationLender3,* a dummy variable that equals one if the lead lender of the facility is identified as a lead lender of a facility over the last three years, and zero otherwise; b) *RelationLender5*, a dummy variable that equals one if the lead lender of the facility is identified as a lead lender of a facility over the last five years, and zero otherwise; and c) *NewLender,* a dummy variable that equals one if the lead lender of the facility has no prior lending relationship with the borrower, and zero otherwise. Firm-clustered robust standard errors are reported in parentheses. *, **, and *** indicate significance level at 10 %, 5 %, and 1 %, respectively. Definitions of the variables are in Appendix A.

4.7. Alternative explanations

In our analysis, we posit that the observed decrease in CSR is primarily attributed to the supply-side, where firms strategically adjust their CSR activities in response to the developments in the external credit market. Bank deregulation, which enhances credit accessibility, has been shown to significantly influence various aspects of firms' performance across industries, such as risk management (Dang et al., 2022; Jiang et al., 2020), innovation (Chava et al., 2013; Cornaggia et al., 2015; Hombert and Matray, 2017), auditor choice (De Franco et al., 2024), and so on. It also affects banking behaviors, including liquidity management (Jiang, Levine, and Lin, 2019), inside lending practices (Girotti and Salvadè, 2022), and syndicate loan issuance (Keil and Müller, 2019). Consequently, it is conceivable that demand-side factors might also contribute to the reduction in CSR activities. In this section, we explore the potential influence of altered bank monitoring behaviors.

Literature suggests mixed results of the impact of bank deregulation on bank monitoring. On one hand, bank deregulation allows banks to expand geographically and is associated with the adoption of new screening and monitoring technologies (Amore et al., 2013; D'Acunto et al., 2018; Dang et al., 2022; Jayaratne and Strahan, 1998). Following the view of CSR which may reflect an agency problem, enhanced monitoring following deregulation could lead to a reduction in CSR activities. Conversely, bank deregulation induced competition can damage lending relationships and bank monitoring based on this form of lending (Hombert and Matray, 2017). In line with the view that CSR activities are pursued by firms to engage with stakeholders for value-enhancing purposes, we also expect firms to reduce their CSR after bank deregulation. As such, the decline in CSR performance observed post-deregulation might also be attributable to shifts in bank monitoring practice.

To more closely analyze the influence of bank monitoring on the deregulation-CSR nexus, we first undertake a cross-sectional analysis at the firm level, probing whether the impact of deregulation on CSR is moderated by the quality of corporate governance. We employ three proxies to measure governance quality: a) the G-index, a governance index introduced by Gompers, Ishii, and Metrick (2003); b) the CCG index, a refined governance index introduced by Frankenreiter et al. (2022); and c) the proportion of shares held by institutional investors. Should deregulation's adverse effects on CSR result from changes in bank monitoring, whether tightening or loosening, we should expect these effects to vary across different levels of governance quality. However, our findings in Table B2 Appendix B reveal that the interactions between *Deregulation* and the governance measures lack significance, suggesting that the governance channel does not predominantly drive deregulation's impact on CSR.

Furthering our investigation, we conduct an analysis grounded in actual lending relationships. Again, we use loan information from Dealscan to identify the lender-borrower relationship. We assess bank monitoring using two covenant-based variables (Christensen and Nikolaev, 2012; Hollander and Verriest, 2016): a) capital covenants, which act as ex-ante monitoring; and b) performance covenants, which act as ex-post monitoring. We use the number of covenants included in the loan agreement to proxy the monitoring level. We include loan purpose fixed effects in the regression estimation. After dropping observations with missing variables, we identify 2491 firm-bank-facility observations from 1991 to 2010.[7]

First, we examine whether banks' monitoring level changes after

[7] Because of the data availability of facility covenants, the total observation of analysis is smaller than those in Section 4.7.

Table 8
Loan-level analyses: Bank monitoring.

