Are corporate social responsibility reports informative? Evidence from textual analysis of banks in China

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Abstract

Purpose: The authors investigate the association of the constructed corporate social responsibility (CSR) measures with the banks' profitability, social contributions and CSR spending as well as the market reaction to CSR spending.

Design/methodology/approach: Using textual analysis of the CSR reports of banks listed on the Chinese market, the authors construct CSR measures in six domains: business, environment, human rights, corporate governance, charity and social capital. Our textual-based CSR measures contain substantial and valuable information beyond what Rankins CSR ratings offer.

Findings: The findings suggest that banks with stronger engagements and interests in the business-related CSR domain experience higher profitability, while those that are more committed to the corporate governance and charity-related domains create larger social contributions. Banks tend to incur higher CSR spending when they are more active in corporate governance. Although the stock market reacts positively to CSR expenditures, the reaction is less favorable for banks with CSR expenditures above the industry norm.

Practical implications: This study offers insights to policymakers of the regulatory bodies and the banks in China. To enhance the financial safety and soundness of the banking system, the regulatory bodies should encourage banks to strategically allocate corporate resources to achieve higher CSR ratings and engage more business-related CSR activities. To create larger social values, bank management should invest more in philanthropic CSR initiatives such as corporate governance and charity activities. To pursue higher corporate profits, they should engage more in self-centered business-related CSR activities. However, according to the reaction of the market, they should not over-invest in CSR activities.

Originality/value: While the use of textual analysis to evaluate CSR disclosure has recently emerged in the literature, few studies focus on banks in China. Using the term frequency–inverse data frequency (TF-IDF) method, the authors constructed a score for each of the six CSR domains: business (BUS), environment (ENV), human rights (HR), corporate governance (GOV), charity (CHY) and social capital (SCAP). To the best of our knowledge, no studies have adopted the textual approach to evaluate social reporting quality and CSR activities in the context of the banking industry in China.

1. Introduction

Recognizing the global upward trend in social reporting, China has followed the global corporate social responsibility (CSR) trend for the past two decades. To create incentives for adopting CSR practices and enhancing the quality of corporate information about CSR activities, Article 5 of Chapter 1 of the 2006 Company Law of the People's Republic of China requires companies to comply with social and business morality and bear social responsibilities. The Shenzhen Stock Exchange (SZSE) and Shanghai Stock Exchange (SSE) have introduced guidelines to encourage listed firms to disclose CSR reports. In 2006, SZSE pioneered the issuance of the *Social Responsibility Instructions to Listed Companies* to encourage listed firms to establish social responsibility mechanisms and prepare social responsibility reports regularly. Two years later, SSE issued the *Guidelines on Environmental Information Disclosure for Companies Listed on the SSE* and the *Notice on Strengthening the Social Responsibility of Listed Companies*.

To assess the impact of the mandatory CSR disclosure on the banking industry in China, we explore (1) the association between CSR engagements and performance and (2) the market reaction to CSR spending, for the SSE-listed banks for the 2012–2016 period. Several reasons motivate our investigation of Chinese banks. First, compared to western countries, the CSR concept is relatively new in China. The Chinese government has been proactively intending to introduce the new CSR concept into Chinese society. The central government declared that China should pursue a more "harmonious society" in China's 11th Five-Year Plan in 2006. Subsequently, several CSR reporting guidelines have been issued for large firms to help balance China's economic growth, which accompanied social and environmental effects on society. Therefore, the increased CSR awareness in the Chinese market demands a better understanding of the role of CSR disclosure in China. Second, while studies on China's social reporting have recently increased, most studies focus on nonfinancial firms, which are more likely to create adverse environmental impact than financial firms. CSR studies that are focused on the banking industry are rare (Cornett *et al.*, 2016; Malik *et al.*, 2019; Shen *et al.*, 2016; Wu and Shen, 2013; Zhu *et al.*, 2017). According to the Gallus survey in 2013, only 26% of Americans have confidence in banks. This result implies that consumers are skeptical when dealing with financial institutions. Good quality CSR disclosure helps banks regain and maintain clients' trust.

Mandatory CSR disclosure allows investors to gain insights about firms' CSR initiatives beyond the information revealed by financial statements. Unlike financial statements that summarize structured numerical financial data, CSR reports convey largely narrative information. Hence, extracting meaningful information from CSR reports to facilitate investment decisions could be challenging for investors. Instead of reading CSR reports directly, many investors resort to published CSR ratings, such as Rankins CSR ratings (RKS) and Kinder, Lydenberg, Domini and Co., Inc. (KLD) ratings, to evaluate the performance of firms' CSR activities.

The RKS ratings are calculated using the expert scoring methodology with predetermined weights in four areas: macrocosm (30%), content (45%), technique (15%) and industry (10%) (Gong *et al.*, 2018) [1]. As such, the computed overall ratings are sensitive to the changes in the weighting scheme. In China, the RKS ratings have been extensively adopted to measure social reporting quality in empirical studies on social reporting and corporate performance (Li *et al.*, 2013; Yu and Ying, 2017).

Using textual analysis, we construct new CSR scores based on the information disclosed in the banks' CSR reports [2]. In contrast to the RKS ratings, using textual analysis allows stakeholders to make valid inferences about firms' intentions and commitments on CSR initiatives directly from the written CSR statements of corporations. Another advantage of adopting textual analysis to construct CSR measures is that it avoids self-report bias – often inherent in corporate statements – especially when first-hand information can be properly extracted directly from CSR reports [3]. In fact, there is a large body of literature that helps users improve the rigor of textual analysis (Sharfman, 1996; Weber, 1990).

While the use of textual analysis to evaluate CSR disclosure has recently emerged in the literature (Cannon *et al.*, 2020; Loughran and McDonald, 2011, 2016; Loughran *et al.*, 2009; Melloni *et al.*, 2017), few studies focus on the banking industry in China. Using the term frequency–inverse data frequency (TF-IDF) method, we constructed a score for each of the six CSR domains: business (BUS), environment (ENV), human rights (HR), corporate governance (GOV), charity (CHY) and social capital (SCAP). To our knowledge, our study is one of the first that adopts the textual approach to evaluate social reporting quality and CSR activities in the context of the banking industry in China.

We begin our analysis by first examining the relationship between the overall CSR performance of banks and their engagements and interests in six CSR domains. Regression results show that the six CSR scores can explain only 39% of the variations in RKS, suggesting that the RKS and the six CSR scores capture various aspects of CSR information. We then test and compare the impacts of these two types of CSR measures on the profitability, social contributions and CSR expenditures of banks.

