

Auditor selection and corporate social responsibility

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Abstract

This study examines the association between the selection of an industry-specialist auditor and corporate social responsibility (CSR). We find that firms with higher CSR ratings are more likely to hire industry-specialist auditors (national-level industry leaders, city-level industry leaders or joint city-national industry leaders). Moreover, firms with better CSR performance related to product quality and the environment in controversial industries are found to select non-specialized auditors. The results suggest that such firms may overinvest in CSR activities associated with the environment and product issues to disguise the sin nature of their manufactured goods, and simultaneously engage low quality auditors perhaps to avoid full disclosure of potential environmental and legal liabilities. Overall, we conclude that CSR is associated with the non-controversial firms ensuring high quality financial reporting in response to societal expectations, and thus CSR firms in such industries have strong incentives to engage industry-specialist auditors.

KEYWORDS

controversial industries, corporate social responsibility, industry-specialized auditors

1 | INTRODUCTION

Corporate social responsibility¹ (CSR) and CSR reporting has been a more and more important topic to managers, investors, regulators and scholars (Porter & Kramer, 2006; Snider, Hill, & Martin, 2003). CSR reporting has recently increased due to the growing public concerns over social and environmental issues, and investors' integration of such concerns into investment decisions. Recognizing the importance of CSR disclosure, many firms issue some types of CSR reports. CSR reporting is even mandatory in many countries, among which European countries such as France, Denmark, Sweden, the Netherlands and Norway are the first countries requiring CSR reporting (Tschopp & Nastanski, 2014).

¹ The goal of CSR is to hold companies responsible for their activities and to encourage a positive influence on communities, employees, environment, products and others.

In addition, to address the public's concerns and/or to meet the reporting requirements in some countries, CSR disclosures have been found to bring some benefits such as the lower cost of equity capital (Dhaliwal, Li, Tsang, & Yang, 2011; Casey & Grenier, 2015), lower analyst forecast errors (Dhaliwal, Radhakrishnan, Tsang, & Yang, 2012), lower global supply chain risk (Cruz, 2013), lower firms' credit risk (Stellner, Klein, & Zwergel, 2015), less tax avoidance (Lanis & Richardson, 2015), and less illegal insider trading (Cui, Jo, & Li, 2015). Those potential benefits of CSR reporting result from the enhancement of firms' internal and external reputation. Firms' internal reputation will affect employee pride and motivation; and attract or retain talented employees. Meanwhile, firms' external reputation may help firms strengthen the relationships with stakeholders and customers (Birkey, Michelon, Patten, & Sankara, 2016). Casey and Grenier (2015), for example, examined US CSR reports for the period 1993–2010 and found that firms with CSR assurance had lower cost of equity capital, lower analyst forecast errors and forecast dispersion. They further showed a greater decrease in the cost of equity capital and forecast dispersion in firms having CSR assured by accounting firms.

There has been an increasing number of firms voluntarily seeking assurance for its CSR reports to address the public's concerns regarding the completeness and credibility of information disclosed in the reports (Birkey et al., 2016; Michelon, Pilonato, & Ricceri, 2015). Among the assurance providers, accounting firms obtain the majority of market share for CSR assurance because their assurance competencies enable accounting firms to undertake assurance engagements in such reporting domains as CSR reporting (Cohen & Simnett, 2015). However, firms can also choose other ways including internal controls over CSR data and information and corporate governance mechanisms (including audit committee, board of directors, external auditor, internal auditor and management) to complement or substitute for the assurance of CSR reports (Cohen & Simnett, 2015). As such, for most of CSR firms including those seeking or not seeking external assurance, accounting firms play an important role in enhancing the reliability and the credibility of information disclosures. In addition, prior research shows that there is an increase in the demand for improving the credibility of CSR reports when a firm has strong CSR performance (Casey & Grenier, 2015). Meanwhile, firms can enhance the credibility of their voluntary disclosures of private information when they are committed to providing independent and high quality financial reports (Ball, Jayaraman, & Shivakumar, 2012; Chen, Srinidhi, Tsang, & Yu, 2016). Using audit fees as a proxy for independent assurance of financial information, Chen et al. (2016) show that firms can signal their commitment to providing reliable CSR information through their expenditure in auditing (i.e., commitment to high quality financial reporting). Based on the stakeholder theory and ethical theory, we provide five reasons in the Hypothesis Development section for the relationship between CSR performance and the selection of industry-specialized auditors. We predict that firms having high CSR performance are more likely to hire high quality auditors (herein, industry-specialized auditors) to ensure their commitment to stakeholders for higher financial reporting quality and thus enhance the perceived usefulness and the credibility of their CSR reports and therefore enhance the perceived usefulness and the credibility of their CSR reports. Accordingly, the purpose of this study is to examine the association between CSR ratings and the likelihood of firms hiring industry-specialized auditors.