Dependent Variable	(1) *Capital Covenants*	(2) *Performance Covenants*	(3) *CSR*	(4) *CSR*
Deregulation	−0.008	−0.040	−0.047**	−0.050**
	(0.018)	(0.039)	(0.023)	(0.023)
Deregulation×Capital Covenants			0.018	
			(0.030)	
CapitalCovenants			−0.011	
			(0.097)	
Deregulation×Performance Covenants				0.006
				(0.019)
Performance Covenants				−0.104*
				(0.058)
Secured	−0.000	0.555***	−0.078*	−0.055
	(0.031)	(0.086)	(0.041)	(0.040)
Facility_Amount	0.005	0.060***	0.008	0.012
	(0.007)	(0.019)	(0.010)	(0.010)
Maturity	−0.009	0.076***	−0.028*	−0.024
	(0.012)	(0.026)	(0.017)	(0.017)
Baseline Controls	Yes	Yes	Yes	Yes
Firm Fixed Effect	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes
Lender Fixed Effect	Yes	Yes	Yes	Yes
Loan Purpose Fixed Effect	Yes	Yes	Yes	Yes
N	2491	2491	2491	2491
adj. R-sq	0.533	0.667	0.621	0.623

This table presents the estimation of the effect of bank deregulation on CSR conditional on the degree of bank monitoring. We employ the dataset at firm-facility level with 2491 observations. In Columns (1) and (2), we present the regression estimation of the impact of bank deregulation on syndicated loan covenants. *Capital covenants* is the number of capital covenants included in the debt agreement. *Performance covenants* is the number of performance covenants included in the debt agreement. In Columns (3) and (4), we report the estimate of the impact of bank deregulation on CSR conditional on loan covenants by introducing the full interactions between *Deregulation* and *Covenants*. We add three loan-level control variables, including *Secured*, *Facility_Amount,* and *Maturity*. Firm-clustered robust standard errors are reported in parentheses. *, **, and *** indicate significance level at 10 %, 5 %, and 1 %, respectively. Definitions of the variables are in Appendix A.

bank deregulation. We rerun the baseline specification and use the monitoring as the dependent variable. The results are reported in Columns (1) and (2) in Table 8. We find none of the coefficients on *Deregulation* are significant, which indicates that the monitoring level does not change along with bank deregulation. Subsequently, we explore if variations in CSR are contingent upon differing levels of bank monitoring. Contrary to our initial prediction, the results from Columns (3) and (4) demonstrate that the negative impact of deregulation on CSR remains consistent across varying monitoring intensities, allowing us to conclude that the post-deregulation reduction in CSR is unlikely to be a consequence of altered bank monitoring practice.

4.8. Material vs. immaterial issues

As previously discussed, intensified competition in the credit market may induce firms to scale back on CSR activities as the perceived rewards from stakeholders diminish. This section explores whether firms distinguish between the types of CSR activities they reduce.

The Sustainability Accounting Standards Board (SASB) delineates industry-specific standards to differentiate between material and immaterial CSR issues from an investor's perspective. These standards are designed to highlight sustainability risks and opportunities that are most likely to influence a company's financial metrics, including cash flows, access to finance, and cost of capital, in the short to long term. Given that sustainability issues can vary significantly across industries, the SASB standards are tailored to 77 distinct sectors. [8] For instance, managing greenhouse gas emissions holds strategic importance for the transportation industry but is less critical for healthcare firms. Conversely, ethical marketing practices are paramount in healthcare, constituting a material issue, whereas they might not be as crucial in transportation. Those core business relative activities, directly impacting a firm's financial health and operational performance, are considered more "material" by investors. Following this logic, we classify CSR issues that relate to core business activities as "material CSR" and those concerning peripheral activities as "immaterial CSR" (Khan et al., 2016).

CSR disclosure provides a new information stream beyond traditional financial statements to related parties and evokes affective reactions among them (Benabou and Tirole, 2010; Elliott et al., 2014; Kim et al., 2012; Spence, 1973). Recent literature suggests that investors can discriminate between material and immaterial issues of firm CSR performance (Khan et al., 2016; Guiral et al., 2020). Information disclosed from core business related activities is more highly valued for investment judgment. Khan et al. (2016) find that firms with good ratings on material sustainability issues significantly outperform firms with poor ratings on these issues, while the impact of immaterial sustainability issues on firm performance tends to be less significant. However, Grewal et al. (2016) find that shareholder proposals, regardless of whether they address material or immaterial sustainability issues, are linked to an increase in firm performance. Notably, proposals on immaterial issues correlate with slight declines in Tobin's Q, whereas those on material issues correlate with increases. This discrepancy might stem from managers' inability to effectively differentiate between material and immaterial sustainability concerns.

As suggested by Di Giuli and Kostovetsky (2014), socially responsible activities can generate benefits for stakeholders, while such benefits come at the direct expense of firm value. Eccles et al. (2014) note that even material sustainability issues reach a point beyond which they are associated with declining financial performance. Therefore, if deregulation indeed improves credit accessibility for firms, which reduces the value of stakeholder reward, firms may reduce their CSR investments that take up the firm resources. In making such decisions, firms primarily weigh the trade-off between costs and returns. We anticipate that managers will not distinguish between the materiality of CSR activities post-deregulation unless the rewards of such activities no longer justify the expenditure.