Lastly, we study the reaction of the stock market to the CSR spending of banks. According to Becchetti *et al.* (2018), the definition of CSR involves a departure from the goal of straightforward profit-maximization toward a broader strategy of satisfying the interests of stakeholders. As such, CSR embraces various employee-, environment- and investor-friendly behaviors, with concomitant monetary costs and benefits that have uncertain effects on profits. This definition of CSR implies that shareholders will react negatively or less positively to firms' increased CSR spending because CSR activities will consume the resources expected to be used to generate corporate profits. We assess the degree to which shareholders agree to this standard definition of CSR for banks with different levels of CSR spending.

We contribute to the literature in various ways. First, we quantify social disclosures. This study is the first to adopt a textual analysis to quantify the engagements and interests of banks in different CSR domains based on social reporting. The constructed CSR scores representing the CSR-based firm-specific characteristics allow the government and interest groups to compare the qualitative information disclosed in CSR reports of different banks. With this information, stakeholders can more easily and systematically identify the aspects of CSR issues in which a bank is interested and committed.

Second, our study complements the extant literature that documents the benefit of CSR on corporate performance. We examine the effect of the CSR-based firm-specific characteristics on corporate profitability and social contribution. We find that the banks that focused on self-interested CSR activities exhibit superior financial performance while those concerned about altruistic CSR initiatives make greater social contributions. This finding indicates the need

for formulating textual-based CSR firm characteristics for financial and social performance evaluations.

Third, this is the first study that explores the relationship between CSR-based firm-specific characteristics and total CSR spending. We show that increases in CSR engagements or interests do not necessarily lead to higher levels of CSR expenditures. This finding is probably more relevant for shareholders because it suggests that certain CSR initiatives can be undertaken to improve the corporate image without sacrificing much interests of shareholders.

Fourth, we investigate how the shareholders in the Chinese market expect bank management to control CSR expenditures. Although our finding shows that the market, in general, holds a positive view on the CSR investments of banks, they are less positive toward the increases in CSR spending of a bank when it is perceived to have overinvested in CSR. This situation suggests that the "optimal" CSR expenditure acceptable by the shareholders is probably the one on par with the industry norm.

Lastly, this study is among the few studies that focus on the banking industry. Furthermore, instead of using the empirical data from western countries with high CSR awareness, we use the data from China, the largest developing country in the world, even though it is less mature in CSR development.

The rest of our paper is organized as follows. In Section 2, we review the relevant literature and formulate our hypotheses to test. Section 3 describes the sample. In Section 4, we explain the construction of the textual-based CSR scores and then present our empirical analysis and results. Section 5 concludes this paper.

2. Hypothesis development

2.1 CSR and performance

Opinions about CSR's role in for-profit enterprises have evolved in the past decades. Neoclassical economics emphasizes that managers are agents for shareholders; hence, their sole responsibility is to act in the interests of shareholders (Friedman, 1970). Opponents believe that CSR activities are a waste of corporate resources. Corporate management has no right to expropriate shareholder wealth to other parties' benefits. The neoclassical view suggests a negative impact of CSR activities on corporate performance because CSR will put firms at a competitive disadvantage (Aupperle et al., 1985). In contrast, according to stakeholder theory (Freeman, 1984), corporate management should use the resources of companies to the benefit of a much wider group of stakeholders rather than focusing on the sole benefit of shareholders. Stakeholder theory argues that CSR activities are beneficial for shareholders and relevant stakeholders such as employees, customers, government and the environment [4]. Disclosure of CSR activities helps reduce information asymmetry and enhance the transparency of firms.

Despite social reporting becoming a popular Crusade in the global business community and regulatory bodies, empirical studies have shown conflicting results for the relation between CSR activities and the financial performance of firms. Wu and Shen (2013) attribute the conflicting results to management's different motives in conducting CSR: strategic choices,

altruism and greenwashing. The strategic choices motive enhances firms' financial performance through CSR engagement, while the altruism motive creates an adverse impact of CSR engagement on financial performance (Baron, 2001). Firms engaging in CSR activities due to the greenwashing motive enhance the corporate image without significantly changing the business (Frankental, 2001).

Among the six CSR domains, the business and corporate governance domains are situated toward the "corporate profits" end of the spectrum, while the environment, human rights, charity and social capital domains are situated toward the "social benefits" end. The former influences banks to engage in CSR out of a strategic choices motive, and the latter, altruism. This situation leads to our first and second hypotheses:

H1.

The business-oriented CSR initiatives have a more pronounced effect than society-oriented initiatives on banks' financial performance.

H2.

The society-oriented CSR initiatives have a more pronounced effect than business-oriented initiatives on banks' social performance.

2.2 CSR and CSR expenditures

Extensive studies have documented that firm size, age, listing status, competitiveness and legal enforcement system determine CSR activities in the financial industry (Chih *et al.*, 2010; Khan *et al.*, 2013). Chen *et al.* (2018) document that state ownership and cash holdings effect can influence firms' total CSR spending. Some researchers use CSR ratings as a proxy for CSR expenditures because they believe CSR ratings and CSR spending are positively related (Lys *et al.*, 2015; Margolis *et al.*, 2009; Servaes and Tamayo, 2013) [5]. The validity of this assumption remains debatable. Therefore, empirical evidence on this assumption is urgently needed. Furthermore, using RKS alone cannot distinguish which CSR domains are more relevant to total CSR expenditures. To address these two issues, we test the following set of hypotheses.

H3a.

Banks with higher CSR ratings spend more on CSR activities.

H3b.

The text information extracted from the CSR reports of banks can explain/predict their CSR expenditures.

2.3 Market reaction to CSR expenditures

According to stakeholder theory, firms adopt social reporting as a strategy to demonstrate that their social performance meets the expectations of both shareholders and other relevant stakeholders. Both individual and institutional investors consider social responsibility when making investment decisions (Milne and Chan, 1999). Firms issue annual CSR reports as a

vehicle to disclose their CSR activities to their primary target audience – shareholders. Although the literature documents that investors are more willing to invest in firms that release CSR reports (van der Laan Smith *et al.*, 2010) and shareholders react positively to socially responsible firms that create more social value and engage in social reporting (Anderson and Frankle, 1980; van der Laan Smith *et al.*, 2010), few studies have focused on the reaction of shareholders to firms' CSR spending.

Unlike investments in long-term projects that aim to maximize corporate profits, CSR spending primarily concerns the social values that CSR initiatives can create. When CSR investments are primarily treated as a strategic exercise to meet stakeholders' expectations of social performance rather than as a tool to maximize shareholders' wealth, shareholders may view overinvesting in CSR activities as unnecessary and underinvesting as unsatisfactory. Hence, investors may react differently to CSR expenditures between firms that have overspent and underspent in CSR activities. We postulate that despite the shareholders holding a positive view on CSR spending, the reaction of shareholders to a firm's expenditures in CSR-related activities may vary, depending on a firm's CSR spending relative to that of its peers. Shareholders find it more acceptable for a firm to increase its CSR spending if it is below the industry norm. In contrast, shareholders' acceptance of the increases in CSR spending weakens for a firm whose CSR spending is higher than the industry norm. Therefore, we formulate the fourth hypothesis:

H4.

