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Corporate social responsibility and earnings quality: Evidence from China

Zabihollah Rezaee[a,*], Huan Dou[b], Huili Zhang[c]

[a] Fogelman College of Business and Economics, 300 Fogelman College Administration Building, The University of Memphis, Memphis, TN 38152-3120, United States of America
[b] School of Management, Jinan University, Guangzhou, China
[c] Business School, Beijing Normal University, Beijing 100875, PR China

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ABSTRACT

We examine the association between corporate social responsibility (CSR) and earnings quality using CSR ranking data from Rankins (RKS) and four measures of earnings quality. Using a sample of 2580 Chinese listed firms for fiscal years 2009–2015, with 14,807 firm-year observations, we find that CSR firms and those with higher CSR ratings are less likely to engage in earnings management than non-CSR firms and those with lower CSR ratings, and their earnings are more persistent and more accurately predict future cash flows from operations. State ownership and marketization moderate the relationship between CSR disclosures and earnings quality.

1. Introduction

The primary goal of business organizations has recently refocused from profit maximization to increasing shareholder wealth and protecting the interests of other stakeholders including society and the environment (Rezaee, Zhang, Dou, & Gao, 2016). The link between financial performance, including earnings quality, and corporate social responsibility (CSR) performance has been extensively examined in accounting and finance literature (Huang & Watson, 2015). Some research reports that firms focusing on CSR performance are less likely to engage in earnings management (Kim, Park, & Wier, 2012), experience better financial and market performance, and exhibit lower cost of capital (Dhaliwal, Li, Tsang, & Yang, 2011; Ghoul, Guedhami, Kwok, & Mishra, 2011; Goss & Roberts, 2011; Ng & Rezaee, 2015). Fatemi, Fooladi, and Tehranian (2015) document that in certain circumstances CSR expenditures contribute to firm valuation. Dechow, Sloan, and Zha (2014) argue that earnings are important to investors and that earnings quality and nonfinancial performance indicators, in addition to financial earnings, affect stock prices. Sharma (2013) argues that CSR achievement is more challenging for Asian companies than for their Western counterparts. However, CSR activities and related performance and disclosures have been gaining more attention in recent years in China (McGuinness, Vieito, & Wang, 2017).

Motivated by the inconclusive results of CSR-related research in developed countries, we examine the association between CSR and earnings quality in a fast-developing market and economy, China. We focus on China for several reasons. First, CSR activities in China have grown significantly in the past decade (Scholtens & Kang, 2013), and Chinese firms have faced greater pressure from

* Corresponding author.
E-mail addresses: zrezaee@memphis.edu (Z. Rezaee), tdouhuan@jnu.edu.cn (H. Dou), zhanghuili@bnu.edu.cn (H. Zhang).

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regulators to engage in CSR programs (McGuinness et al., 2017). Second, this trend is expected to continue as China forges an alliance with Europe to take a leading role in environmental initiatives by tackling climate change (Morello & Wagner, 2017) as the United States' recent decision to exit the 2015 Paris Agreement is expected to encourage other countries (e.g., China, the EU, India) to step up by providing leadership in CSR sustainability initiatives (Rucker & Johnson, 2017). Finally, Chinese financial reporting, corporate governance environment, and corporate culture including CSR initiatives differ from their Western analogues owing to the presence of state ownership, political influences, and internal control structures (Ji, Lu, & Qu, 2017). State control and regional institutional development, which are characteristic of the Chinese context, moderate the relationship between CSR and earnings quality (Choi, Lee, & Park, 2013; Yip, Staden, & Cahan, 2011). These unique Chinese settings could affect both earnings quality and CSR performance and disclosure. Finally, China has emerged as the world's second largest economy, and it is vulnerable to corporate scandals and earnings management (Hung, Wong, & Zhang, 2015).

We conjecture that CSR is positively associated with earnings quality. Our reasons are that (1) CSR is being integrated into corporate missions and cultures, corporate governance, business models, and managerial strategic planning, decisions, and actions, and thus should affect financial performance and earnings quality (Rezaee, 2016); (2) researchers (Dhaliwal et al., 2011; Jain, Jain, & Rezaee, 2016; Khan, Serafeim, & Yoon, 2016; Kim et al., 2012; Ng & Rezaee, 2015) report that CSR activities and related performance are linked to financial performance, earnings quality, and cost of capital, and thus to stock price and firm value; (3) anecdotal evidence suggests that integrating CSR into business processes can achieve long-term financial stability and success (Unruh et al., 2016); and (4) CSR programs and activities are gaining momentum in China (Lau, Lu, & Liang, 2016; McGuinness et al., 2017; Wang, Cao, & Ye, 2016).

Theoretically, our prediction is based on signaling theory and institutional settings in China. Signaling theory explains that management reports CSR measures in order to differentiate the firm's good CSR from other firms with no CSR and thus incentives to disclose superior CSR performance (Milgrom, 1981; Ng & Rezaee, 2015; Verrecchia, 1983). Chinese institutional settings help explain CSR activities in China, their implications for Chinese firms, and whether and to what extent investors react to the disclosure of CSR activities (Grinblatt & Hwang, 1989; Lau et al., 2016), as we explain in detail in Section 2. Chinese firms with a CSR focus, like their counterparts in Western countries, may have incentives to eschew earnings management and to have high earnings quality (Kim et al., 2012). Regional specifications and government influences may encourage Chinese firms to engage in CSR initiatives to mitigate government monitoring (Hung et al., 2015). State-owned enterprises (SOEs) and marketization can enable the alignment of CSR initiatives with the nation's development policy but may not result in better financial performance for Chinese firms (Yin, 2015). These possibilities introduce tension into our research question of whether CSR performance disclosure is associated with earnings quality for Chinese firms.

Dichev, Graham, Harvey, and Rajgopal (2013) suggest that researchers use a variety of earnings quality measures. We construct four different measures of earnings quality: accrual-based earnings management, real earnings management, earnings persistence, and the ability of earnings to predict future cash flow. We use CSR ranking data provided by Rankins CSR Ratings (RKS) as a proxy for CSR disclosure for our sample of 2580 Chinese listed firms for the fiscal years 2009–2015, with 14,807 firm-year observations. RKS's CSR ratings range from 0 to 100 points, with a higher (lower) score representing better (poorer) CSR disclosed performance. Because the rating's role in shaping the relation between earnings quality and CSR disclosure is not clear ex ante, we investigate the association empirically.

This paper differs from, and contributes to, the literature in several ways. Much of the previous research (e.g., Kim et al., 2012; Rezaee & Tuo, 2017) focuses on the association between CSR performance and discretionary accruals and earnings management and uses data from mature markets. We investigate the largest emerging market, and we focus on CSR disclosure rather than CSR performance. (The two differ, just as the disclosure of corporate earnings differs from financial performance.) Anecdotal evidence suggests that CSR sustainability reporting is growing in Asia and particularly in mainland China, but the quality of these CSR reports needs much improvement (Rezaee, Tsui, Cheng, & Zhou, 2019). Our paper also differs from previous research (e.g., Gras-Gil, Hernandez, & Manzano, 2016; Wang et al., 2016) by using four measures of earnings quality. Finally, we examine firm-specific characteristics that are specific to China—SOE vs. non-SOE status, and marketization as a measure of the sociopolitical context (Vermander, 2014)—that could attenuate or exacerbate the relationship between CSR disclosure and earnings quality.

The next section of this paper presents the institutional background and our research hypotheses concerning the relationship between CSR disclosures and earnings quality. This is followed by descriptions of our method and sample, descriptive analysis, and then the results. Concluding comments complete the paper.

2. Institutional background, theoretical framework, literature review, and research hypotheses

2.1. Institutional background and settings in China

A country's corporate governance system including CSR programs and its internal and external mechanisms are determined by several interrelated factors, including political infrastructure, cultural norms, legal system, ownership structures, market environments, level of economic development, CSR activities, and ethical standards (Rezaee, 2007). Literature in accounting and finance examines the relationship between the legal protection of investors and the development of financial markets and corporate

governance and CSR and concludes that the legal system is an important and integral component of corporate governance and business sustainability (LaPorta, Lopez-de-Silanes, Shleifer, & Vishny, 1997). Scholtens and Kang (2013) argue that the legal system in Asia is viewed as being poor and find that investor protection is negatively linked to earnings management and firms with good CSR are less likely to engage in earnings management.

The corporate environment, including CSR activities in China, has evolved in the past several decades as the socialist system has been transformed into a market economy and legal system. To promote market-based corporate financing, China established several stock exchange markets in Shanghai and Shenzhen in the early 1990s (Lee, 2001) and formed the China Securities Regulatory Commission (CSRC) to monitor and regulate the capital market (Xu & Wang, 1999). In January 2011, the Organization for Economic Co-operation and Development (OECD) released a report indicating that China has shifted from a planned economy to a market economy with a focus on CSR (OECD, 2011). Since 2015, disclosure of CSR performance has become mandatory for companies listed on the Hong Kong stock exchange (HKEx, 2015).

Listed companies in mainland China are also encouraged to report their CSR activities. In December 2008 the Shanghai and Shenzhen Stock Exchanges encouraged a subset of Chinese listed firms to issue CSR reports, a policy that constitutes a quasi-natural experiment (Wang et al., 2016). Since 2009 Rankins (RKS), an independent rating agency, has ranked and reported on CSR activities of listed companies in China in three broad categories of "macrocosm, content, and techniques."[1] Rankins evaluations are accepted by a majority of scholars who study the domain of corporate social responsibility, and are widely used in academic literature. Since Chinese firms are encouraged to disclose their commitments in support of government policies and initiatives as well as the community, it is expected that more firms in China will disclose their overall CSR strategies, activities, and performance.