Firms with higher CSR performance have a stronger incentive to maintain high quality financial reporting because it indicates the firms' social responsibility to their stakeholders (Atkins, 2006; Hong & Andersen, 2011; Kim, Park, & Wier, 2012). Specifically, CSR firms are more likely to be social responsible and adhere to a high standard of behavior (i.e., being honest, trustworthy and ethical). Therefore, CSR firms have the incentive to maintain the credibility and transparency in financial reporting (Kim et al., 2012). Financial reporting quality is critically important to capital markets and has been the major concern of investors, regulators and legislators, especially after the Enron accounting scandal and the recent global financial crisis. Given the significant increase in ethical investment funds, CSR disclosure is considered to be the direct input to investment decisions of ethical investors. In fact, CSR disclosure is regarded as an 'educative process' that provides an explanation for the social and environmental complexities underlying the investment; and shows moral choices made by the firms (Murray & Gray, 2006). Meanwhile, investors may be skeptical of strong CSR performance and may attribute CSR disclosures to the presence of situational incentives (Brown-Liburd & Zamora, 2015). Accordingly, companies with higher CSR ratings are believed to have a stronger demand for formal CSR assurance (i.e., CSR disclosures audited by external auditors and other assurance providers) or increase the credibility of CSR reports through internal assurance (e.g., internal auditors), enhance other corporate governance

mechanisms and internal controls of CSR information in order to signal superior reporting quality. The credibility of financial statements has been empirically shown to be driven by auditor specialization (Jenkins, Kane, & Velury, 2006). The literature suggests that specialized auditors are capable of utilizing their industry-specific knowledge to provide differentiated and high quality services to their clients including, for example, the more effective monitoring of financial reporting processes, the more effective detection of errors within the auditors' expertise, higher quality audit reports, a higher level of assurance, and the greater compliance with auditing standards (Balsam, Krishnan, & Yang, 2003; Craswell, Francis, & Taylor, 1995; O'Keefe, King, & Gaver, 1994; Owosho, Messier, & Lynch, 2002; Solomon, Shields, & Whittington, 1999). It is also believed that with their competences, knowledge and legitimacy, auditors can enhance the perception of CSR report quality (Collison, 1996; De Beelde & Tuybens, 2015). As such, in order to guarantee high quality financial and social reporting, companies with better CSR ratings may engage specialized auditors. This argument is consistent with the finding of Simnett, Vanstraelen, and Chua (2009) that companies domiciled in stakeholder-orientated countries² demand high quality auditors to enhance the credibility of financial reports.

Most prior studies support the belief that CSR should promote firms' commitment to sustainable economic development through working with employees, their families, the local community and society which leads to improvement of their lives in a way that is good for business and development (Starks, 2009). It is also believed that firms' behavior is considered to be socially responsible when it meets stakeholders' expectations regarding appropriate and acceptable corporate behavior (Campbell, 2007). Hence, CSR firms' employment of industry-specialized auditors is perceived to be an appropriate corporate behavior in order to maintain, achieve or signal high quality auditing and financial reporting.