The market reaction to CSR spending is positive but less strong for banks overinvesting in CSR activities than for banks underinvesting in CSR.

3. Sample

This study considers the A-shares of the banks listed on the SSE over the 2012–2016 period. Annual CSR reports of the banks were retrieved from the websites of the banks, SSE or public websites (e.g. http://www.hexun.com and http://www.eastmoney.com). Stock prices, financial variables, social contribution per share (SCVPS) and CSR expenditures were obtained from the China Security Market and Accounting Research (CSMAR) database. The RKS – the Chinese counterpart of the KLD CSR rating – are used to measure each bank's overall CSR performance. A bank was excluded from our analysis if (1) it failed to produce annual CSR reports for at least two consecutive years during the sample period, and (2) the financial variables required in our analysis were unavailable in the CSMAR database [6]. This procedure left 14 banks in our sample.

4. Empirical analysis and results

4.1 Construction of CSR scores

The six CSR scores were computed using the term weighting scheme labeled as *TF-IDF*. First, we extracted the content of the CSR reports into individual terms. Second, less significant stop words such as "the," "will" and "you," which appeared the most in a text corpus, were removed. Third, we kept the terms normally used as nouns and listed the 100 most frequently appearing terms in the annual reports of each bank. Among these terms, we manually selected the top 20 most meaningful terms that were relevant to CSR activities. Our

analysis shows that the terms *service*, *finance*, *business*, *customers* and *management* consistently appeared among the top 10 terms for each bank, as evidenced by the word cloud (in Chinese) displayed in Figure 1. The size of the words in Figure 1 indicates that the most frequent and important words are *service* and *finance*.

Figure 1.Word cloud of key CSRterms in CSR reports

Superficially, some terms, such as s*ervice*, *finance*, *business*, etc., appearing in the CSR reports seem unrelated to CSR but, instead, more associated with business operations. In fact, these terms are classified as business-related CSR initiatives in our analysis. We have very good reasons to support our classification. The activities represented by these terms, to some degree, reflect the "*economic responsibility*" of the banking industry: Banks provide various types of financial products and high-quality financial services via these business-related activities to help customers make better financial decisions and meet personal financing or investing needs. Banks doing well in their businesses are more resourceful to fulfill their commitment to do well in other CSR domains. As a result, tangible or intangible business-related CSR initiatives undertaken by banks can enhance people's financial welfare and, hence, contribute to social values.

After identifying the key terms, we adopted the TF-IDF weighting scheme to compute the numerical statistic of each extracted term to measure the importance of the term in the CSR reports. Mathematically, the numerical statistic can be obtained by first finding the frequency of each term (TF) in each document in the corpus. TF is the ratio of the number of times the term appears in a document, as compared to the total number of terms in that document. This ratio increases with the number of occurrences of that term within a document. For example, consider a CSR report containing 1,000 terms wherein the word *client* appears 150 times. The term frequency TF for *client* is 0.15. We then calculated the inverse document frequency (IDF) to measure the importance of a term. IDF is calculated as the natural logarithm of the ratio of the total number of documents to the number of documents with the term in it. For example, assuming we have 100 CSR reports and the word *client* appears in 10 of these reports. The IDF score is calculated as

The IDF score is calculated to obtain the weight of rare terms across all documents in the corpus. The rarely occurring terms in the corpus have high IDF scores. Combining TF and IDF gives the TF-IDF weight for a term in a document in the corpus. Thus, the TF-IDF

weight of the term "client" in our example is 0.345 (=0.15 × 2.30). The TF-IDF weight represents the importance of the term in a document [7].

The last step in constructing the CSR scores involves classifying the identified key terms in the lexicon. The extracted terms were grouped into six CSR domains. Following Castellanos *et al*. (2015), we built a CSR word dictionary that classifies the terms into five CSR domains – business, environment, corporate governance, human rights and social capital – based on the Sustainability Accounting Standards Board (SASB) standards. Firms may undertake CSR initiatives without any expectation that such activities will improve their financial performance. In this case, firms may act on behalf of stakeholders by making approved charitable contributions: CSR expenditures reflect a form of delegated philanthropy (Benabou and Tirole, 2010; Lys *et al.*, 2015). Therefore, we have added charity as another domain to group the terms deemed to be highly associated with charity activities [8]. The annual CSR score of each domain for a bank is the average of all TF-IDF weights of the terms in the corresponding CSR domain each year (see Table 1).

4.2 Rankins ratings and CSR scores

As explained above, RKS is calculated based on four indicators, macrocosm, content, technique and industry, using the expert scoring methodology, with the maximum score being 100. In contrast, our six CSR scores are constructed based on textual analysis. Although both CSR measures are derived from CSR reports, they may capture different aspects of information disclosed in the documents. Table 2 reports each bank's time-series averages of the CSR measures. Transportation Bank received the highest RKS while Chushin Bank received the lowest. A close look at our CSR scores shows that the terms most frequently appearing in the CSR reports are those associated with business-related CSR activities (i.e. BUS). Each bank's averaged BUS is consistently higher than those of the other five domains. Shanghai Pudong Development Bank received the highest BUS, while the industrial and commercial banks received the lowest. The next two most frequent CSR terms are in the social capital (SCAP) and corporate governance (GOV) domains. Bank of China and Kodai Bank concerned most about SCAP and GOV activities, respectively.

Table 3 presents the Pearson correlation coefficients among the CSR measures using the information reported in Table 2. The table shows that most of our constructed CSR scores, except for HR and GOV, are positively correlated with RKS. The absolute values of the correlation coefficients between RKS and our CSR scores are generally lower than 0.33, except for the one between RKS and HR (−0.54).

To test whether our CSR scores have any explanatory power for RKS, we perform a panel regression of RKS on the six CSR scores with the firm- and year-fixed effects. The regression results allow for the heteroscedastic and autocorrelation correction of the error terms with the Newey–West procedure (Newey and West, 1987). Untabulated results show that only BUS exhibits explanatory power for RKS: a positive estimated coefficient of 41.63 ($t = 1.99$), which is significant at the 5% level. Our CSR scores can explain 39% of the variation in RKS, confirming our conjecture that these two types of CSR measures capture different aspects of information about the CSR activities of banks. Therefore, in the following sections, we investigate how each type of CSR measures can explain the financial performance, social value contribution and CSR spending of banks.