Two unique features of the Chinese institutional setting, SOEs and marketization, are expected to affect the relationship between CSR and earnings quality. State-owned companies (SOEs), which compose nearly half of China's economy, play a valuable role in the country's economic development. Since the major shareholder is the state, they have several targets other than shareholder value maximization, such as decreasing the unemployment rate and keeping society stable and sustainable. Indeed, a survey conducted by CSR-Asia reveals that many respondents believe that the government is the main driver of CSR development in China (76%) and compliance with the central government's policy is the key incentive for implementing CSR (CSR-Asia, 2015). SOEs act in the corporate social responsibility role all the time, regardless of the impact on earnings quality, and they obtain funds from banks more easily than their NSOE counterparts because of government support (Wang, Wong, & Xia, 2008). Thus, we expect SOEs to pay less attention to earnings quality than do non-state-owned corporations.

In addition, inequalities in economy and institutional development suggest various differences in institutions across China's regions (Fan, Wang, & Zhu, 2011). Fan and colleagues introduced a market index to measure the development of different provinces. The lower the market index is, the less perfect are the province's regulations and marketization level. Companies in less developed provinces care less about the signaling effect of CSR disclosure, since they have other ways to obtain resources.

2.2. Theoretical framework and previous research

Signaling theory (Grinblatt & Hwang, 1989; Rezaee, 2016) suggests that Chinese firms may attempt to signal "good CSR sustainability" by disclosing their good CSR performance to differentiate themselves from "bad" firms with no focus on CSR performance, in order to avoid the adverse selection problem (Huang & Watson, 2015; Hummel & Schlick, 2016; Lys, Naughton, & Wang, 2015; Milgrom, 1981; Verrecchia, 1983). High CSR scores are hard for firms with inferior CSR performance to mimic. Firms may commit to disclosing their superior CSR performance for a variety of reasons, including building a better relationship with customers, employees, and suppliers; creating branding and reputation for their high-quality, socially and environmentally sensitive products and services that can improve earnings quality; and granting fewer opportunities for earnings management.

Rezaee (2016, 2017) presents several sustainability theories—agency/shareholder, stakeholder, signaling and legitimacy, and stewardship—that can explain firms' commitments to CSR activities and their incentives for disclosing CSR-related performance information. Shareholder theory implies that firms engage in CSR activities that generate financial returns for shareholders, whereas stakeholder theory implies that a company's purpose is to create sustainable shared value for all its constituencies, from investors to employees, customers, society, and the environment. Legitimacy theory suggests that firms face social and political pressure to preserve their legitimacy by fulfilling their social and environmental contracts. Stewardship theory views management as the steward of all capitals, from financial to manufacturing, physical, human, societal, and environmental. These theories are not mutually exclusive, and there may be other theories that have implications for CSR. These CSR theories suggest that business organizations must extend their focus beyond maximizing short-term financial profit and engage in activities that benefit society and the environment.

2.3. Previous research

Research on CSR activities in developed countries finds that firms that disclose CSR performance exhibit better financial and market performance and lower cost of capital (Dhaliwal et al., 2011; Ghoul et al., 2011; Goss & Roberts, 2011; Ng & Rezaee, 2015), are less likely to engage in earnings management (Kim et al., 2012; Rezaee & Tuo, 2017), and experience less short selling activities (Jain et al., 2016). Specifically, "Chepurko, Dayanandan, Donker, and Nofsinger (2018) report that CSR performance strengths

[1] Available at http://www.rksratings.com.

(concerns) are associated with a lower (higher) likelihood of financial restatements. Huang and Watson (2015) review > 100 CSR-related studies published in 13 top accounting and business journals and suggest that the results of these studies are mixed and often inconclusive as to the impacts of CSR performance and disclosure on the firm's financial and market performance, financial disclosure, earnings quality, and cost of capital. Szwajkowski and Figlewicz (1999) argue that reputation and social performance as well as financial performance are important to all stakeholders, including customers, regulators, investors, and management.

Several studies examine the link between earnings quality and CSR in various countries. Gras-Gil et al. (2016), using a sample of Spanish nonfinancial companies, find a negative association between CSR practices and earnings management, particularly as related to ethical and moral issues. Choi et al. (2013) find a positive association between CSR and earnings quality for a sample of Korean firms. Bozzolan, Fabrizi, Mallin, and Michelon (2015) document a link between CSR and earnings quality for a sample of multinational firms. Huang and Watson (2015) review research on CSR published in the last decade in 13 of the top accounting journals and conclude that it is difficult to measure the financial impacts of CSR initiatives in cost/benefit terms and thus to measure their link to earnings quality.

Extant literature offers some insights into the nature of the relationship between CSR performance and disclosure and their integrated effect on firm value. Included are the works of Jain et al. (2016) document a high correlation between CSR performance and CSR disclosure. Further, Fatemi, Glaum, and Kaiser (2018) report that ESG disclosure plays a moderating role: attenuating the positive effect of ESG performance strengths and mitigating the negative impact of weaknesses on firm value. Also related are the findings of Sheikh (2018) who finds that CSR is a value-increasing strategic investment, thereby providing support for the stakeholder theory of CSR. This paper focuses on CSR ratings in China as a proxy for CSR disclosure. In recent years, both CSR performance and disclosure have been integrated into corporate culture, the business environment, managerial strategic decisions, and corporate reporting. For example, Arjalies and Mundy (2013) provide evidence of the way management determines CSR initiatives and investment and their integration into strategic objectives and business processes. Cornett, Erhemjamts, and Tehranian (2016) examine the link between banks' CSR activities and financial performance and find a positive association between banks' financial performance and CSR scores. Rezaee (2018) suggests that firms integrate financial and CSR sustainability initiatives into their supply chain management.

Other studies (e.g., Lau, Fan, Young, & Wu, 2007; Young, Peng, Ahlstrom, Brwithuton, & Jiang, 2008) examine corporate governance issues, including CSR, as related to financial performance in emerging economies, including China, and conclude that there is a link between financial performance and corporate governance effectiveness. Lau et al. (2016) find that CSR scores are associated with board composition and ownership in China. Cho and Chun (2016) find a negative association between CSR activities and management manipulation in South Korean firms. Utilizing international data, Chollet and Sandwidi (2018) find that firms with good CSR performance with regard to social and governance activities exhibit lower financial, systematic, firm-specific, and total risk. McGuinness et al. (2017) find that executive gender diversity in China is associated with CSR performance. Wang et al. (2016) report that mandatory CSR disclosures under a quasi-natural experiment in China, which was implemented in 2008, constrain the earnings management of affected firms. Our study contributes to this line of research by examining the association between CSR performance disclosure and earnings quality in China.

2.4. Hypothesis development

CSR performance and CSR disclosure are interrelated (Jain et al., 2016; Ng & Rezaee, 2015). CSR performance reflects the activities of firms that go beyond their obligations under contract and/or regulatory compliance, as well as their initiatives to minimize the negative impact and maximize the positive impact of their operation on society and the environment. CSR disclosures reflect incentives to differentiate the firm from others. The integrated effects of both performance and disclosure contribute to shared value for all stakeholders. We focus here on CSR disclosure.

Recent empirical evidence suggests that firms with good ratings on material (immaterial) sustainability CSR issues significantly outperform (do not outperform) firms with poor ratings on sustainability issues (Khan et al., 2016). The 2017 survey conducted by Ernst and Young (EY) (2017) suggests that global investors and executives are increasingly considering how nonfinancial CSR activities may affect investors' perceptions of earnings quality. In China, CSR activities have grown significantly in the past decade, as Chinese firms have faced greater pressure to engage in CSR programs (McGuinness et al., 2017).

Chinese firms are typically required to focus on earnings quality and quantity, because firms reporting four consecutive losses may be delisted from the stock exchange (Cheng, Aerts, & Jorissen, 2010). Chinese capital markets and thus listing standards are evolving towards more vigilant corporate governance, effective audit practices, and CSR disclosure (e.g., Firth, Rui, & Wu, 2012; Hung, Shi, & Wang, 2013; Kuo, Ning, & Song, 2014). Accordingly, we expect that Chinese managers who are in compliance with China's corporate governance measures and CSR policies and observe the best practices of the CSR programs will be less likely to manage earnings:

Hypothesis 1. There is a positive association between CSR disclosure and earnings quality for Chinese firms with high CSR scores.

The above general hypothesis is operationalized into the following testable hypotheses:

Hypothesis 1a. Chinese firms with higher (lower) CSR scores are less (more) likely to engage in accrual earnings management.

Hypothesis 1b. Chinese firms with higher (lower) CSR scores are less (more) likely to engage in real earnings management.

Hypothesis 1c. Chinese firms with higher (lower) CSR scores are more likely to have better (worse) earnings persistence.

Hypothesis 1d. Chinese firms with higher (lower) CSR scores are more likely to have better (worse) ability of earnings to predict future cash flows.

In recent years the Chinese government has encouraged SOEs to engage in CSR programs (Marquis & Qian, 2014), and SOEs were among the first group of firms that published CSR reports (e.g., Marquis, Yin, & Yang, 2017). Chen, Chen, Lobo, and Wang (2011) report that state-owned enterprises (SOEs) are less likely to engage in earnings manipulation than other Chinese firms. We posit that SOEs have more resources to engage in CSR activities and more incentives to disclose their CSR performance than non-SOEs, so that.

Hypothesis 2. State ownership moderates the relationship between CSR disclosure and earnings quality.

Bushman, Chen, Engel, and Smith (2004) argue that firms with poor earnings quality need stricter monitoring mechanisms and thus more effective internal and external governance measures. Liu and Lu (2007) find that independent/outside directors can curtail earnings management by Chinese listed companies, and Firth, Fung, and Rui (2007) report that active supervisory boards and ownership by foreign shareholders can improve earnings quality. The effectiveness of CSR initiatives can also be influenced by regional institutional differences, including legal infrastructures and market development policies. Several studies use marketization as a proxy for regional market development (e.g., Du, Wang, Zeng, & Pei, 2017; Fan et al., 2011; Firth, Chen, Liu, & Wong, 2009; Li, Yue, & Zhao, 2009; Sun, Hu, & Hillman, 2016). Specifically, Marquis and Qian (2014) and Luo, Wang, and Zhang (2017) report that regional differences such as marketization affect the CSR initiatives of Chinese firms. We posit that the association between earnings quality and CSR is stronger for Chinese firms with a higher marketization index as a proxy for greater market development and for the institutional settings in China:

Hypothesis 3. Marketization moderates the relationship between CSR disclosure and earnings quality.