To examine this prediction, we follow the approach of Khan et al. (2016) and Chen et al. (2020), categorizing the KLD strength and concern items into material and immaterial based on the SASB materiality guidance at the industry level.[9] Table B3 in Appendix B presents material KLD items across ten industry sectors. We employ two methods to calculate material and immaterial scores: a) material (immaterial) CSR score, which is the total strength score minus the total concern score of material (immaterial) items; b) adjusted material (immaterial) CSR score, as the total material strength (concern) score scaled by the

[8] The SASB provides an interactive tool that identifies and compares likely material sustainability issues across 11 sectors and 77 industries. See https://sasb.org/standards/ for more details.

[9] For example, for resource transformation industry firms, KLD strength items, EMP_str_G, ENV_str_B, ENV_str_C, and PRO_str_A, and concern items EMP_con_B, ENV_con_D, ENV_con_F, PRO_con_A, and PRO_con_E are identified as material CSR issues. The remaining KLD items are identified as immaterial issues for resource transformation industry firms. See Khan et al. (2016) and Chen et al. (2020) for detailed sector-level material CSR issues of KLD items.

Table 9
Material vs. immaterial CSR.

	(1)	(2)	(3)	(4)
Dependent Variable	CSR score		Adjusted CSR score	
	Material	Immaterial	Material	Immaterial
Deregulation	−0.069**	−0.050**	−0.010**	−0.003***
	(0.032)	(0.020)	(0.004)	(0.001)
Baseline Controls	Yes	Yes	Yes	Yes
Firm Fixed Effect	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes
N	9867	9867	9867	9867
adj. R-sq	0.477	0.664	0.386	0.601
	(5)	(6)	(7)	(8)
Dependent Variable	Adjusted Strengths		Adjusted Concerns	
Deregulation	Material	Immaterial	Material	Immaterial
	−0.033	−0.025	0.043*	0.050**
	(0.026)	(0.019)	(0.023)	(0.020)
Baseline Controls	Yes	Yes	Yes	Yes
Firm Fixed Effect	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes
N	9867	9867	9867	9867
adj. R-sq	0.542	0.762	0.678	0.580

The table presents the estimation of the effect of bank deregulation on material and immaterial CSR. Following Khan et al. (2016) and the guidance from SASB, we map the industries and classify each KLD item as material or immaterial. Columns (1) and (2) report the impact of bank deregulation on CSR by using the absolute material and immaterial CSR score, and (3) and (4) do so using the scaled material and immaterial CSR score. Columns (5) and (6) report the impact of bank deregulation on material and immaterial CSR strengths, and (7) and (8) report the impact on material and immaterial CSR concerns. Firm-clustered robust standard errors are reported in parentheses. *, **, and *** indicate significance level at 10 %, 5 %, and 1 %, respectively. Definitions of the variables are in Appendix A.

number of items of the material strength (concern) of that category in a year, then summing up the net difference between material strength and material concern scores.[10] We also measure material (immaterial) CSR strength and concern scores by summing up the scaled strength and concern score of each of the five categories. [11] [12]

Table 9 presents the results. Columns (1) and (2) report the results where the dependent variable is materiality and immateriality CSR score, and Columns (3) and (4) are adjusted materiality and immateriality CSR score. Overall, the coefficients on *Deregulation* are significantly negative for both material and immaterial CSR issues, indicating a uniform reduction in CSR engagement in response to bank deregulation. The results reported in Columns (5) to (8) suggest that the decline in CSR performance is mainly attributed to an increase in CSR concerns during the post-deregulation period.

Overall, the results in this section support our prediction that CSR represents a cost to shareholders that should be optimized. Firms might initially overinvest in CSR to secure stakeholder resources but tend to scale back these investments when the value of these resources decreases. This pattern holds regardless of the financial materiality of the CSR activities, suggesting that firms adjust their CSR expenditure based on shifting economic benefits rather than the intrinsic importance of these activities.