4.3 CSR and financial performance

Whether the pursuit of CSR activities by banks hurts or enhances their financial performance may depend on their motives for engaging in CSR activities. Wu and Shen (2013) summarize three motives for banks to engage in CSR: strategic choices, altruism and greenwashing. The strategic choices motive enhances financial performance through CSR engagement, while the altruism motive negatively affects financial performance (Baron, 2001). Firms engaging in CSR activities due to the greenwashing motive will enhance the corporate image without significantly changing the business (Frankental, 2001).

To explore the impact of CSR on the financial performance of the banking industry in China, we estimate the regression models of ROE and EPS, respectively. According to the theory of business strategy, firms engage in socially responsible business practice as a part of their overall business strategy. Using the textual-based CSR measures in regression models can distinguish which areas of CSR activities, strategically, play a more influential role in determining the banks' profits. To consider the possibility of the impact of CSR and allow time for it to be reflected in the financial performance of banks, we also include the one-year lagged CSR variables in the models.

The second view, often referred to as the theory of slack resource, posits that firms engage in socially responsible activities when they have access to excess financial resources. Following Islam et al. (2021), we consider bank size (SIZE), measured as the natural logarithm of total assets in year t, and corporate stability (CSTAB), represented by Z-score, calculated as the ROA plus capital–asset ratio (CAR) divided by the standard deviation of ROA, as the measures of slack resources. Zhou and Wong (2008) document that banks with large asset size and poor management quality in China tend to earn narrower interest margins. Beck et al. (2013) uses Z-score to measure bank stability. A high Z-score indicates that the bank is more stable, and its profitability is less volatile [9].

In addition, several bank characteristics are present as control variables in the regressions. We consider state ownership (STATE OWNERSHIP); the literature on the Chinese market documents that a positive effect of CSR on financial performance exists for non-state-owned enterprises only (Kao et al., 2018). Following Chen et al. (2018), we define state ownership as the number of state-owned shares divided by the number of total shares in year t. Our regressions also control for bank diversification (BANK DIVERSIFICATION), measured as non-operating income divided by average assets, because diversification helps banks utilize firm-specific resources to extend their competitive advantage from one market to another (Stein, 1997; Villalonga, 2004). Therefore, bank diversification may affect financial performance.

We estimate the panel regressions below by controlling for both the firm- and year-fixed effects and allowing for the heteroscedastic and autocorrelation correction of the error terms with the Newey–West procedure (Newey and West, 1987).

$$\text{PROFITS}_t = \beta_0 + \beta_1 \text{RKS}_t + \beta_2 \text{RKS}_{t-1} + \beta_j(\text{Controls}_j) + \varepsilon_t \tag{1a}$$

$$\begin{aligned}\text{PROFITS}_t = {}& \beta_0 + \beta_1 \text{BUS}_t + \beta_2 \text{ENV}_t + \beta_3 \text{HR}_t + \beta_4 \text{GOV}_t + \beta_5 \text{CHY}_t + \beta_6 \text{SCAP}_t \\ & + \beta_7 \text{BUS}_{t-1} + \beta_8 \text{ENV}_{t-1} + \beta_9 \text{HR}_{t-1} + \beta_{10} \text{GOV}_{t-1} + \beta_{11} \text{CHY}_{t-1} \\ & + \beta_{12} \text{SCAP}_{t-1} + \beta_j(\text{Controls}_j) + \varepsilon_t.\end{aligned} \tag{1b}$$

Panel A of Table 4 shows that banks with high CSR ratings experienced high subsequent profitability, consistent with the notion of "doing well by doing good." The lagged RKS shows a positive and significant impact on both ROE ($t = 2.78$) and EPS ($t = 2.51$) at the 5% level of significance.

Panel B of Table 4 shows that banks whose CSR reports contain more frequent terms in the business-related CSR domain, such as "client," "service" and "wealth management," are more profitable. The estimated coefficient of BUS on ROE and EPS is positive and significant at the 5% and 1% level, respectively. This finding is in line with the positive CSR–financial performance relation claimed by the strategic choices motive: A bank undertakes business-related CSR initiatives not only to demonstrate its engagement and interest in CSR but also to meet its shareholders' wealth maximization expectation. The positive effect of BUS on financial performance also offers a potential explanation for why the terms in the business-related domain outnumber those in other CSR domains.

Contrary to BUS, SCAP shows a negative impact on EPS. The estimated coefficient on SCAP is negative and significant at the 5% level, suggesting a bank may jeopardize the financial interests of its shareholders when it demonstrates strong engagement or interest in social capital activities. As such, frequent mentioning of social capital-related terms such as "culture," "community" and "knowledge" in CSR reports can potentially harm the banks' future financial performance. Interestingly, the lagged ENV has mixed effects on different profitability measures. Higher ENV scores predict a lower future ROE but a higher EPS at the 5% level [10].

In sum, the findings support our first hypothesis. The findings have two important policy implications. First, the regulatory bodies in China should encourage banks to strategically allocate corporate resources to achieve higher CSR ratings and engage more business-related CSR activities, both of which improve the financial performance of banks and hence enhance the safety and soundness of the banking system. Second, bank management should know that CSR initiatives could be a double-edged sword: some enhance financial performance and others hurt.

4.4 CSR and social performance

As compared to corporate profits generated by CSR, social contributions made by CSR has received less attention in the literature. Therefore, we know little about whether CSR activities are also socially beneficial. To investigate this issue, we use SCVPS, developed by SSE in 2008, to measure firms' social performance. This social performance measure includes a firm's EPS and its tax payments to the government, salaries and subsidies paid to employees, loan interest expenses paid to creditors and other total input in public good undertakings (e.g. charitable donation, educational fund and environmental protection fund), minus any social costs arising from compensations or penalties of environment pollution and other negative factors.

We perform the panel regression models of SCVPS on the CSR measures as follows:

$$SCVPS_t = \beta_0 + \beta_1 RKS_t + \beta_2 RKS_{t-1} + \beta_j(Controls_j) + \varepsilon_t \tag{2a}$$

$$\begin{aligned} SCVPS_t = \beta_0 &+ \beta_1 BUS_t + \beta_2 ENV_t + \beta_3 HR_t + \beta_4 GOV_t + \beta_5 CHY_t + \beta_6 SCAP_t \\ &+ \beta_7 BUS_{t-1} + \beta_8 ENV_{t-1} + \beta_9 HR_{t-1} + \beta_{10} GOV_{t-1} + \beta_{11} CHY_{t-1} \\ &+ \beta_{12} SCAP_{t-1} + \beta_j(Controls_j) + \varepsilon_t. \end{aligned} \tag{2b}$$

Table 5 reports the effect of the CSR measures on social contributions [11]. Panel A of Table 5 shows that both the current and lagged RKS ratings are positively associated with SCVPS at the 1% and 5% levels, respectively. This result suggests that banks that are acknowledged as more socially responsible tend to generate larger social benefits to the whole society. In conjunction with the results from Table 4, we provide evidence that adopting CSR is a mutual way for the Chinese banks to benefit themselves while benefiting the society in the process. Banks with high overall CSR ratings not only are more profitable but also make larger social contributions.