3. Research design

3.1. CSR disclosure measure

Following previous researchers (e.g., Du et al., 2017; Luo et al., 2017; Marquis & Qian, 2014), we construct our CSR disclosure measure from Rankins (RKS), the leading independent CSR-rating entity in China, which has provided annual CSR ratings since 2009.[2] The RKS CSR ratings are adapted to China from the guidelines and best practices used by international CSR rating agencies such as the Global Reporting Initiative (GRI) and the Sustainability Accounting Standards Board (SASB). In accord with G3.1 of the GRI, RKS uses about 70 CSR performance indicators disclosed by Chinese listed companies, classified into three groups: social responsibility innovation and strategies (14 items), technical sufficiency (11 items), and disclosure content (45 items).[3] The composite CSR performance disclosure score uses an anchored scale of 0 to 4, with an interval of 0.5 point; the final score is a weighted average of the scores for the three categories (Macrocosm, Content, and Technique) as explained below. RKS's CSR ratings thus encapsulate an entity's orientation, strategy, and ability to meet environmental concerns, as well as its focus on philanthropic and charitable works.

RKS determines CSR ratings in three main areas of CSR reporting: “Macrocosm, Content, and Technique.”[4] The first category, macrocosm, addresses overall corporate strategy, corporate governance, and CSR performance information disclosures. The second category, content, presents the information content of CSR performance disclosure. The third category, technique, describes the depth, consistency, and coverage of CSR reporting. RKS scores measure the firm's CSR disclosure on a scale of 0 to 100 points, with a higher score suggesting better CSR performance and disclosure. We construct two measures of CSR disclosure. The first measure, CSRR, is the natural logarithm of RKS's CSR ranking score plus 1. The second measure, CSRD, indicates whether or not a firm discloses its CSR information.

3.2. Marketization

The marketization index compiled by China's National Economic Research Institute is intended to capture the extent of market development across different Chinese provinces and has been used in previous studies (e.g., Du et al., 2017; Fan et al., 2011; Firth et al., 2009; Li, Griffin, Yue, & Zhao, 2011; Sun et al., 2016; Wang et al., 2008). The marketization index has five components: relationship between government and markets, development of nonstate sectors in the economy, development of product markets, development of factor markets, and development of market intermediaries and legal environments. The base values, specified as 0 and 10, are the minimum and maximum values, respectively, of each component in the year 1999. The total index is the mean of the scores of all components, normalized by the corresponding base year values. In our study, MARKETI = 1 when the firm is located in a

[2] Previous research (Dhaliwal et al., 2011; Jain et al., 2016; Kim et al., 2012; Ng & Rezaee, 2015) often used the KLD database to construct CSR performance, and GRI and Bloomberg databases to construct CSR disclosure.

[3] For these 70 items and three classifications, see http://www.rksratings.com.

[4] See http://www.rksratings.com/index.php/Index/Report/detail/id/73 for specific details on these CSR categories and their components.

province whose marketization index is above the national median.

3.3. Earnings quality measures

The concept of earnings quality is quite vague, and its metrics are not well determined. Several studies (e.g., Dechow, Ge, & Schrand, 2010; Dechow & Schrand, 2004; Dichev et al., 2013; Francis, Olsson, & Schipper, 2008; Hutton, Marcus, & Tehranian, 2009; Schipper & Vincent, 2003) provide a theoretical foundation for the definition of earnings quality in terms of firm performance, valuation, and economic income, and thus suggest several measures of earnings quality explained in the following subsections.

3.3.1. Accrual-based earnings management (AEM)

Accounting literature (e.g., Dechow & Schrand, 2004; Dechow, Sloan, & Sweeney, 1995) suggests that earnings management impairs earnings quality. Earnings management is typically classified as accrual-based earnings management (AEM) and real activities management (RAM). Following Kothari, Li, and Short (2009), we estimate the following cross-sectional regression within each year and industry:

$$TAC_{i,t} = \beta_0 * [1/TA_{i,t-1}] + \beta_2 * [(\Delta REV - \Delta TR)/TA_{i,t-1}] + \beta_3 * [PPE_{i,t}/TA_{i,t-1}] + \beta_4 * ROA_{i,t-1} + \varepsilon_{i,t}. \quad (1)$$

In Eq. (1), $TAC_{i,\,t}$ stands for total accruals, defined as the difference between operating income and net cash flow from operating activities; $TA_{i,\,t\text{-}1}$ is beginning-of-the-year total assets; ΔTR is change in sales; $PPE_{i,\,t}$ is gross property, plant, and equipment; ΔREV is the change in trade receivables; and $ROA_{i,t\text{-}1}$ is the return on assets.

The absolute value of the residuals from Eq. (1) is the proxy for AEM. We use the absolute value because earnings management can involve either income-increasing accruals or income-decreasing accruals to meet or beat earnings targets. A higher value means a greater level of earnings management or lower earnings quality. To test the relationship between CSR scores and earnings quality, we employ AEM as the dependent variable in the following equation:

$$AEM_{i,t} = \alpha_0 + \alpha_1 * CSRD_{i,t}/CSRR_{i,t} + \alpha_2 * STATE_{i,t} + \alpha_3 * SIZE_{i,t} + \alpha_4 * LEV_{i,t} + \alpha_5 * MB_{i,t} + \alpha_6 * AGE_{i,t} + \alpha_7 * ADJ\_ROA_{i,t} + \alpha_8 * OPIONION_{i,t} + \alpha_9 * LOSS_{i,t} + \alpha_{10} * MARKETI_{i,t} + Industryeffect + Yeareffect + \varepsilon_{i,t}. \quad (2)$$

In Eq. (2), *CSRR* is the natural logarithm of the corporate social responsibility score; *CSRD* equals 1 if the corporate social responsibility score exists, and 0 otherwise. Following researchers such as Jiang, Petroni, and Wang (2010), we also control variables that may explain earnings quality, including whether the firm is a state-owned enterprise (*STATE,* an indicator equal to 1 if the firm is state-controlled and 0 otherwise), firm size (*SIZE,* the natural logarithm of total assets), leverage (*LEV,* total debt divided by total assets), market-to-equity ratio (*MB,* market firm value/book value of equity), firm age (*AGE,* number of years since a firm went public), loss occurrence (*LOSS,* an indicator equal to 1 if the firm incurs loss and 0 otherwise), and the audit opinion (*OPINION,* an indicator equal to 1 if the firm receives a standardized opinion in its financial statement and 0 otherwise). We also include industrial dummies (fixed effects) and year dummies (year fixed effects) in the regression.

3.3.2. Real activities management (RAM)

Following Roychowdhury (2006), we use three measures to proxy for RAM—abnormal cash flows, abnormal discretionary expenditures, and abnormal production costs. However, motivations for managing earnings upward or downward are not known beforehand, so we use absolute values of these proxies. RAM is captured by the suboptimality of three constructs: cash flow, expenses, and production costs. In order to calculate abnormal cash flows, we run a cross-sectional regression (3a) for every industry and year to obtain the normal level of cash flows from operations. Abnormal cash flows from operations ($AB\_CFO_{i,\,t}$) are defined as the absolute values of residuals from the following regression:

$$\frac{CFON_{i,t}}{TA_{i,t-1}} = \beta_0 * \left[\frac{1}{TA_{i,t-1}}\right] + \beta_2 * \left[\frac{Sales_{i,t}}{TA_{i,t-1}}\right] + \beta_3 * \left[\frac{\Delta TR_{i,t}}{TA_{i,t-1}}\right] + \varepsilon_{i,t}. \quad (3a)$$

In Eq. (3a), $CFON_{i,\,t}$ is cash flow from operations.

For abnormal expenses, we run cross-sectional regression (3b) for every industry and year to obtain the normal discretionary expenses. The abnormal discretionary expenses ($AB\_EXP_{i,\,t}$) are the absolute values of residuals from this regression:

$$DISCEXP_{i,t}/TA_{i,t-1} = \beta_0 * [1/TA_{i,t-1}] + \beta_2 * [Sales_{i,t-1}/TA_{i,t-1}] + \varepsilon_{i,t}. \quad (3b)$$

In Eq. (3b), $DISCEXP_{i,\,t}$ is the sum of R&D, advertising, selling, general, and administrative expenses. Given that SG&A is available, advertising and R&D expenses are set to zero if they are not available. Other variables are defined as above.

For abnormal production cost, we run cross-sectional regression (3c) for every industry and year to obtain the normal production cost. The abnormal production costs ($AB\_PROD_{i,\,t}$) are the absolute values of residuals from this regression:

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Table 1
Descriptive statistics.