5. Conclusion

A growing literature on CSR attempts to understand firms' CSR engagement according to incentives or conflicts of interest among stakeholders. In this paper, we investigate how firms alter their CSR activities in response to shifts in the external business environment. We employ bank deregulation as a proxy for an exogenous increase in credit market competition to investigate the potential impact on firms' CSR performance. We find that the intensification of banking competition results in a decline of CSR performance at the individual firm level, of a magnitude both economically and statistically important. Our results remain robust after subjecting them to a battery of endogenous and robustness tests, confirming the negative impact of bank deregulation on CSR is likely causal. Firms increase their reliance on external debt financing as a response to intensified banking competition, and such firms experience a more pronounced decline in CSR. Additionally, results show that firms located in states that are strongly exposed to bank deregulation and firms more dependent on external financing exhibit a stronger decrease in CSR. We then rule out the possible explanation that deregulation alters bank monitoring, which in turn negatively affects firms' CSR. Lastly, we show that the reduction in CSR following deregulation is driven primarily by the economic benefits of these activities, rather than their materiality.

Taken together, our research suggests that CSR engagement aligns with other types of investment: it is strategic and contingent upon anticipated returns. As the perceived returns from CSR diminish, firms are likely to curtain their CSR activities, regardless of the materiality of such activities. The primary consideration in CSR engagement is the trade-off between costs and returns. This aligns with the view that CSR is utilized to enhance stakeholder relationships and, ultimately, to increase shareholder value. While CSR activities are directed at stakeholders, they ultimately serve the interests of shareholders. Firms strategically adjust their CSR engagements to maximize the benefits of these activities, ensuring that stakeholder needs are aligned with enhancing shareholder value. This strategic alignment highlights that, although firms address social and environmental concerns, their overarching aim is to optimize shareholder returns.

CRediT authorship contribution statement

Hong Liu: Writing – review & editing, Supervision, Conceptualization. **Qiang Wu:** Supervision, Conceptualization. **Yue Zhou:** Writing – original draft, Methodology, Formal analysis, Data curation.

[10] For resource transformation industry firms, the adjusted material CSR score is measured as (EMP_str_G +ENV_str_B +ENV_str_C +PRO_str_A) - (EMP_con_B + ENV_con_D +ENV_con_F +PRO_con_A + PRO_con_E). The adjusted material CSR score is measured as [EMP_str_G/1 + (ENV_str_B+ ENV_str_C)/2 +PRO_str_A]/3 - [EMP_con_B + (ENV_con_D+ ENV_con_F)/2 + (PRO_con_A +PRO_con_E)/2]/3. The remaining KLD strength and concern items are considered immaterial CSR issues for resource transformation industry firms, which are measured using the same logic for immaterial CSR score and adjusted immaterial CSR score.

[11] For resource transformation industry firms, the material CSR strength score is measured as (EMP_str_G + ENV_str_B+ ENV_str_C +PRO_str_A), and the material CSR concern score is measured as (EMP_con_B + ENV_con_D+ ENV_con_F + PRO_con_A +PRO_con_E). The remaining CSR strength and concern items are considered immaterial CSR issues for resource transformation industry firms, which are measured using the same logic for adjusted CSR strength score and adjusted CSR concern score.

[12] Given that the Material (Immaterial) CSR Score, Material (Immaterial) Strength Score and Material (Immaterial) Concern Score contain different numbers of KLD items, we standardize the scores at year level. Our results also hold if we do not standardize the CSR scores.