Panel B of Table 5 presents the result of the regression of the banks' social contributions per share on the various CSR domains based on textual analysis. The result shows that banks that have proactively mentioned CSR terms in the business-, corporate governance- and charity-related CSR domains in annual reports tend to generate larger social contribution values. A closer look at the estimated coefficients on the lagged variables of BUS (9.07), GOV (17.71) and CHY (28.70) shows, compared to business-related CSR initiatives, that corporate governance and charity CSR activities generate lager social contribution values for the banks in China. Thus, a bank's social performance is largely determined by how much commitment it makes to society-oriented CSR initiatives, such as corporate governance and charity activities, rather than by the intensity of their business-oriented CSR activities.

Comparing the results reported in Tables 4 and 5, we find two intriguing facts. First, while the lagged GOV and CHY do not enhance corporate profitability for the banks, they play a critical role in generating social values for the society. Second, BUS or its one-year lag is beneficial to both the banks and the society. These findings seem reasonable given that corporate governance and charity activities are perceived to be more philanthropic and, hence, can largely improve social contributions but not business profits. In contrast, business-related CSR activities, despite of its more self-centered nature, can benefit both firms and society. Overall, our outcomes support the second hypothesis [12].

4.5 CSR and CSR spending

Our analysis so far has shown that doing good can help banks do well. To understand how the CSR measures are associated with CSR spending, we manually calculate the total CSR expenditure (EXP) based on the general CSR information retrieved from the CSMAR database. We then estimate the panel regressions as follows:

$$EXP_t = \beta_0 + \beta_1 RKS_t + \beta_2 RKS_{t-1} + \beta_j(Controls_j) + \varepsilon_t \tag{3a}$$

$$\begin{aligned} EXP_t = \beta_0 &+ \beta_1 BUS_t + \beta_2 ENV_t + \beta_3 HR_t + \beta_4 GOV_t + \beta_5 CHY_t + \beta_6 SCAP_t \\ &+ \beta_7 BUS_{t-1} + \beta_8 ENV_{t-1} + \beta_9 HR_{t-1} + \beta_{10} GOV_{t-1} + \beta_{11} CHY_{t-1} \\ &+ \beta_{12} SCAP_{t-1} + \beta_j(Controls_j) + \varepsilon_t. \end{aligned} \tag{3b}$$

The control and slack variables considered are slightly different from those used in the previous sections. In particular, we consider state ownership, bank size, ROA, corporate stability, growth opportunity (LogQ) and market-to-book ratio (MTB) (Chen *et al.*, 2018; Islam *et al.*, 2021; Lys *et al.*, 2015).

The regression result of Eqn (3a) is summarized in Panel A of Table 6. Surprisingly, we find no evidence of any statistically significant association between the banks' overall RKS ratings and total CSR expenditures over the sample period, suggesting our evidence does not support hypothesis H3a. Banks with high CSR ratings do not necessarily spend more in CSR initiatives. As such, one must be cautious when attempting to use CSR rating as a proxy for CSR spending (and vice versa) in empirical tests.

The result reported in Panel B of Table 6 provides information on which CSR domains are associated with CSR spending for the Chinese banks. Consistent with Lys *et al.* (2015), our evidence shows that corporate governance is positively associated with CSR spending. The coefficients on the contemporaneous and lagged GOV are positive and significant at the 1% and 5% levels, respectively, suggesting that banks with strong engagements or interests in enhancing corporate governance quality tend to invest more funds in CSR initiatives. It is worth noting that the CSR domains other than GOV, in general, lack statistical significance in explaining or predicting CSR spending. This implies that not all CSR activities lead to increased expenditures and, hence, reduce corporate profits [13]. Overall, our findings modestly support hypothesis H3b.

4.6 Market reactions to CSR spending

Noronha *et al.* (2018) document that the Chinese stock market reacts positively to firms' social contributions. If this is true and investors believe that banks with more CSR spending make larger social contributions, it then follows that there is a positive market reaction to banks' CSR spending. However, we conjecture that there are asymmetric reactions among banks with different levels of CSR spending. Our intuition is as follows. Banks with low levels of CSR expenditures are more likely to be perceived as underinvesting in CSR activities and, hence, less socially responsible. The market may anticipate that less CSR-committed banks will enhance their social images by investing more in CSR activities. Thus, the market will react positively and strongly to increase CSR spending. In contrast, banks with high levels of CSR expenditures may be regarded as overinvesting in CSR and wasting corporate resources. In this case, increases in CSR spending are less welcome. Thus, the stock market reaction to the "high CSR spending" banks would not be as strong as the reaction for the "low CSR spending" banks.

To investigate the asymmetric reactions to CSR spending of both types of banks, we start with calculating the cumulative abnormal returns (CARs) over a variety of event windows $[-1, +1]$, $[-1, +10]$, $[-1, +20]$ and $[-1, +30]$, in which $t = 0$ is the disclosure date of the annual CSR reports. We consider different event windows to reflect the possibility that investors need a longer time to digest the narrative information in CSR reports and the quantitative information in typical financial statements before making investment decisions. The abnormal returns are defined as the actual realized stock returns minus expected returns based on factor loadings of the Fama–French three-factor model estimated over $[-150, -30]$ trading days. For each event window, we then regress the cumulative abnormal returns on CSR expenditures, an interaction term of CSR expenditures, and a dummy variable D, indicating whether a bank is high CSR spending ($D = 1$, if a bank's annual CSR total

expenditure is higher than the median of the CSR expenditures of the sample banks in the same year) or low CSR spending ($D = 0$, otherwise). We then regress the cumulative abnormal return on total CSR expenditure and its interaction term with the dummy variable as follows:

$$\text{CAR}_t = \beta_0 + \beta_1 \text{EXP}_t + \beta_2 (D \times \text{EXP}_{t-1}) + \beta_j (\text{Controls}_j) + \varepsilon_t \qquad (4)$$

Bank size and growth opportunities are also added to the model to examine whether the estimated coefficients vary with or without the control variables.