Panel A: Distribution of firm observations by year and industry

Year	2009	2010	2011	2012	2013	2014	2015	Total
A	28	30	40	41	44	45	44	272
B	51	54	59	61	64	65	67	421
C0	66	71	81	90	93	93	92	586
C1	52	54	63	67	71	76	86	469
C2	6	7	8	11	12	16	37	97
C3	29	34	37	41	45	64	114	364
C4	160	170	212	246	255	260	266	1569
C5	74	80	118	136	147	147	146	848
C6	132	141	171	189	199	198	197	1227
C7	232	272	363	432	468	465	463	2695
C8	99	110	129	139	141	140	140	898
C9	15	17	22	25	24	25	25	153
D	68	71	72	75	73	74	76	509
E	32	37	41	49	53	54	55	321
F	59	61	66	75	79	76	80	496
G	85	111	155	180	198	199	196	1124
H	103	107	115	121	125	125	126	822
J	120	122	124	126	128	129	128	877
K	51	57	67	74	80	80	79	488
L	18	20	27	35	35	40	40	215
M	48	48	48	49	51	51	55	350
N	0	0	0	0	0	0	4	4
R	0	0	0	0	0	0	2	2
TOTAL	1528	1674	2018	2262	2385	2422	2518	14,807

Panel B: Full sample

Variables	N	Mean	SD	Min	P50	Max
ABS_KDA	14,807	0.070	0.085	0.001	0.046	0.844
Positive_DA	7141	0.074	0.094	0.000	0.047	0.934
Negative_DA	7666	−0.068	0.079	−0.768	−0.045	0.000
AB_CFO	14,807	0.007	0.097	−0.384	0.009	0.512
AB_EXP	14,807	0.005	0.096	−0.732	0.003	0.382
AB_PROD	13,737	−0.007	0.179	−2.201	−0.004	1.454
RAM	13,737	−0.021	0.276	−2.769	−0.127	−0.022
CFO	14,807	0.048	0.099	−0.371	0.046	0.484
FROA	14,807	0.036	0.068	−0.511	0.035	0.257
MARKETI	14,807	9.067	2.076	0.380	7.560	9.020
CSRR	14,807	0.866	1.539	0	0	4.488
CSRD	14,807	0.242	0.428	0	0	1
ROA	14,807	0.040	0.071	−0.496	0.040	0.267
SIZE	14,807	21.910	1.284	18.660	21.760	26.000
LEV	14,807	0.460	0.234	0.035	0.455	1.040

(*continued on next page*)

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Table 1 (*continued*)

Panel B: Full sample

Variables	N	Mean	SD	Min	P50	Max
MB	14,807	4.178	4.923	−19.970	2.985	58.150
AGE	14,807	10.730	6.233	1	11	26
STATE	14,807	0.460	0.498	0	0	1
ADJ_ROA	14,807	0.000	0.067	−0.465	0.000	0.204
OPINION	14,807	0.043	0.202	0	0	1
LOSS	14,807	0.167	0.373	0	0	1

Panel C: Descriptive statistics for CSR versus non-CSR firms

Variables	CSR reported firms (CSRD = 1)			Non-CSR-reported firms (CSRD = 0)			Difference tests: *p*-value	
	N	Mean	p50	N	Mean	p50	*t*-test	Wilcoxon test
ABS_KDA	3585	0.060	0.041	11,222	0.074	0.048	< 0.001	< 0.001
Positive_DA	1697	0.064	0.041	5444	0.077	0.049	< 0.001	< 0.001
Negative_DA	1888	−0.057	−0.041	5778	−0.071	−0.047	< 0.001	< 0.001
AB_CFO	3585	0.017	0.017	11,222	0.004	0.006	< 0.001	< 0.001
AB_EXP	3585	0.009	0.005	11,222	0.003	0.002	< 0.001	< 0.001
AB_PROD	3497	−0.015	−0.009	10,240	−0.004	−0.003	0.002	< 0.001
RAM	3497	−0.042	−0.038	10,240	−0.013	−0.015	< 0.001	< 0.001
CFO	3585	0.058	0.056	11,222	0.045	0.042	< 0.001	< 0.001
FROA	3585	0.047	0.040	11,222	0.033	0.034	< 0.001	< 0.001
MARKETI	3585	9.089	9.020	11,222	9.060	9.020	0.465	0.876
ROA	3585	0.053	0.045	11,222	0.036	0.038	< 0.001	< 0.001
SIZE	3585	22.930	22.810	11,222	21.590	21.520	< 0.001	< 0.001
LEV	3585	0.502	0.515	11,222	0.447	0.432	< 0.001	< 0.001
MB	3585	3.098	2.375	11,222	4.523	3.220	< 0.001	< 0.001
AGE	3585	12.210	13	11,222	10.260	10	< 0.001	< 0.001
STATE	3585	0.657	1	11,222	0.397	0	< 0.001	< 0.001
ADJ_ROA	3585	0.013	0.006	11,222	−0.004	−0.002	< 0.001	< 0.001
OPINION	3585	0.011	0	11,222	0.053	0	< 0.001	< 0.001
LOSS	3585	0.122	0	11,222	0.181	0	< 0.001	< 0.001

Panel D: Correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ABS_KDA	1	0.053***	−0.046***	0.016**	−0.063***	−0.070***	−0.057***	−0.035***
RAM	0.037***	1	−0.632***	−0.472***	−0.070***	−0.075***	0.054***	−0.073***
CFO	−0.112***	−0.526***	1	0.396***	0.071***	0.075***	0.028***	0.045***
FROA	−0.024***	−0.346***	0.357***	1	0.071***	0.071***	−0.126***	0.148***
CSRD	−0.068***	−0.045***	0.058***	0.087***	1	0.987***	0.224***	0.001
CSRR	−0.073***	−0.047***	0.060***	0.087***	0.995***	1	0.231***	0.004
ROA	−0.064***	0.032***	0.035***	−0.102***	0.224***	0.229***	1	−0.209***
STATE	−0.031***	−0.054***	0.028***	0.130***	0.006	0.008	−0.192***	1

Table 1 (*continued*)

Panel D: Correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MARKE-TI	−0.101***	−0.036***	0.064***	0.106***	0.446***	0.465***	0.362***	−0.012
SIZE	0.109***	0.181***	−0.149***	−0.424***	0.101***	0.103***	0.287***	−0.144***
LEV	−0.059***	−0.217***	0.232***	0.613***	0.108***	0.107***	−0.108***	0.135***
ADJ_ROA	0.101***	−0.009	0.009	−0.020**	−0.124***	−0.126***	−0.120***	−0.045***
MB	0.050***	0.060***	−0.033***	−0.179***	0.135***	0.135***	0.412***	−0.170***
AGE	0.090***	0.100***	−0.096***	−0.352***	−0.088***	−0.088***	−0.003	−0.081***
OPINION	0.035***	0.188***	−0.181***	−0.649***	−0.068***	−0.067***	0.085***	−0.116***
LOSS	1	0.053***	−0.046***	0.016**	−0.063***	−0.070***	−0.057***	−0.035***

Panel D: Correlation matrix

	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
ABS_KDA	−0.082***	0.074***	0.003	0.109***	0.034***	0.067***	0.043***	1
RAM	−0.056***	0.248***	−0.348***	−0.050***	0.095***	0.143***	0.290***	0.037***
CFO	0.074***	−0.147***	0.277***	0.068***	−0.039***	−0.115***	−0.218***	−0.112***
FROA	0.047***	−0.401***	0.701***	0.123***	−0.219***	−0.239***	−0.646***	−0.024***
CSRD	0.410***	0.125***	0.094***	−0.196***	0.139***	−0.088***	−0.068***	−0.068***
CSRR	0.427***	0.128***	0.093***	−0.204***	0.140***	−0.088***	−0.066***	−0.073***
ROA	0.358***	0.312***	−0.138***	−0.210***	0.413***	−0.003	0.085***	−0.064***
STATE	−0.025***	−0.142***	0.138***	−0.012	−0.172***	−0.084***	−0.117***	−0.031***
MARKE-TI	1	0.441***	0.070***	−0.442***	0.278***	−0.161***	−0.117***	−0.101***
SIZE	0.357***	1	−0.377***	−0.122***	0.399***	0.171***	0.235***	0.109***
LEV	0.129***	−0.414***	1	0.063***	−0.263***	−0.227***	−0.436***	−0.059***
ADJ_ROA	−0.310***	−0.005	−0.046***	1	−0.080***	0.041***	0.024***	0.101***
MB	0.233***	0.380***	−0.220***	0.045***	1	0.115***	0.164***	0.050***
AGE	−0.177***	0.253***	−0.323***	0.137***	0.116***	1	0.306***	0.090***
OPINION	−0.119***	0.266***	−0.415***	0.115***	0.160***	0.306***	1	0.035***
LOSS	−0.082***	0.074***	0.003	0.109***	0.034***	0.067***	0.043***	1

Notes: *, **, and *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively, based on two-tailed tests.
The upper triangular matrix presents the Spearman correlation coefficients, while the lower triangular matrix presents the Pearson correlation coefficients.

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Table 2
Multiple regression of accrual-based earnings management on CSR.

Variables	(1)	(2)	(3)	(4)
	ABS_KDA		*Positive_DA*	
CSRD	−0.004*		−0.007**	
	(−1.92)		(−2.41)	
CSRR		−0.001**		−0.002**
		(−2.00)		(−2.53)
SIZE	−0.006***	−0.006***	−0.004**	−0.003**
	(−6.15)	(−6.08)	(−2.04)	(−1.98)
LEV	0.038***	0.038***	0.054***	0.054***
	(6.12)	(6.11)	(5.07)	(5.06)
ADJ_ROA	0.010	0.010	0.028	0.028
	(0.46)	(0.46)	(0.79)	(0.79)
MB	0.001***	0.001***	0.001	0.001
	(4.40)	(4.40)	(1.38)	(1.38)
STATE	−0.011***	−0.011***	−0.018***	−0.018***
	(−5.38)	(−5.38)	(−5.79)	(−5.78)
AGE	0.000	0.000	−0.000	−0.000
	(0.34)	(0.34)	(−0.17)	(−0.17)
OPINION	0.013**	0.013**	0.013	0.013
	(2.55)	(2.55)	(1.41)	(1.42)
LOSS	−0.001	−0.001	−0.004	−0.004
	(−0.59)	(−0.59)	(−1.20)	(−1.20)
MARKETI	−0.001***	−0.001***	−0.002***	−0.002***
	(−3.11)	(−3.10)	(−3.60)	(−3.60)
Constant	0.202***	0.201***	0.158***	0.157***
	(9.45)	(9.34)	(4.48)	(4.40)
Industry FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	14,807	14,807	7140	7140
Adj. R^2	0.1133	0.1133	0.1183	0.1184