Appendix A: variable definitions

Variable	Definition
CSR	The adjusted CSR score is measured as the total strength (concern) scores scaled by the number of items of the strength (concern) of that category in a year, and then summing up the net difference between the strength and concern scores of the five categories. The five categories are environment, community activities, employee relations, diversity, and product quality.
CSR_Strengths	The total strength scores are scaled by the number of items of the strength of that category in a year, then sum up the strength score of the five categories.
CSR_Concerns	The total concern scores are scaled by the number of items of the strength of that category in year t, then sum up the strength score of the five categories.
Deregulation	Four minus Rice-Strahan index of interstate banking deregulation based on Rice and Strahan (2010). The deregulation index ranges from 0 (least deregulated,) to 4 (most deregulated) based on regulation changes at a state level.
Assets	Logarithm value of total assets in millions.
Leverage	The ratio of long-term debt to total assets.
Tobin's Q	The market value of equity plus book value of assets minus book value of equity, scaled by book value of assets.
ROA	Return on assets is measured as operation income before depreciation divided by the book value of total assets.
Sales growth	Annual percentage change of sales.
Slack	Cash and short-term investment scaled by total assets.
R&D	The R&D investment intensity is measured by R&D expense to sales.
Capex	Capital expenditures to total assets.
Dividend	Total dividend payout to total assets.
Tangibility	Property, plant, and equipment scaled by total assets.
DebtFin	External debt finance is the annual change in total debt, measured as the change of debt in current liabilities plus the change in long-term liabilities, scaled by total assets.
EqFin	External equity finance which is the annual change in total equity capital, measured as the change in book equity plus change in deferred taxes minus the change in retained earnings, scaled by total assets.
DebtFin_High	A dummy variable that equals one if the *DebtFin* is above the median value, and zero otherwise
EqutyFin_High	A dummy variable that equals one if the *EquityFin* is above the median value, and zero otherwise
BrachGrowth	A dummy variable that equals one if a state's increase in bank branches since 1994 exceeds the median level of the sample, and zero otherwise.
OutStateBranch	A dummy variable that equals one if the number of out-of-state branches in the state is above the median level of the sample, and zero otherwise.
DepositHHI	A dummy variable that equals one if the deposit HHI index of the state is below the median level of the sample, and zero otherwise.
EFDep	A dummy variable that equals one if the firm's external finance dependence level is above the median of three-digit SIC in a given year. The external finance dependence is measured as (capital expenditure – fund from operation)/capital expenditure. If fund from operation is missing, fund from operation is defined as income before (extraordinary item + depreciation and amortization + deferred tax + equity in net loss + sale of property, plant, and equipment and investments gain or loss + funds from operations other (Duchin et al., 2010).
DebtDelay	A dummy variable that equals one if the text-based measure of the financial constraints of the firm is above the median, and zero otherwise. This is a text-based measure of financial constraints from Hoberg and Maksimovic (2015). Higher values indicate the firm is more similar to a set of firms that are at risk of delaying their investments due to liquidity issues and plan to issue debt to solve their liquidity problems.
BankLoan	A dummy variable that equals one if the amount of cumulative bank loan to total assets is above the median, and zero otherwise. The loan data is from DealScan.
Loan-level variables	
RelationLender3	A dummy variable that equals one if the lead lender of the facility is identified as a lead lender of a facility over the last three years, or zero otherwise.
RelationLender5	A dummy variable that equals one if the lead lender of the facility is identified as a lead lender of a facility over the last five years, or zero otherwise.
NewLender	A dummy variable that equals one if the lead lender of the facility has no prior lending relationship with the borrower, or zero otherwise.
Capital Covenants	Number of capital-covenants included in the debt agreement.
Performance Covenants	Number of performance-covenants included in the debt agreement.
Secured	A dummy variable that equals one if the loan is secured, or zero otherwise.
Facility_Amount	The logarithm value of the dollar amount (in millions) of the facility.
Maturity	The logarithm value of months to maturity.
Material/Immaterial CSR	
Material CSR Score	The total material KLD strength score minus the total material KLD concern score. The score is standardized at year level.
Immaterial CSR Score	The total immaterial KLD strength score minus the total immaterial KLD concern score. The score is standardized at year level.
Adjusted Material CSR Score	The adjusted material CSR score is measured as the total strength (concern) score scaled by the number of items of the strength (concern) of that category in a year, and then sum up the net difference between strength and concern scores of the five categories.
Adjusted Immaterial CSR Score	The adjusted immaterial CSR score is measured as the total strength (concern) score scaled by the number of items of the strength (concern) of that category in a year, and then sum up the net difference between strength and concern scores of the five categories.
Material CSR Strength	The total material strength score. The score is standardized at year level.
Immaterial CSR Strength	The total immaterial strength score. The score is standardized at year level.
Material CSR Concern	The total material concern score scale. The score is standardized at year level.
Immaterial CSR concern	The total immaterial concern score. The score is standardized at year level.

Appendix B

Table B1
Placebo test

	(1)
Dependent Variable	CSR
Deregulation	0.003
	(0.010)
Assets	0.005
	(0.029)
Leverage	0.066

(*continued on next page*)

Table B1 (*continued*)

	(1)
Dependent Variable	CSR
	(0.044)
Tobin's Q	−0.008**
	(0.003)
ROA	−0.021
	(0.029)
Sales growth	0.010
	(0.010)
Slack	0.051
	(0.054)
R&D	0.002
	(0.006)
Capex	0.159
	(0.199)
Dividend	−0.139*
	(0.079)
Tangibility	−0.052
	(0.159)
Firm fixed effect	Yes
Year fixed effect	Yes
N	9867
adj. R-sq	0.538

This table presents the placebo test. We randomly assign states into deregulation years according to the empirical distribution provided by Rice and Strahan (2010). Firm-clustered robust standard errors are reported in parentheses. *, ** and *** indicate significance level at 10 %, 5 % and 1 %, respectively. Definitions of the variables are in Appendix A.