Large firms with better ability to invest in CSR activities are generally subject to significant litigation risks, leading them to select industry-specialized auditors. In addition, the media attention to social activism may drive stakeholders to raise public awareness of CSR due to the access to new information regarding social attributes (McWilliams & Siegel, 2001), and thus these firms may increase their demand for specialized auditors to provide enhanced disclosure quality (Dunn & Mayhew, 2004).

Based on the full sample of 13,635 firm-year observations with available CSR and financial data from 2002 to 2011 obtained from the KLD STAT and Compustat databases, we find that firms with superior CSR ratings are significantly associated with a higher likelihood of firms selecting industry-specialized auditors, being either national-level industry leaders or joint city-national industry leaders. These findings are consistent with our expectation that firms with high CSR ratings prefer to engage industry-specialized auditors in order to enhance financial and sustainability reporting quality, and thus provide more relevant and reliable accounting information to market participants.

Because different viewpoints and behaviors are found with regard to controversial industries (Byrne, 2010; Cai, Jo, & Pan, 2012; Kim & Venkatachalam, 2011; Palazzo & Richter, 2005), we separate our sample into firms in controversial industries (i.e., alcohol, tobacco, gambling, military and nuclear power) and non-controversial ones. We then further test the relationship between CSR performance and the selection of industry-specialized auditors in each subsample. As predicted, firms with superior CSR ratings in non-controversial industries are more likely to select industry-specialized auditors who are national-level industry leaders, city-level industry leaders, or joint city-national industry leaders. Similarly, firms with better CSR overall performance in controversial industries are more likely to select industry-specialized auditors. The results suggest that due to its nature of having high litigation risk, firms with high CSR ratings in controversial industries tend to select high quality auditors to enhance investors' confidence in financial and social reporting quality. However, examining the relationship between CSR dimensions and external auditor selection, we find some evidence that in controversial industries, firms with higher CSR ratings related to product quality are more likely to select non-specialized auditors. One possible explanation is that these firms may overinvest in CSR activities that are associated with environmental and product issues to disguise the sin nature of their manufactured goods. They therefore may engage non-specialized auditors to avoid the full disclosure of potential environmental and legal liabilities (Moser & Martin, 2012). Another possible explanation is that because of the nature of these firms being

² A stakeholder-oriented culture refers to the culture that firms are viewed as instruments to create stakeholder value (Simnett et al., 2009).

associated with high litigation risk, industry-specialized auditors with reputation concern may be more likely to avoid auditing those types of companies.

This paper makes a number of contributions to the literature on CSR and auditor selection. First, to the best of our knowledge, this is the first study examining the relationship between CSR strength and the selection of an industry-specialized auditor. Firms with stronger CSR performance are motivated to address and meet the stakeholders' expectations on remaining high quality financial reporting, and the assurance/enhancement in the credibility of CSR disclosures. Given the fact that industry-specialized auditors have been proved to provide high quality audit and that the commitment to provide high quality financial reporting may help CSR firms enhance the reliability of their CSR information, there is a likelihood that CSR strength is related to the appointment of an industry-specialized auditor. Prior CSR research provides abundant evidence on the costs and benefits of CSR activities. On the one hand, previous studies demonstrate that firms with better CSR ratings have higher earnings quality, greater earnings persistence, better financial performance, reduced cost of equity capital, lower audit fees, less litigation risk, lower propensity to receive a going concern audit opinion, lower CEO compensation,³ and less likelihood of analyst forecast errors (Cai et al., 2011; Chen et al., 2012; Dhaliwal, Li, Tsang, & Yang, 2011, 2012; Gregory, Whittaker, & Yan, 2016; Kim et al., 2012; Waddock & Graves, 1997). Gregory et al. (2016) show that high corporate social performance (CSP) is related to firms' competitive advantage and that firms with high CSP tend to have higher firm value than other firms. Specifically, Gregory et al. (2016) reveal that there is an association between high CSP and coefficient on earnings. The increase in earnings is predicted to result from the lower cost of equity capital and/or greater earnings persistence in firms with high CSP. On the other hand, CSR activities are found to be related to a greater level of insider trading (Cui et al., 2015), a potential conflict between different shareholders resulting from insiders' overinvestment in CSR for their private benefit (Barnea & Rubin, 2010) and higher cost of debt (Menz, 2010). Some prior studies suggested a negative relationship (e.g., McGuire, Sundgren, & Schneeweis, 1988; Ullmann, 1985; Vance, 1975) and no relationship (e.g., Alexander & Buchholz, 1978; Guerard, Stone, & Andrews, 1988) between CSR ratings and financial performance. The current study extends the literature by documenting that CSR performance serves as one of the important factors in the selection of industry-specialized auditors. Moreover, this study is one of a few papers (e.g., Chen et al., 2012) applying auditing theories to CSR research. The empirical findings provide a number of insights for future auditing researchers who are interested in the CSR field.