Notes: *, **, and *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively, based on two-tailed tests. All test statistics and significance levels are calculated with the standard errors adjusted by a one-dimensional cluster at the firm level.

$$PRODC_{i,t}/TA_{i,t-1} = \beta_0 * [1/TA_{i,t-1}] + \beta_2 * [Sales_{i,t}/TA_{i,t-1}] + \beta_3 * [\Delta TR_{i,t}/TA_{i,t-1}] + \beta_4 * [\Delta TR_{i,t-1}/TA_{i,t-1}] + \varepsilon_{i,t}. \quad (3c)$$

In Eq. (3c), $PRODC_{i,t}$ is the sum of cost of goods sold and change in inventory, and other variables are defined as above. Like Kim et al. (2012), we define RAM as follows:

$$RAM_{i,t} = ABCFO_{i,t} - AB\_PROD_{i,t} + AB\_EXP_{i,t}. \quad (3d)$$

We apply regression (4) to examine the effect of CSRD/CSRR on the constructed RAM:

$$RAM_{i,t} = \alpha_0 + \alpha_1 * CSRD_{i,t}/CSRR_{i,t} + \alpha_2 * STATE_{i,t} + \alpha_3 * SIZE_{i,t} + \alpha_4 * LEV_{i,t} + \alpha_5 * MB_{i,t} + \alpha_6 * AGE_{i,t} + \alpha_7 * ADJ\_ROA_{i,t} + +\alpha_8 * OPIONION_{i,t} + \alpha_9 * LOSS_{i,t} + \alpha_{10} * MARKETI_{i,t} + Industryeffect + Yeareffect + \varepsilon_{i,t}. \quad (4)$$

3.3.3. Earnings persistence (EP)

Previous studies (e.g., Francis et al., 2008; Schipper & Vincent, 2003) consider earnings from the perspective of decision usefulness and suggest earnings persistence as a proxy for earnings quality. Persistent earnings can also be viewed as high-quality earnings to the extent that current period earnings innovation becomes a permanent part of the earnings time series. Thus, we follow Krishnan and Parsons (2008) and measure earnings persistence as the slope coefficient (α_3) in the following model:

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Table 3
Multiple regression of real activities management on CSR.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	RAM		*AB_CFO*		*AB_PROD*		*AB_EXP*	
CSRD	−0.012*		0.005*		−0.012***		−0.003	
	(−1.65)		(1.92)		(−3.21)		(−0.91)	
CSRR		−0.004*		0.002**		−0.004***		−0.001
		(−1.95)		(2.05)		(−3.67)		(−0.87)
SIZE	−0.012***	−0.012***	0.005***	0.005***	0.003	0.004*	0.012***	0.012***
	(−3.32)	(−3.17)	(3.86)	(3.77)	(1.57)	(1.72)	(8.74)	(8.65)
LEV	0.192***	0.191***	−0.055***	−0.055***	0.101***	0.101***	−0.037***	−0.037***
	(9.29)	(9.27)	(−7.93)	(−7.92)	(8.05)	(8.03)	(−5.37)	(−5.36)
ADJ_ROA	−0.390***	−0.390***	0.158***	0.158***	−0.234***	−0.233***	0.014	0.014
	(−5.65)	(−5.65)	(6.92)	(6.92)	(−5.57)	(−5.57)	(0.62)	(0.61)
MB	−0.002***	−0.002***	0.001**	0.001**	−0.001***	−0.001***	0.001*	0.001*
	(−3.00)	(−2.99)	(2.16)	(2.15)	(−3.09)	(−3.08)	(1.92)	(1.92)
STATE	0.005	0.005	0.001	0.001	0.001	0.001	−0.006*	−0.006*
	(0.63)	(0.66)	(0.33)	(0.32)	(0.25)	(0.29)	(−1.79)	(−1.78)
AGE	0.001	0.001	0.001**	0.001**	−0.000	−0.000	−0.001***	−0.001***
	(0.98)	(0.99)	(2.36)	(2.36)	(−0.65)	(−0.65)	(−3.27)	(−3.28)
OPINION	−0.011	−0.011	0.017***	0.017***	0.004	0.004	−0.000	−0.000
	(−0.69)	(−0.68)	(3.11)	(3.10)	(0.41)	(0.42)	(−0.03)	(−0.03)
LOSS	0.073***	0.073***	−0.020***	−0.020***	0.045***	0.045***	−0.005*	−0.005*
	(9.72)	(9.73)	(−7.75)	(−7.76)	(8.80)	(8.81)	(−1.89)	(−1.89)
MARKETI	−0.003**	−0.003**	0.001	0.001	−0.002***	−0.002***	−0.000	−0.000
	(−2.29)	(−2.28)	(1.23)	(1.22)	(−3.09)	(−3.07)	(−0.44)	(−0.44)
Constant	0.095	0.086	−0.069**	−0.067**	−0.146***	−0.154***	−0.204***	−0.204***
	(1.21)	(1.08)	(−2.44)	(−2.35)	(−3.29)	(−3.42)	(−7.07)	(−7.00)
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	13,737	13,737	14,807	14,807	13,737	13,737	14,807	14,807
Adj. R^2	0.0927	0.0928	0.0598	0.0598	0.0694	0.0696	0.0816	0.0816

Notes: *, **, and *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively, based on two-tailed tests. All test statistics and significance levels are calculated with the standard errors adjusted by a one-dimensional cluster at the firm level.

$$ROA_{i,t} = \alpha_0 + \delta_1 * ROA_{i,t-1} + \delta_2 * CSRD_{i,t}/CSRR_{i,t} + \delta_3 * CSRD_{i,t}/CSRR_{i,t} * ROA_{i,t-1} + \alpha_2 * STATE_{i,t} + \alpha_3 * SIZE_{i,t} + \alpha_4 * LEV_{i,t} + \alpha_5 * MB_{i,t} + \alpha_6 * AGE_{i,t} + \alpha_7 * ADJ\_ROA_{i,t} + +\alpha_8 * OPIONION_{i,t} + \alpha_9 * LOSS_{i,t} + \alpha_{10} * MARKETI_{i,t} + yeareffect + Industryeffect + \varepsilon_{i,t}. \quad (5)$$

In Eq. (5), $ROA_{i,\ t}$is operating earnings divided by total assets for firm *i* in fiscal year *t*, and $ROA_{i,\ t-1}$ is operating earnings divided by total assets for firm *i* in fiscal year *t*-1. We also control for variables that may explain variations in earnings quality, as stated above. In Eq. (5), the coefficient (α_1) measures earnings persistence of firms before the CSR score is considered. Taking into account the CSR score, coefficients for interaction terms between earnings and CSR measure the moderating effect of the CSR report on earnings persistence.

3.3.4. Earnings' ability to predict future cash flows (ECF)

Dichev et al. (2013) argue that earnings quality is the best predictor of future long-run earnings when it is supported by actual cash flows. Following Dechow, Kothari, and Watts (1998), we consider earnings to be of higher quality if there is a higher association between current earnings and future cash flows. As in the preceding subsection, we can therefore examine the moderating effect of the CSR report on such a relationship using the following regression:

$$CFO_{i,t} = \alpha_0 + \delta_1 * ROA_{i,t-1} + \delta_2 * CSRD_{i,t}/CSRR_{i,t} + \delta_3 * CSRD_{i,t}/CSRR_{i,t} * ROA_{i,t-1} + \alpha_2 * STATE_{i,t} + \alpha_3 * SIZE_{i,t} + \alpha_4 * LEV_{i,t} + \alpha_5 * MB_{i,t} + \alpha_6 * AGE_{i,t} + \alpha_7 * ADJ\_ROA_{i,t} + +\alpha_8 * OPIONION_{i,t} + \alpha_9 * LOSS_{i,t} + \alpha_{10} * MARKETI_{i,t} + yeareffect + Industryeffect + \varepsilon_{i,t}. \quad (6)$$

Table 4
CSR, state ownership, and accrual-based earnings management.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	ABS_KDA				*Positive_DA*			
	STATE = 1	STATE = 0	STATE = 1	STATE = 0	STATE = 1	STATE = 0	STATE = 1	STATE = 0
CSRD	−0.004*	−0.004			−0.009**	−0.005		
	(−1.90)	(−1.12)			(−2.51)	(−1.13)		
CSRR			−0.001**	−0.001			−0.003***	−0.002
			(−1.97)	(−1.22)			(−2.59)	(−1.24)
SIZE	−0.004***	−0.008***	−0.004***	−0.008***	−0.003	−0.004	−0.002	−0.004
	(−3.13)	(−5.09)	(−3.07)	(−5.06)	(−1.02)	(−1.47)	(−0.96)	(−1.45)
LEV	0.024**	0.052***	0.024**	0.052***	0.033*	0.071***	0.033*	0.071***
	(2.50)	(6.12)	(2.48)	(6.12)	(1.81)	(5.39)	(1.80)	(5.39)
ADJ_ROA	−0.058*	0.071***	−0.058*	0.071***	−0.080	0.107***	−0.080	0.107***
	(−1.65)	(2.96)	(−1.65)	(2.96)	(−1.37)	(2.64)	(−1.37)	(2.64)
MB	0.001**	0.001***	0.001**	0.001***	0.000	0.001	0.000	0.001
	(2.46)	(3.29)	(2.46)	(3.29)	(0.27)	(1.64)	(0.28)	(1.64)
AGE	0.000	0.000	0.000	0.000	0.000	−0.000	0.000	−0.000
	(0.12)	(0.10)	(0.11)	(0.10)	(0.16)	(−0.65)	(0.16)	(−0.65)
OPINION	0.011	0.013*	0.011	0.013*	0.004	0.019*	0.004	0.019*
	(1.61)	(1.79)	(1.61)	(1.80)	(0.31)	(1.70)	(0.32)	(1.70)
LOSS	−0.004	0.001	−0.004	0.001	−0.005	−0.005	−0.005	−0.005
	(−1.40)	(0.28)	(−1.39)	(0.28)	(−1.25)	(−0.82)	(−1.24)	(−0.82)
MARKETI	−0.001	−0.002***	−0.001	−0.002***	−0.002*	−0.003***	−0.002*	−0.003***
	(−1.49)	(−3.24)	(−1.48)	(−3.24)	(−1.90)	(−2.99)	(−1.90)	(−2.99)
Constant	0.164***	0.234***	0.163***	0.233***	0.135***	0.152***	0.133***	0.150***
	(5.65)	(6.74)	(5.56)	(6.71)	(2.75)	(2.70)	(2.67)	(2.67)
Difference	0.07 (p = 0.7906)		0.05 (p = 0.8238)		0.45 (p = 0.5014)		0.41 (p = 0.5226)	
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	6810	7997	6810	7997	3281	3859	3281	3859
Adj. R^2	0.1146	0.1115	0.1146	0.1115	0.1099	0.1246	0.1100	0.1247

Notes: *, **, and *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively, based on two-tailed tests. All test statistics and significance levels are calculated with the standard errors adjusted by a one-dimensional cluster at the firm level.