Table 7 summarizes the regression results. A closer look at the results shows several intriguing patterns. First, consistent with our conjecture that investors need time to digest the information disclosed in CSR reports, in conjunction with the accounting information in financial statements, the market does not react to CSR spending until approximately 20 days after the disclosure date. The results in Columns (1)–(4) consistently show that both the coefficients on CSR expenditures and the interaction term are insignificant for the shorter [−1, +1] and [−1, +10] windows. In contrast, the coefficients both become statistically significant for the longer [−1, +20] and [−1, +30] windows at the 5% and 1% levels, respectively. This evidence supports our argument that extracting useful narrative information from annual reports for investment decisions is challenging for investors. Therefore, it calls for the need to provide more structured and informative measures to help investors better digest the information in lengthy CSR reports. Our constructed textual-based CSR scores address this need.

Second, consistent with the literature, we find that the market reacts positively to the CSR expenditures of banks [14]. For the [−1, +20] window, the coefficients on EXP are positive and significant at the 5% level, regardless of control variables in the regressions. The coefficient on the interaction term for each model is negative and significant at the 5% level, suggesting that the market reacts less strongly to the CSR expenditures for high-CSR-spending banks than low-CSR-spending banks. More significant results are observed for the [−1, +30] window.

The results have policy implications for banks. Since aligning wealth-centered, profit-making corporate goals with ethics-centered, costly social goals can be challenging, bank managers should endeavor to make a cautious and well-balanced decision on resource allocations between profit-seeking investments and altruistic CSR activities. Our results provide guidelines that can help bank managements determine the appropriate level of CSR spending. This provision is important because when pursuing profits, banks are also highly scrutinized by the media and governments about their regulation operations and CSR activities (Wu and Shen, 2013).

5. Conclusions

The mandatory disclosure of CSR reports has led to greater information transparency, though some may view CSR reports as a tool for "window dressing," "greenwash" or a "PR exercise." Unlike financial statements that provide numerical accounting data, CSR reports disclose qualitative and narrative CSR information as a part of the dialog between the firm and its stakeholders (Gray *et al.*, 1995). If CSR reports are informative, effectively digesting

the descriptive information in CSR reports becomes an important issue for both shareholders and other stakeholders. In this study, we adopt textual analysis to quantify the aspects of Chinese banks' engagements and interests in CSR activities in the business, environment, human rights, corporate governance, charity and social capital domains. We then investigate whether the six CSR measures are associated with the overall CSR ratings, financial performance, social contributions and CSR spending. This study also explores how the stock market in China reacts to the CSR spending of banks.

Our study shows that CSR reports are informative for the banking industry in China. Our textual-based CSR measures contain additional substantial and valuable information beyond what RKS can offer. Our primary findings are summarized as follows.

First, the CSR activities in different domains contribute differently to corporate profits, social contributions and CSR expenditures for banks in China. The CSR activities perceived to be more self-interested enhance the profits of banks while those considered to be more altruistic create social values. This finding is informative for both banks and investors. For the bank management that focuses more on profit maximization but desires to maintain a fair level of CSR commitment, they should engage more in business-related CSR initiatives. For investors with CSR awareness, our study suggests that they should prioritize banks with stronger CSR commitments in corporate governance and charity on their investment lists because these banks tend to make larger social contributions than those that are more interested in business-related CSR activities.

Second, our finding indicates that the stock market in China reacts positively to the CSR expenditures of banks. However, the positive market reaction is less pronounced for banks that have already invested in CSR activities more than the industry norm, and more pronounced for banks that are considered to be underinvesting in CSR. We reason that the observed pattern arises because shareholders do not consider CSR initiatives from the perspective of the profit-maximization goal of banks despite a positive association between CSR and corporate profits. Instead, shareholders are more likely to view CSR as a tool that meets the expected social responsibilities of other stakeholders, such as legal responsibility, ethical responsibility, economic responsibility and charity responsibility (Carroll, 1979).

This study provides evidence that CSR reports are informative. To make the most of CSR reports, however, the public must effectively and straightforwardly digest the information disclosed in the documents. The constructed CSR measures of this study are among the alternatives that may help in this regard.

This paper shows that the textual-based CSR measures can provide some informative information that enhances our understanding of the impact of Chinese banks' CSR initiatives on their financial/social performance, CSR expenditure and market reaction. However, our analysis is potentially subject to a limitation regarding the validation of our CSR measures. Although we have appointed two coders to manually validate our CSR measures, we could not statistically validate the measures due to our limited access to the RKS ratings. Otherwise, we will be able to provide stronger evidence in support of the validation of our measures by utilizing the RKS scores that correspond to the six CSR domains of interest [15]. Future researchers who can access such scores may overcome this limitation by following the framework of Sharfman (1996) and re-examine our results.

Notes

1. When industrial evaluation data are unavailable for some industries, the weights of content and technique increase to 50% and 20%, respectively.

2. Textual analysis is also denoted as content analysis, natural language processing, information retrieval, or computational linguistics. Many different disciplines use textual analysis, including psychology, anthropology, linguistics, political science, journalism and computer science (Loughran and McDonald, 2011).

3. It is worth noting that Rankins also provides scores for CSR dimensions such as environment, governance, social and community. Unfortunately, we have no access to this information in order to analytically compare the RKS ratings and our textual-based CSR scores.

4. Stakeholder theory has received supportive empirical evidence, for example, higher levels of investment in CSR activities lead to increased employee morale, a better firm reputation, more harmonious growth (Edmans, 2012; Servaes and Tamayo, 2013).

5. Instead of using the real CSR expenditures, Lins *et al.* (2017) investigate the impact of CSR performance on the Selling, General, and Administrative (SG&A) expenses. They find better CSR firms incur higher SG&A expenses.

6. A summary of variable definitions is provided in Appendix.

7. Loughran and McDonald (2016) remind that term weighting acknowledges that raw word accounts are not the best measure of a word's information content.

8. Two coders manually validated these terms with several rounds of confirmations.

9. We thank the reviewer for suggesting the incorporation of slack resources into the regressions.

10. Results for the estimated coefficients on the slack variables and control variables are not reported but are available from the authors upon request.

11. Following Islam *et al.* (2021), we use SIZE, ROA and corporate stability to proxy for slack resources.

12. The results are qualitatively similar when net SCVPS, obtained by subtracting EPS from SCVPS, is used as the dependent variable. The net variable represents the additional component of social contribution value contributed to the society beyond the profit generated by the business.

13. Two CSR domains, ENV and CHY, are significant at the 10% level.
.
14. For example, Anderson and Frankle (1980) also show that the more social value contributed and disclosed by the firm, the higher stock return is obtained from the market.

15. We thank the reviewer for pointing this out. Without the individual corresponding Rankins scores, we can simply validate our CSR measures by using the overall RKS ratings. Following Sharfman (1996), we have found a positive association between the overall RKS ratings and the sum of our six CSR measures. This provides some evidence, though imperfect, that validates our CSR measures.

Appendix Variable definitions

Profitability Measures

PROFITS: The profit measures including ROE and EPS in year t.