Second, this study provides empirical evidence for the prediction that higher CSR performance may drive the management to hire industry-specialized auditors and pursue high financial and sustainability reporting quality since auditors with industry expertise are more likely to detect irregularities and misrepresentations (Gul, Fung, & Jaggi, 2009). In addition, CSR firms may engage industry-specialized auditors for a higher level of assurance and a comprehensive evaluation of CSR reports in compliance with the social and environmental responsibility standards (see Dell's example in Appendix A). If a firm does not seek accounting firms for an independent assurance of CSR reports, CSR firms' selection of high quality auditors for the independent verification of financial statements can signal the firms' commitment to provide transparent and reliable CSR information (Chen et al., 2016).

Finally, our findings may be of interest to regulators and policymakers in countries both with and without mandatory CSR disclosure. Global regulators, such as the US Security and Exchange Commission (SEC), strive to provide useful guidance for CSR reporting, in light of stakeholders' concerns about human rights, climate change or environmental issues. For example, the SEC aims to include CSR information, based on SASB standards, in the current SEC filings, such as Form 10-K (for US-based companies) or Form 20-F (for foreign registrants) (Eccles, Krzus, & Ribot, 2014). Our findings may provide insights to the regulators that engaging an audit industry specialist can improve firms' CSR information quality and enhance the transparency of corporate reporting. When regulators set up future CSR reporting or assurance standards, it is important to consider audit industry expertise. Indeed, our paper implies that CSR firms are motivated to be social responsible to their stakeholders and to hire high quality auditors to signal their commitment to

³ The explanation is based on the conflict-resolution hypothesis including lower pay for CEOs of CSR firms to mitigate potential conflicts between management and stakeholders, moderate pay for a CEO with high ethical standards, and lower firm risk for firms actively undertaking CSR activities due to a smaller conflict of interest (Cai et al., 2011).

provide high financial reporting quality, which in turn increases the credibility of both financial and social reports. The results also provide information for regulators in those countries that are considering whether CSR disclosure should be mandatory for publicly traded firms,⁴ whether further development of definite CSR reporting standards is necessary, and whether some CSR investments are 'at the expense of shareholders'⁵ (Moser & Martin, 2012). To protect stakeholders' interests, it is important to eliminate unprofitable CSR investments and to uncover concealed negative aspects of environmental and product reporting.

The rest of this paper proceeds as follows. Section 2 discusses the related literature and develops our hypotheses. Section 3 describes the sample and reports the related descriptive information. Section 4 presents empirical results. In Section 5, we provide a number of robustness tests. Finally, Section 6 reports a summary of findings and presents the concluding remarks.