In Eq. (6), $CFO_{i,t}$ is cash flow from operations divided by total assets for firm i in fiscal year t. We also control variables that may explain variations in earnings quality, as we note above.

3.4. Data collection

We obtain financial data and market data from China Securities Market and Accounting Research (CSMAR), an authorized database in China. We begin with 2009 because the CSR ranking data from Rankins (RKS) cover all listed companies since 2009. The sample is restricted to firms that have nonmissing values for earnings quality measures, CSR, and other key variables. Financial firms are excluded from the sample. To mitigate the effect of outliers, all the continuous variables (except the CSR variables) are winsorized at their first and ninety-ninth percentiles. Our final sample consists of 2,580 firms with 14,807 firm-year observations.

4. Empirical results

4.1. Descriptive statistics

Panel A of Table 1 presents the sample distribution by year. The observations increase year by year, in tandem with the number of firms making CSR reports. Panel B of Table 1 reports descriptive statistics of the full sample. The mean values of the absolute value of discretionary accruals (*ABS_KDA*) and real activities management (*RAM*) are 0.070 and −0.021, respectively, suggesting that, on average, firms do not engage in serious earnings management. The mean value of the indicator variable (*CSRD*) shows that there are 24.2% firm-year observations reporting CSR in our full sample.

Panel C of Table 1 compares descriptive statistics of variables between CSR and non-CSR firms. Both CSR and non-CSR samples exhibit accruals-based earnings management (e.g., mean *ABS_KDA* = 0.060 for the CSR sample and 0.074 for the non-CSR sample). *ABS_KDA*, *Positive_DA* is larger for non-CSR firms than for CSR firms, whereas *Negative_DA* is smaller for non-CSR firms than for CSR firms. The mean and median differences in the above three variables between the two groups are all statistically significant

Table 5
CSR, state ownership and real activities management.

Variables	(1)	(2)	(3)	(4)
	RAM			
	STATE = 1	STATE = 0	STATE = 1	STATE = 0
CSRD	0.005	−0.036***		
	(0.61)	(−3.01)		
CSRR			0.001	−0.010***
			(0.29)	(−3.12)
SIZE	−0.013***	−0.009	−0.012***	−0.009
	(−3.16)	(−1.41)	(−3.00)	(−1.37)
LEV	0.194***	0.194***	0.194***	0.194***
	(7.41)	(6.52)	(7.38)	(6.52)
ADJ_ROA	−0.319***	−0.418***	−0.318***	−0.418***
	(−2.92)	(−4.70)	(−2.91)	(−4.70)
MB	−0.003**	−0.002*	−0.003**	−0.002*
	(−2.51)	(−1.76)	(−2.51)	(−1.76)
AGE	0.000	0.001	0.000	0.001
	(0.36)	(0.58)	(0.35)	(0.58)
OPINION	0.013	−0.027	0.013	−0.026
	(0.86)	(−1.01)	(0.86)	(−1.01)
LOSS	0.079***	0.070***	0.079***	0.070***
	(9.81)	(5.55)	(9.81)	(5.56)
MARKETI	0.000	−0.008***	0.000	−0.008***
	(0.00)	(−3.30)	(0.02)	(−3.30)
Constant	0.132	0.015	0.123	0.010
	(1.53)	(0.11)	(1.39)	(0.07)
Difference	14.09 (p = 0.0002) ***		13.44 (p = 0.0002) ***	
Industry FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	6683	7054	6683	7054
Adj. R^2	0.1144	0.0906	0.1143	0.0907

Notes: *, **, and *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively, based on two-tailed tests. All test statistics and significance levels are calculated with the standard errors adjusted by a one-dimensional cluster at the firm level.

($p < 0.001$), indicating that CSR firms are less likely to use discretionary accruals to manage earnings than their non-CSR counterparts. Following Hutton et al. (2009), we show the distribution of the observations by year and industry.

For *RAM*, we find higher mean and median values of *AB_CFO* and *AB_EXP* for CSR firms than for non-CSR firms. In contrast, the mean and median of *AB_PROD* and *RAM* for CSR firms are lower than those for non-CSR firms (for example, mean *RAM* is −0.042 for CSR firms and −0.013 for non-CSR firms). All the mean and median differences in *AB_CFO*, *AB_EXP*, *AB_PROD*, and *RAM* between the two groups are statistically significant ($p < 0.001$, except $p = 0.002$ for the mean difference for *AB_PROD*). In sum, the above results suggest that CSR firms are less likely to engage in real activities manipulation than non-CSR firms. Furthermore, the mean and median differences in other key variables between the two groups are all statistically significant, suggesting that there are significant differences between CSR firms and non-CSR firms.

Panel D of Table 1 reports the correlation matrix of our key variables. The upper triangular matrix presents the Spearman correlation coefficients, while the lower triangular matrix presents the Pearson correlation coefficients. Both CSR measures (*CSRD* and *CSRR*) are significantly and negatively correlated with *ABS_KDA* (−0.068 and −0.073, respectively) and with *RAM* (−0.045 and −0.047, respectively). This evidence indicates that CSR firms are less likely to manage earnings than non-CSR firms. None of the correlations for any simultaneously included variables exceeds 0.632 (except the correlation between *CSRD* and *CSRR*), indicating that multicollinearity is unlikely to be an issue in the regression analyses.

4.2. Multivariate analysis

Table 2 presents the results of a multivariate analysis of the association between CSR performance and discretionary accruals. We report the results using the absolute value of discretionary accruals (*ABS_KDA*) and positive discretionary accruals (*Positive_DA*). For *ABS_KDA*, the coefficients on *CSRD/CSRR* are significantly negative (in column 1, −0.004, $t = -1.92$, and in column 2, −0.001, $t = -2.00$), indicating that CSR firms are less likely to manipulate discretionary accruals than non-CSR firms. We observe similar

Table 6
CSR, state ownership, and earnings predictability/earnings persistence.

Variables	(1)	(2)	(3)	(4)	(5)	(6)
	CFO			*FROA*		
	Full sample	STATE = 1	STATE = 0	Full sample	STATE = 1	STATE = 0
CSRD	−0.006*	−0.007**	−0.003	−0.010***	−0.012***	−0.007**
	(−1.92)	(−2.07)	(−0.58)	(−7.21)	(−6.97)	(−2.53)
ROA	−0.044	0.017	−0.041	0.173**	0.261***	0.131
	(−0.42)	(0.12)	(−0.26)	(2.31)	(3.22)	(1.12)
CSRD_ROA	0.143***	0.113**	0.169***	0.184***	0.179***	0.174***
	(3.66)	(2.10)	(2.66)	(8.25)	(6.19)	(4.56)
SIZE	0.005***	0.006***	0.004*	0.006***	0.007***	0.007***
	(4.47)	(3.79)	(1.92)	(8.85)	(7.75)	(5.78)
LEV	−0.032***	−0.033***	−0.030***	−0.057***	−0.068***	−0.052***
	(−5.04)	(−3.43)	(−3.52)	(−12.53)	(−11.81)	(−8.02)
ADJ_ROA	0.252**	0.163	0.277*	0.118*	0.021	0.161
	(2.48)	(1.20)	(1.78)	(1.73)	(0.30)	(1.47)
MB1	0.001***	0.001*	0.001**	0.001***	0.001***	0.001***
	(2.85)	(1.79)	(1.98)	(7.18)	(4.58)	(5.67)
STATE	0.004			−0.003**		
	(1.48)			(−2.47)		
AGE	0.001***	0.001**	0.001***	0.000***	0.000	0.000
	(3.55)	(2.07)	(3.61)	(2.72)	(0.79)	(1.46)
OPINION	0.001	0.001	0.001	−0.024***	−0.044***	−0.007*
	(0.29)	(0.14)	(0.13)	(−7.21)	(−7.56)	(−1.72)
LOSS	−0.029***	−0.032***	−0.025***	−0.077***	−0.068***	−0.085***
	(−11.23)	(−8.77)	(−7.01)	(−37.70)	(−27.62)	(−27.97)
MARKETI	0.001**	0.001	0.002***	0.001***	0.001*	0.001***
	(2.21)	(0.68)	(2.71)	(3.22)	(1.68)	(2.64)
Constant	−0.045*	−0.054	−0.017	−0.089***	−0.094***	−0.094***
	(−1.71)	(−1.54)	(−0.42)	(−5.88)	(−5.18)	(−3.86)
Difference		0.62 (p = 0.4362)			0.02 (p = 0.9012)	
Industry FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Observations	14,807	6810	7997	14,807	6810	7997
Adj. R^2	0.1360	0.1653	0.1226	0.6262	0.6661	0.5925

Notes: *, **, and *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively, based on two-tailed tests. All test statistics and significance levels are calculated with the standard errors adjusted by a one-dimensional cluster at the firm level.

results from the regressions of positive discretionary accruals. For *Positive_DA*, the coefficients on *CSRD/CSRR* are both significantly negative, which suggests that CSR firms engage less in income-increasing earnings management through accruals.[5] These results are consistent with those of Scholtens and Kang (2013), who find a negative association between earnings management and firms with good CSR in Asian countries.