Table B2
The role of corporate governance

	(1)	(2)	(3)
Dependent Variable	*CSR*	*CSR*	*CSR*
Deregulation	−0.035	−0.051**	−0.034***
	(0.024)	(0.021)	(0.011)
Deregulation×GIndex	−0.007		
	(0.025)		
GIndex	0.108		
	(0.083)		
Deregulation×CCGIndex		0.026	
		(0.021)	
CCGIndex		0.024	
		(0.065)	
Deregulation×InsOwn			0.005
			(0.010)
InsOwner			−0.023
			(0.022)
Baseline Controls	Yes	Yes	Yes
Firm Fixed Effect	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes
N	4346	4346	9748
adj. R-sq	0.554	0.554	0.542

This table presents the results regarding the impact of bank deregulation on CSR conditional on firms' corporate governance. We employ three measures of corporate governance: a) *GIndex,* a dummy variable that equals one if the GIndex is above the median, and zero otherwise; b) *CCGIndex,* a dummy variable that equals one if the CCGIndex is above the median, and zero otherwise.; and c) institutional ownership, a dummy variable that equals one if the percentage of common shares held by institutional investors is above the median, and zero otherwise. Firm-clustered robust standard errors are reported in parentheses. *, **, and *** indicate significance level at 10 %, 5 %, and 1 %, respectively. Definitions of the variables are in Appendix A.

Table B3
Sector-Level Material CSR Issues in KLD Data

Consumption
DIV_str_C DIV_str_E EMP_str_A EMP_str_G ENV_str_B ENV_str_C ENV_str_D PRO_str_A PRO_str_C DIV_con_A DIV_con_CEMP_con_B ENV_con_D ENV_con_F PRO_con_A PRO_con_D
Food
ENV_str_D ENV_str_H ENV_str_I ENV_str_J PRO_str_A EMP_str_G ENV_con_D ENV_con_K ENV_con_F PRO_con_A PRO_con_F PRO_con_D
Infrastructure
COM_str_C COM_str_D EMP_str_A EMP_str_G ENV_str_B ENV_str_D COM_con_B EMP_con_A EMP_con_B ENV_con_B ENV_con_D PRO_con_E
Resource Transformation
EMP_str_G ENV_str_B ENV_str_C PRO_str_A EMP_con_B ENV_con_D ENV_con_F PRO_con_A PRO_con_E
Technology
DIV_str_C DIV_str_E DIV_str_H EMP_str_G EMP_str_J EMP_str_L ENV_str_B ENV_str_H ENV_str_J PRO_str_A DIV_con_A DIV_con_C DIV_con_D ENV_con_J ENV_con_K PRO_con_E
Extractives and Minerals Processing
COM_str_C COM_str_D COM_str_H EMP_str_G ENV_str_B ENV_str_D PRO_str_A EMP_con_A EMP_con_B EMP_con_F ENV_con_B ENV_con_D ENV_con_F ENV_con_H ENV_con_J ENV_con_K
Health Care
DIV_str_B EMP_str_G EMP_str_K EMP_str_L ENV_str_C ENV_str_D ENV_str_H PRO_str_A PRO_str_C ENV_con_K PRO_con_A PRO_con_D
Renewable resource and alternative Energy
COM_str_H ENV_str_B ENV_str_C ENV_str_GCOM_con_B EMP_con_B ENV_con_D ENV_con_F
Service
DIV_str_C DIV_str_E DIV_str_H EMP_str_G EMP_str_H EMP_str_I EMP_str_J EMP_str_L ENV_str_B ENV_str_C ENV_str_D ENV_str_HENV_str_I PRO_str_ADIV_con_A DIV_con_C DIV_con_D EMP_con_B EMP_con_F EMP_con_G ENV_con_D ENV_con_F ENV_con_G ENV_con_H ENV_con_I ENV_con_K PRO_con_A PRO_con_D PRO_con_E PRO_con_F
Transportation
EMP_str_G EMP_str_H EMP_str_J EMP_str_L ENV_str_A ENV_str_B ENV_str_D ENV_str_I ENV_str_J PRO_str_A EMP_con_A EMP_con_B EMP_con_F EMP_con_G ENV_con_D ENV_con_F ENV_con_G ENV_con_I ENV_con_K PRO_con_A PRO_con_E

This table reports Material CSR issues in KLD data across ten industrial sectors.

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