2 | LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 | The definition of corporate social responsibility

Even though corporate social responsibility has been an important issue among firms, investors and the public, there has been no standard definition of CSR. According to the Commission of the European Communities, CSR is 'a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis' (CEC, 2001). CSR also refers to 'a programme of actions to reduce externalized costs or to avoid distributional conflicts' (Heal, 2005). In the US, CSR is commonly defined as the 'actions that appear to further some social good, beyond the interests of the firms and that which is required by law' (McWilliams & Siegel, 2001). Similar definitions have been employed by other countries; for example, CSR refers to 'the ability of a company to be socially responsible to the growth and development of the environment in which it operates. It defines the voluntary services given by a company to the society' (Adeneye & Ahmed, 2015). According to the theory of the firm perspective, CSR is considered to be a form of strategic investment or a source of sustainable competitive advantage (McWilliams, Siegel, & Wright, 2006).

There are several CSR measures in the empirical research. For example, KLD Research & Analytics, Inc. rates companies in seven categories with (1) corporate governance, (2) community, (3) diversity, (4) employee relations, (5) environment, (6) product, and (7) human rights. CSR ratings are computed as total strengths minus total concerns. In addition, other available CSR ratings are from the triple bottom line reporting about economic, social and environmental performance and the balanced scorecard (Roberts, 2003), or reporting systems for environmental, social, and corporate governance (ESG) (Waddock, 2008), or pyramid of CSR by Carroll (1991). The CSR pyramid is a bottom-up measure including economic, legal, ethical, and philanthropic responsibilities.

2.2 | Prior research on auditor selection

Various studies have been conducted surrounding the topic of auditor selection and the consequences of hiring high quality/industry-specialized auditors (Abbott & Parker, 2000; Kim & Yi, 2009; Pittman & Fortin, 2004). Pittman and Fortin (2004) examine whether auditor selection affects younger firms' debt pricing, and find that a high quality auditor (Big 6) can reduce debt-monitoring costs and help newly public firms to lower their cost of debt capital. Strong corporate governance or legal regimes have also been found to impact the auditor selection. Firms with more independent and diligent audit committee members tend to employ an industry-specialized auditor (Abbott & Parker, 2000). Furthermore, firms with more audit committee financial experts are more likely to seek auditor ratification in order to enhance audit independence and achieve high financial reporting quality (Krishnan & Ye, 2005). Kim and Yi (2009) find

⁴ Lydenberg and Wood (2010) document that only 5% of North American firms publish CSR reports in contrast to 64% of European ones.

⁵ This means that the CSR investment costs are higher than the benefits to the firm (Moser and Martin, 2012).

that earnings quality is significantly higher for Korean firms with mandatory auditor changes than for firms with a free selection of auditors.

Even though firms' management is not authorized to select an external auditor after the passage of the Sarbanes-Oxley Act (SOX), it is documented that management provides significant input into the audit committee's final decision on auditor selection (Almer, Philbrick, & Rupley, 2014). Based on the survey of 80 public company audit committee members, Almer et al. (2014) showed that the auditor hiring process is influenced by management's preference.

Moreover, previous literature suggests that shareholders play an important role in auditor selection. Firms may reduce auditor independence violations by allowing investors, instead of managers, to select external auditors (Mayhew & Pike, 2004). Krishnan and Ye (2005) indicate that firms paying higher total audit fees are more likely to ask shareholders to vote on the auditor selection. Additionally, Dao, Mishra, and Raghunandan (2008) suggest that it is more likely for shareholders to vote against (or abstain from) auditor ratification if the auditor has a long tenure, which is viewed to be negatively related to audit quality. Hermanson, Krishnan, and Ye (2009) suggest that shareholders may vote against auditor ratification if they believe the auditors are too conservative in SOX Section 404 reporting, or irresponsible with regard to the issue of poor internal control quality.

Firms' ownership structure is also found to determine firms' selection of external auditors. Kang (2014) investigated a sample of firms listed on the S&P 1500 index and found that family firms tend to hire industry-specialist auditors. The result suggests family firms' incentive to signal the firms' disclosure quality.