Table 3 reports the results pertaining to the association between CSR performance and real activities management. For the regressions of *RAM,* the estimated coefficients for *CSRD/CSRR* are negative and significant (e.g., in column 1, −0.012, t = −1.65, and in column 2, −0,004, t = −1.95). Coefficients for *AB_CFO* are positive and significant (in column 3, 0,oo5, t = 1.92 and in column 4, 0.002, t = 2.05) Also, CSR measures are negatively and significantly associated with the abnormal production variable, *AB_PROD* (e.g., in column 5, −0.012, t = −3.21, and in column 6, −0,004, t = −3.67). Nevertheless, there is no significant correlation between CSR measures and abnormal discretionary expenses even the relationship is negative. These findings imply that CSR firms engage in accrual earnings management less than real earnings management (operating activities).

Chen et al. (2011) suggest that the different characteristics of state-owned enterprises (SOEs) and non-state-owned enterprises (NSOEs) lead to differences in the effects of audit quality on accrual-based earnings management. They find that hiring high-quality auditors is more beneficial for NSOEs than for SOEs. Table 4 presents the mediation effect of state ownership in the association between CSR measures and accrual-based earnings management. For *ABS_KDA* and *Positive_DA*, the estimated coefficients on CSRD/CSRR are all significantly negative in the state-owned sample (in column 1, −0.004, t = −1.90 and in column 3, −0,001, t = −1.97). But for non-state-owned firms, there are no significant results. Table 5 presents the moderating effect of state ownership in the association between the CSR measures and real activities management. The coefficients on CSRD/CSRR are significantly

[5] We find similar results from the regressions of negative discretionary accruals, but the delisting rules constitute a strong incentive for listed Chinese companies to manage earnings upward rather than decreasing earnings.

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Table 7
CSR, marketization index, and accrual-based earnings management.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	ABS_KDA				*Positive DA*			
	Market = 1	Market = 0	Market = 1	Market = 0	Market = 1	Market = 0	Market = 1	Market = 0
CSRD	−0.003	−0.005*			−0.005	−0.009**		
	(−1.01)	(−1.84)			(−1.11)	(−2.33)		
CSRR			−0.001	−0.001*			−0.001	−0.003**
			(−1.09)	(−1.90)			(−1.19)	(−2.42)
SIZE	−0.007***	−0.005***	−0.007***	−0.005***	−0.004*	−0.002	−0.004*	−0.002
	(−4.70)	(−3.53)	(−4.64)	(−3.50)	(−1.73)	(−0.79)	(−1.68)	(−0.76)
LEV	0.047***	0.029***	0.047***	0.029***	0.052***	0.050***	0.052***	0.050***
	(5.14)	(3.33)	(5.13)	(3.33)	(4.18)	(3.19)	(4.17)	(3.18)
ADJ_ROA	0.088***	−0.060*	0.088***	−0.060*	0.120***	−0.059	0.120***	−0.059
	(3.35)	(−1.91)	(3.36)	(−1.91)	(2.67)	(−1.13)	(2.68)	(−1.13)
MB	0.002***	0.001***	0.002***	0.001***	0.002***	0.000	0.002***	0.000
	(3.57)	(2.97)	(3.57)	(2.98)	(3.25)	(0.30)	(3.25)	(0.30)
STATE	−0.008***	−0.012***	−0.008***	−0.012***	−0.015***	−0.018***	−0.015***	−0.018***
	(−2.89)	(−4.42)	(−2.89)	(−4.41)	(−3.18)	(−4.39)	(−3.18)	(−4.38)
AGE	0.000	0.000	0.000	0.000	0.000	−0.000	0.000	−0.000
	(0.54)	(0.43)	(0.53)	(0.43)	(0.34)	(−0.06)	(0.34)	(−0.06)
OPINION	0.016*	0.010	0.016*	0.010*	0.004	0.016	0.004	0.016
	(1.84)	(1.64)	(1.84)	(1.65)	(0.33)	(1.37)	(0.33)	(1.38)
LOSS	0.000	−0.002	0.000	−0.002	−0.002	−0.006	−0.002	−0.006
	(0.11)	(−0.73)	(0.11)	(−0.73)	(−0.52)	(−1.13)	(−0.51)	(−1.13)
Constant	0.195***	0.176***	0.194***	0.175***	0.131***	0.115**	0.130***	0.113**
	(6.08)	(6.00)	(6.00)	(5.95)	(2.89)	(2.27)	(2.83)	(2.23)
Difference	3.89 (p = 0.0487) **		3.6 (p = 0.0578) *		4.72 (p = 0.0297) **		4.51 (p = 0.0338) **	
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
N	7267	7540	7267	7540	3434	3706	3434	3706
Adj. R^2	0.0984	0.1311	0.0984	0.1311	0.1064	0.1324	0.1064	0.1324

Notes: *, **, and *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively, based on two-tailed tests. All test statistics and significance levels are calculated with the standard errors adjusted by a one-dimensional cluster at the firm level.

negative only for non-state-owned firms,[6] indicating that good CSR performance can help non-state-owned firms to avoid real activities management. The results presented in Tables 4 and 5 show that the relation between CSR disclosures and accruals-based earnings management is more pronounced in SOEs than in non-SOEs, whereas the relation between CSR scores and real earnings management is more pronounced in non-SOEs than in SOEs.

There are two possible explanations for the results above. One explanation is that because of the penalty for delisting rules, listed SOEs have more incentives to engage in accruals-based earnings management. Another explanation is that management thoroughly assesses the means by which earnings can be managed in terms of their benefits and related costs. The choice of accruals-based earnings management increases the likelihood of supervisory oversight by the government and associated risks and costs. The choice of real activities earnings management may be costly to the company, but the benefit is to eliminate the supervisory and monitoring risks. Their government affiliation puts Chinese SOEs at less risk of government inspection, so they are likely to use accruals-based earnings management. Non-SOEs are likely to use real activities earnings management to mitigate monitoring and supervisory risks although they may incur more costs.

Table 6 presents results on the association between CSR performance and earnings quality measures. The evidence shows that firms with better CSR performance can predict future cash flow more accurately (in column 1, 0.143, t = 3.66), and their earnings are more persistent (in column 4, 0.184, t = 8.25). This positive association between CSR performance and earnings quality measures exists in both the state-owned sample and the non-state-owned sample.

Table 7 presents results on the moderating effect of the marketization index on the association between CSR measures and accrual-based earnings management. For *ABS_KDA* and *Positive_DA*, the estimated coefficients on CSRD/CSRR are both significantly negative in firms located in less developed regions (in column 2, −0.005, t = −1.84; in column 4, −0,001, t = −1.90; in column 6, −0.009, t = −2.33; and in column 8, −0.003, t = −2.42). But for firms in more developed regions, there are no significant results. These results suggest that CSR performance helps control accruals-based earnings management in firms without good external corporate governance.

[6] Owing to space limitations, we don't tabulate the results for the components of *RAM*. The results are almost the same as for *RAM* as a whole.

Table 8
CSR, marketization index, and real activities earnings management.

	(1)	(2)	(3)	(4)
	RAM			
	Market = 1	Market =0	Market =1	Market =0
CSRD	−0.009	−0.016*		
	(−0.84)	(−1.66)		
CSRR			−0.003	−0.005*
			(−1.09)	(−1.83)
SIZE	−0.016***	−0.010*	−0.015***	−0.010*
	(−3.13)	(−1.85)	(−2.98)	(−1.78)
LEV	0.218***	0.179***	0.218***	0.178***
	(7.79)	(6.00)	(7.79)	(5.99)
ADJ_ROA	−0.527***	−0.263***	−0.526***	−0.263***
	(−5.91)	(−2.65)	(−5.90)	(−2.65)
MB	−0.005***	−0.001	−0.005***	−0.001
	(−3.15)	(−1.45)	(−3.15)	(−1.44)
STATE	0.019	−0.004	0.019	−0.004
	(1.55)	(−0.37)	(1.57)	(−0.36)
AGE	0.000	0.000	0.000	0.000
	(0.29)	(0.47)	(0.29)	(0.47)
OPINION	−0.033	0.002	−0.033	0.002
	(−1.13)	(0.09)	(−1.13)	(0.10)
LOSS	0.057***	0.085***	0.057***	0.086***
	(5.09)	(8.51)	(5.10)	(8.51)
Constant	0.177	0.002	0.165	−0.005
	(1.62)	(0.02)	(1.50)	(−0.04)
Difference	3.59 (p = 0.0583) *		3.14 (p = 0.0765) *	
Industry FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
N	6628	7109	6628	7109
Adj. R2	0.0988	0.0870	0.0989	0.0871

Notes: *, **, and *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively, based on two-tailed tests. All test statistics and significance levels are calculated with the standard errors adjusted by a one-dimensional cluster at the firm level.

Table 8 reports the moderating effect of the marketization index on the association between the CSR measures and real activities management. The coefficients on CSRD/CSRR are significantly positive only in firms located in less developed regions (−0.16, t = −1.66 and − 0.005, t = −1.83 for models 2 and 4 respectively). These results suggest that CSR performance helps control real activities management in firms without good external corporate governance. Results presented in Tables 7 and 8 indicate that an effective external corporate governance mechanism does decrease the opportunistic behavior of listed companies. However, if such an external corporate governance mechanism doesn't work, CSR disclosure may become a signal to indicate that the listed companies are “good” firms that engage in less earnings management.

Table 9 reports the moderating effect of the marketization index on the association between the CSR measures and other earnings quality measures. The coefficients on the interaction variables are all positively significant, suggesting that better CSR performance can reflect higher earnings quality in firms located both in less developed regions and in more developed regions.

All of the results above suggest that the relationship between earnings quality and CSR score is stronger for firms in provinces whose provincial marketization index is above the national median.