ROE: Net income divided by shareholders' equity in year t.

EPS: Net income divided by number of outstanding shares of common stock in year t.

CSR Measures

RKS: Rankins CSR rating.

BUS: Business-related CSR scores based on Term Frequency–Inverse Data Frequency.

ENV: Environment-related CSR scores based on Term Frequency–Inverse Data Frequency.

HR: Human resource-related CSR scores based on Term Frequency–Inverse Data Frequency.

GOV: Corporate governance-related CSR scores based on Term Frequency–Inverse Data Frequency.

CHY: Charity-related CSR scores based on Term Frequency–Inverse Data Frequency.

SCAP: Social capital-related CSR scores based on Term Frequency–Inverse Data Frequency.

Control Variables

SIZE: Natural logarithm of total assets in year t.

STATE OWNERSHIP: The number of state-owned shares divided by the number of total shares in year t.

BANK DIVERSIFICATION: Non-operating income divided by average assets in year t.

CSTAB: (ROA + CAR)/standard deviation of ROA, where CAR denotes the capital–asset ratio.

ROA: Net income divided by total assets in year t.

LogQ: Natural logarithm of total assets minus book value of equity plus market value of equity divided by book value of total assets in year t.

MTB: Market value of equity divided by book value of equity in year t.

Firm fixed effects: Indicator variables for firms.

Year fixed effects: Indicator variables for years.

SCVP: EPS + (tax payment + employ expense + interest expense + total input in public good undertaking – social cost)/total number of shares in year t.

EXP: Total CSR expenditure in year t.

CAR[−1, +1]: Cumulative abnormal return during day −1 to day +1, with day 0 being the announcement date of mandatory CSR disclosure.

CAR[−1, +10]: Cumulative abnormal return during day −1 to day +10, with day 0 being the announcement date of mandatory CSR disclosure.

CAR[−1, +20]: Cumulative abnormal return during day −1 to day +20, with day 0 being the announcement date of mandatory CSR disclosure.

CAR[−1, +30]: Cumulative abnormal return during day −1 to day +30, with day 0 being the announcement date of mandatory CSR disclosure.

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Tables:

Table 1. List of words in CSR dimensions

Business 商業	客戶、服務、業務、貸款、分行、金融服務、經濟、活動、信貸、經營、子公司、融資、需求、金融、資金、電子支付、支行、市場、總行、交易、投資、資產、手機支付、基金、理財、信用卡、運營、消費、創業、信託、資本、財富、帳戶、事業、零售、理財商品、貿易、金融業務
Environment 環境	綠色、環境、環保、節能、安全、健康、赤道原則、減排、低碳、排放、生態環境、節約、植樹、減少
Governance 治理	企業、管理、責任、風險、組織、公司、培訓、體系、模式、報告、信息、合規、政策、制度、機制、教育、授信、權益、反洗錢、風險管理、治理、規範、轉型、就業、標準、政府、管理體系、信貸政策、董事會、董事、委員會、監事會
Human capital 人權	員工、集團、消費者、投資者、志願者、職工、供應商、人才、供應鏈、營業網點、領導、人員、股東、團隊、人民、市民、合作夥伴、幹部、青年、老人、商戶
Social capital 社會資本	銀行、系統、社會、工作、產品、項目、創新、理念、女性、平台、三農、戰略、機構、網點、能力、文化、產業、知識、社區、地區、資源、互聯網、技術、當地、轉型、利益、區域、專業、網路、學習、優勢、智能、功能、生活、資訊、品牌、微信、文創、科技、地方、網銀、價值、醫療
Charity 慈善	養老、扶貧、幫扶、公益、捐贈、普惠、老年、捐款、助學、慈善、愛心、關愛、助力、幫助、公益活動

Table 2 Summary statistics of CSR scores

Bank name	RKS	BUS	ENV	HR	GOV	CHY	SCAP
Agricultural Bank	36.336	0.444	0.058	0.064	0.141	0.062	0.277
Bank of Beijing	30.334	0.392	0.077	0.094	0.283	0.050	0.334
Bank of China	35.668	0.476	0.060	0.105	0.272	0.091	0.380
China Merchants Bank	31.334	0.469	0.091	0.096	0.199	0.103	0.340
China Minsheng Bank	35.668	0.361	0.100	0.070	0.318	0.096	0.290
Chushin Bank	23.670	0.386	0.070	0.153	0.273	0.024	0.230
Construction Bank	38.002	0.479	0.148	0.102	0.230	0.103	0.329
Hwa Xia Bank	25.670	0.476	0.097	0.099	0.263	0.069	0.353
Industrial and Commercial Bank	24.000	0.342	0.083	0.112	0.317	0.054	0.271
Industrial Bank	32.002	0.446	0.144	0.049	0.301	0.033	0.330
Kodai Bank	32.336	0.436	0.111	0.084	0.324	0.057	0.342
Nanjing Bank	34.668	0.394	0.070	0.095	0.301	0.034	0.338
Shanghai Pudong Development Bank	35.000	0.506	0.088	0.063	0.277	0.044	0.348
Transportation Bank	39.000	0.384	0.097	0.093	0.275	0.043	0.294
Mean	32.406	0.428	0.092	0.091	0.269	0.062	0.318
Standard Deviation	4.972	0.051	0.027	0.026	0.050	0.027	0.040
Maximum	39.000	0.506	0.148	0.153	0.324	0.103	0.380
Minimum	23.670	0.342	0.058	0.049	0.141	0.024	0.230

Note(s): This table summarizes the time-series averages of annual RKS and CSR scores in the business-, environment-, human resource-, corporate governance-, charity- and social capital-related domains of the sample banks from 2012 to 2016. The lower part reports the descriptive statistics of the variables

Table 3 Pearson correlation coefficients among CSR scores

	RKS	BUS	ENV	HR	GOV	CHY	SCAP
RKS	1						
BUS	0.277	1					
ENV	0.181	0.216	1				
HR	−0.536	−0.293	−0.316	1			
GOV	−0.242	−0.448	0.210	0.071	1		
CHY	0.312	0.319	0.175	−0.054	−0.331	1	
SCAP	0.325	0.665	0.172	−0.360	0.070	0.345	1

Note(s): This table reports the Pearson correlation coefficients for RKS and CSR scores in the business-, environment-, human resource-, corporate governance-, charity- and social capital-related domains