5. Endogeneity

Our analysis so far suggests a positive relationship between earnings quality and CSR disclosure in the Chinese context. However, while we explicitly control various financial variables and SOEs and marketization in our main model, it is still possible that some unobservable variables may simultaneously affect both CSR disclosure and earnings quality. We attempt to alleviate this potential endogeneity problem by employing instrumental variables in a 2SLS regression (see, e.g., Ghoul et al., 2011, Kim, Li, & Li, 2014). We use the average CSRD of other firms in the same industry and year as IV_1, and the average CSRD of other firms in the same district and year as IV_2. We report the first-stage results in column 1 of Table 10. The coefficients of IV_1 and IV_2 are significantly positive, suggesting that the instrumental variables are correlated with our independent variable. Columns 2 to 6 of Table 10 present the main relation between CSR disclosure and different measures of earnings quality, and the coefficients are all significant and the sign is

Table 9
CSR, marketization index, and earnings predictability/earnings persistence.

	(1)	(2)	(3)	(4)
	CFO		FROA	
	Market = 1	Market = 0	Market = 1	Market = 0
CSRD	−0.009**	−0.002	−0.009***	−0.010***
	(−2.10)	(−0.51)	(−3.88)	(−5.64)
ROA	0.002	−0.086	0.301***	0.060
	(0.02)	(−0.54)	(3.74)	(0.51)
CSRD_ROA	0.143***	0.113*	0.158***	0.187***
	(2.92)	(1.93)	(4.92)	(6.38)
SIZE	0.009***	0.003**	0.006***	0.007***
	(5.16)	(1.98)	(5.68)	(7.24)
LEV	−0.041***	−0.029***	−0.054***	−0.062***
	(−4.52)	(−3.29)	(−8.07)	(−10.09)
ADJ_ROA	0.272**	0.236	0.048	0.180*
	(2.08)	(1.54)	(0.64)	(1.69)
MB1	0.003***	0.000	0.002***	0.001***
	(5.27)	(0.27)	(5.87)	(4.55)
STATE	0.003	0.004	−0.001	−0.004***
	(0.75)	(1.18)	(−0.69)	(−3.02)
AGE	0.001***	0.001**	0.000**	0.000**
	(2.77)	(2.48)	(1.98)	(2.09)
OPINION	−0.004	0.003	−0.022***	−0.025***
	(−0.47)	(0.45)	(−3.59)	(−6.42)
LOSS	−0.018***	−0.037***	−0.075***	−0.078***
	(−4.71)	(−10.79)	(−25.85)	(−27.95)
Constant	−0.102***	0.000	−0.080***	−0.101***
	(−2.77)	(0.00)	(−3.61)	(−4.71)
Difference	1.01 (p = 0.3137)		4.3 (p = 0.0381) **	
Industry FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
N	7267	7540	7267	7540
Adj. R^2	0.1509	0.1309	0.6270	0.6207

Notes: *, **, and *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively, based on two-tailed tests. All test statistics and significance levels are calculated with the standard errors adjusted by a one-dimensional cluster at the firm level.

consistent with our expectation. The above evidence suggests that the positive relation between CSR and earnings quality holds after we control for endogeneity.

6. Conclusions

Corporate social responsibility requires business organizations to take initiatives to advance some social good beyond their own interests. The long-term sustainability of a business organization should be measured by its economic sustainability as reported in financial earnings and by its governance, social responsibility, ethical behavior, and environmental initiatives. CSR has recently received considerable attention from policymakers, regulators, the business community, and the investment community, and it is expected to remain the main theme for decades to come.

CSR programs, initiatives, and performance have also recently received considerable attention in China. We find that Chinese firms with high CSR scores and better earnings quality as measured by the persistence of earnings, as well as by earnings' ability to predict future operating cash flows, are less likely to manage their earnings, as reflected in AEM and RAM. Our results suggest that good CSR performance can mitigate real earnings management by non-state-owned firms with one exception, that non-state-owned CSR firms are more likely to engage in real earnings management than state-owned firms. We also find that the association between earnings quality and CSR scores is stronger for firms in provinces whose marketization index is above the national median.

Our study has implications for policymakers, regulators, and corporations. The development of CSR scores is the key to the success of future reforms aiming to improve market efficiency, investor protection, and social activities in emerging markets and economies such as China. Our results suggest that investors view effective CSR performance as adding value and improving earnings quality, and thus contribute to streams of research on earnings quality, managerial decision-making, and CSR sustainability. Management should develop and maintain proper CSR programs that provide a common framework for integrating CSR initiatives and activities into

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Table 10
Robustness check.

	First stage	Second stage				
	(1)	(2)	(3)	(4)	(5)	(6)
	CSRD	*ABS_KDA*	*Positive_DA*	*RAM*	*CFO*	*FROA*
CSRD		−0.003*	−0.007**	−0.015**	−0.004	−0.010***
		(−1.72)	(−2.47)	(2.05)	(−1.35)	(−7.39)
ROA					−0.049	0.175**
					(−0.47)	(2.33)
CSRD_ROA					0.135***	0.186***
					(3.47)	(8.36)
IV_1	3.151***					
	(13.50)					
IV_2	2.884***					
	(6.75)					
SIZE	0.584***	−0.006***	−0.005*	−0.021***	0.009***	0.005***
	(18.01)	(−3.42)	(−1.92)	(−3.85)	(4.45)	(6.10)
LEV	−0.737***	0.037***	0.056***	0.204***	−0.037***	−0.055***
	(−4.10)	(5.71)	(5.12)	(9.48)	(−5.48)	(−12.57)
ADJ_ROA	1.708***	0.013	0.024	−0.426***	0.271***	0.111
	(4.15)	(0.62)	(0.66)	(−6.07)	(2.65)	(1.62)
MB1	0.009	0.001***	0.000	−0.002***	0.001***	0.001***
	(1.61)	(4.45)	(1.33)	(−3.19)	(3.01)	(7.17)
STATE	0.214***	−0.010***	−0.018***	0.000	0.006**	−0.003***
	(3.04)	(−4.90)	(−5.68)	(0.03)	(1.99)	(−2.80)
AGE	0.015***	0.000	−0.000	0.000	0.001***	0.000**
	(2.74)	(0.47)	(−0.28)	(0.61)	(3.88)	(2.44)
OPINION	−0.356***	0.012**	0.014	−0.003	−0.001	−0.023***
	(−3.09)	(2.40)	(1.53)	(−0.19)	(−0.24)	(−7.00)
LOSS	0.004	−0.001	−0.004	0.073***	−0.029***	−0.077***
	(0.07)	(−0.58)	(−1.21)	(9.68)	(−11.20)	(−37.71)
MARKETI	0.029*	−0.001***	−0.002***	−0.004***	0.001**	0.001***
	(1.83)	(−3.02)	(−3.76)	(−2.58)	(2.49)	(2.98)
IMR Ratio		0.002	−0.003	−0.022*	0.008**	−0.003
		(0.66)	(−0.63)	(−1.95)	(2.15)	(−1.52)
Constant	−14.886***	0.180***	0.189***	0.329**	−0.128***	−0.063***
	(−20.06)	(4.81)	(3.36)	(2.51)	(−2.73)	(−3.02)
Industry FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
N	14,801	14,807	7140	13,737	14,807	14,807
Pseudo R^2	0.2749					
Adj. R^2		0.1133	0.1183	0.0931	0.1364	0.6263

Notes: *, **, and *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively, based on two-tailed tests. All test statistics and significance levels are calculated with the standard errors adjusted by a one-dimensional cluster at the firm level.

earnings quality.

Our results should be interpreted with caution because of potential limitations. First, this paper investigates only the potential association between CSR scores and the quality of earnings and does not establish any causal relationship between the two. Earnings quality can affect CSR activities as well as be affected by them, a possibility that we address in Section 5. Second, many factors that may influence management's decisions to focus on CSR performance—public image, moral obligation, maintaining a good reputation, ensuring sustainability, government requirements—are not directly addressed in this study. Future research examining the link between CSR and earnings quality should address the pressure of the labor movement, development of moral values and social standards, and changes in public opinion about the role of business.

Declaration of Competing Interest

None.

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Appendix A. Variables and their definitions

Variable	Definition
Dependent variables	
ABS_KDA	Absolute value of performance matched discretionary accruals, where discretionary accruals are computed as by Kothari et al. (2009)
AB_CFO	Level of abnormal cash flows from operation
AB_PROD	Level of abnormal production costs, where production costs are defined as the sum of cost of goods sold and the change in inventories
AB_EXP	Level of abnormal discretionary expenses, where discretionary expenses are defined as the sum of R&D expenses, advertising expenses, and SG&A expenses
RAM	Sum of real activities manipulation proxies, measured as *-AB_CFO + AB_PROD-AB_EXP*
CFO	Cash flows from operations
FROA	Income before extraordinary items, scaled by total assets
Independent Variables	
CSRR	Natural logarithm of the corporate social responsibility ranking score plus 1
CSRD	An indicator equal to 1 if the corporate social responsibility score exists (i.e., if firms disclose their CSR report) and 0 otherwise (if firms do not disclose their CSR report)
STATE	An indicator equal to 1 if the listed company is a state-owned firm, and 0 otherwise
MARKETI	The marketization index compiled by the National Economic Research Institute (Fan et al., 2011), a comprehensive index that captures many aspects of regional market development
Control variables	
SIZE	Natural logarithm of the firm's total assets
LEV	Total debt divided by total assets
ADJ_ROA	Industry mean-adjusted ROA in the previous year, where ROA is measured as income before extraordinary items, scaled by lagged total assets
MB	Market-to-equity ratio, measured as the market value divided by the book value of equity
AGE	The number of years since a firm went public
OPINION	An indicator equal to 1 if the firm receives a standardized opinion in a financial statement and 0 otherwise
LOSS	An indicator equal to 1 if the firm incurs a loss and 0 otherwise

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