Table 4 Impact of CSR on financial performance

Dep. Var. =	ROE			EPS		
	Coeff		*t*-stat	Coeff		*t*-stat
Panel A: Regressions of financial performance on RKS						
Constant	−0.139		−0.29	−5.797		−0.44
RKS_t	−0.005		−0.76	0.095		0.40
RKS_{t-1}	0.019**		2.49	0.440**		2.41
R^2 (%)		97.11			97.27	
Number of observations		56			56	
Control variables		YES			YES	
Fixed effects		FIRM/YEAR			FIRM/YEAR	
Panel B: Regressions of financial performance on CSR scores						
Constant	0.340		0.56	−11.696		−0.70
BUS_t	0.027**		2.56	0.710***		3.32
ENV_t	−0.060*		−2.00	1.096		1.52
HR_t	−0.025		−0.69	0.128		0.12
GOV_t	0.027		1.70	−0.759		−1.54
CHY_t	0.003		0.20	−0.308		−0.71
$SCAP_t$	−0.022		−1.33	−0.934**		−2.35
BUS_{t-1}	0.030**		2.40	0.692		1.70
ENV_{t-1}	−0.057**		−2.22	1.830**		1.96
HR_{t-1}	−0.034		−1.02	0.363		0.45
GOV_{t-1}	0.019		1.10	0.014		0.03
CHY_{t-1}	−0.012		−0.32	1.799		1.71
$SCAP_{t-1}$	−0.003		−0.17	−0.606		−1.25
R^2 (%)		97.70			97.73	
Number of observations		56			56	
Control variables		YES			YES	
Fixed effects		FIRM/YEAR			FIRM/YEAR	

Note(s): This table reports the estimated coefficients of the panel regressions of profitability measures (ROE and EPS) on RKS and lagged RKS in Panel A, and the six CSR scores and their lagged variables in Panel B. The results are based on the panel data of 14 Chinese banks for 2012–2016. Control variables include size, state ownership, bank diversification, corporate stability, firm and year fixed effects with heteroscedastic and autocorrelation correction of the error terms with the Newey–West procedure (Newey and West, 1987). Coefficients on RKS_t and RKS_{t-1} are multiplied by 100. "***", "**" and "*" indicate levels of significance at 1%, 5% and 10%, respectively

Table 5 Impact of CSR on social performance

	Coeff		t-stat
Panel A: Regressions of social performance on RKS			
Constant	−103.120		−0.61
RKS_t	0.054**		2.39
RKS_{t-1}	0.060***		3.47
R^2 (%)		87.35	
Number of observations		55	
Control variables		YES	
Fixed effects		FIRM/YEAR	
Panel B: Regressions of social performance on CSR scores			
Constant	119.006		0.52
BUS_t	2.502		0.81
ENV_t	−11.845		−1.17
HR_t	−27.287*		−1.98
GOV_t	7.168		1.38
CHY_t	6.592		1.09
$SCAP_t$	−5.817		−1.18
BUS_{t-1}	9.073**		2.59
ENV_{t-1}	−8.857		−1.20
HR_{t-1}	−14.386		−1.45
GOV_{t-1}	17.714**		2.58
CHY_{t-1}	28.697**		2.49
$SCAP_{t-1}$	−4.680		−0.71
R^2 (%)		87.37	
Number of observations		55[#]	
Control variables		YES	
Fixed effects		FIRM/YEAR	

Note(s): This table reports the estimated coefficients of the panel regressions of social contribution value per share (SCVPS) on RKS and lagged RKS in Panel A, and the six CSR scores and their lagged variables in Panel B. The results are based on the panel data of 14 Chinese banks for 2012–2016. Control variables include size, state ownership, bank diversification, ROA, corporate stability, firm and year fixed effects with heteroscedastic and autocorrelation correction of the error terms with the Newey–West procedure (Newey and West, 1987). "#": SCVPS of China Merchants Bank is missing in 2016. "***", "**" and "*" indicate levels of significance at 1%, 5% and 10%, respectively

Table 6 Impact of CSR on total CSR spending (in$trillions)

	Coeff		*t*-stat
Panel A: Regressions of total CSR expenditures on RKS			
Constant	65.895		0.12
RKS$_t$	−0.038		−0.77
RKS$_{t-1}$	−0.062		−1.14
R^2 (%)		53.85	
Number of observations		55	
Control variables		YES	
Fixed effects		FIRM/YEAR	
Panel B: Regressions of total CSR expenditures on CSR scores			
Constant	228.584		0.35
BUS$_t$	13.890		0.97
ENV$_t$	−12.250		−0.29
HR$_t$	−19.959		−0.56
GOV$_t$	81.391***		3.50
CHY$_t$	7.353		0.39
SCAP$_t$	−23.206		−1.18
BUS$_{t-1}$	−2.441		−0.24
ENV$_{t-1}$	−63.865*		−2.02
HR$_{t-1}$	26.199		1.07
GOV$_{t-1}$	67.521**		2.61
CHY$_{t-1}$	47.188		0.98
SCAP$_{t-1}$	34.486*		1.92
R^2 (%)		74.35	
Number of observations		55	
Control variables		YES	
Fixed effects		FIRM/YEAR	

Note(s): This table reports the estimated coefficients of the panel regressions of total CSR expenditure (EXP in trillions RMB) on RKS and lagged RKS in Panel A, and the six CSR scores and their lagged variables in Panel B. The results are based on the panel data of 14 Chinese banks for 2012–2016. Control variables include size, state ownership, ROA, corporate stability, LogQ, MTB, firm and year fixed effects with heteroscedastic and autocorrelation correction of the error terms with the Newey–West procedure (Newey and West, 1987). "***", "**" and "*" indicate levels of significance at 1%, 5% and 10%, respectively

Table 7 Market reaction to CSR spending by levels of CSR expenditures

Dep. Var. =	CAR[−1,+1]		CAR[−1,+10]		CAR[−1,+20]	
	(1)	(2)	(3)	(4)	(5)	(6)
EXP	1.776 (0.57)	1.063 (0.34)	5.281 (0.98)	5.010 (0.91)	13.834** (2.38)	13.859** (2.32)
$D \times$ EXP	−1.761 (−0.57)	−1.045 (−0.34)	−5.244 (−0.98)	−4.964 (−0.91)	−13.751** (−2.37)	−13.777** (−2.3
SIZE		−0.006 (−1.56)		−0.005 (−0.64)		<0.001 (0.02)
LogQ		−0.198 (−0.39)		−0.598 (−0.67)		−0.009 (−0.0
R^2	0.006	0.046	0.015	0.024	0.082	0.082

Note(s): This table reports the estimated coefficients of the regressions of the cumulative abnormal returns (CARs) on to
($D \times EXP$) over different event windows [−1, +1], [−1, +10], [−1, +20] and [−1, +30], in which $t = 0$ is the disclosure d
variable, is equal to 1 if a bank's annual total CSR spending is above the median of the CSR spending of the banks in year
0 (low-CSR spending). "***", "**" and "*" indicate levels of significance at 1%, 5% and 10%, respectively