2.3 | Prior research on financial reporting quality and auditor specialization

Financial reporting quality is perceived to be better if the financial statements are audited by an industry-specialist auditor. Prior studies indicate that compared to non-specialized auditors, industry specialized ones are associated with lower probability of earnings management (Balsam et al., 2003; Krishnan, 2003), lower incidence of financial fraud (Carcello & Nagy, 2004), and higher earnings response coefficients (Balsam et al., 2003). Examining the clients of the Big 6 auditors, Balsam et al. (2003) find that firms audited by industry-specialist auditors have higher earnings quality (as proxied by discretionary abnormal accruals) and higher earnings response coefficients. Similar results but in an international setting are found in Kwon, Lim, and Tan (2007). Kwon et al. (2007), conclude that auditor industry specialization is associated with lower discretionary current accruals and higher earnings response coefficients and that these relationships are dependent on legal environments. In another study, Carcello and Nagy (2004) investigate firms subject to the Securities and Exchange Commission's (SEC) Accounting and Auditing Enforcement Releases (AAERs) for the years 1990–2001, and find a negative association between financial reporting fraud and the presence of industry-specialist auditors.

2.4 | Hypothesis development

2.4.1 | The relationship between industry-specialist auditors and CSR

Various studies have examined the relationship between CSR performance and external auditors, in which having disclosure assurance from external auditors is considered to be one of the potential factors influencing CSR reporting credibility.⁶ Although CSR disclosures help firms to reduce information asymmetry about the effectiveness of firms in managing their social and environmental risks (Dhaliwal et al., 2011), the information asymmetry is further reduced if CSR disclosures are independently assured (Brown-Liburd, & Zamora, 2015). In fact, empirical evidence shows that investors perceive CSR disclosures to be more credible when the CSR information is assured by external auditors (Brown-Liburd & Zamora, 2015; Casey & Grenier, 2015; Pflugrath et al., 2011). Brown-Liburd and Zamora (2015), for example, examine the role of CSR assurance when a firm's managerial pay is tied to CSR performance. They find that investors' stock price assessments are higher in firms with higher CSR investment level, managerial pay being based on

⁶ Brown-Liburd and Zamora (2015) employ Mercer's (2004) framework of investors' assessments of the credibility of management disclosures in CSR context. According to Brown-Liburd and Zamora (2015), the credibility of CSR disclosures is both directly and indirectly influenced by such factors as external assurance, disclosure characteristics, situational incentives, management credibility and investing task expertise.

CSR performance, and independent assurance of CSR information. Despite the potential benefits from having independent CSR assurance, the majority of firms seeking CSR assurance are large firms (KPMG, 2015). In fact, KPMG's (2015) survey showed that about 63% of the G250 have independent CSR assurance and the level of independent assurance is also increasing among N100 companies. The 2015 KPMG report also noted that accounting firms still dominate the market for CSR assurance despite the fact that there is an increasing use of other assurance providers.

In addition to external assurance, corporate governance mechanisms⁷ and other internal assurance (e.g., the enhancement of internal controls over CSR data and information) can be a complement or substitute for independent assurance reports (Cohen & Simnett, 2015). Indeed, prior research shows CSR firms can enhance the credibility of their CSR disclosures when they signal their commitment to high quality financial reports (Chen et al., 2016). Examining standalone CSR reports that were voluntarily disclosed by US firms from 2000 to 2008, Chen et al. (2016) find that a commitment to the independent verification of financial information can help firms enhance the credibility of both financial reports and nonfinancial disclosures (e.g., CSR reports). However, in their study, Chen et al. (2016) only use audit fees as the proxy for independent verification of financial reporting. Briefly, regardless of whether firms seek independent assurance of CSR reports, accounting firms play an important role in ensuring the transparency and the credibility of financial and CSR reports. While prior studies investigate the role of external auditors in improving the credibility of CSR disclosures, no study has examined whether firms having strong CSR activities are more likely to select industry-specialist auditors to enhance the perceived usefulness and the credibility of the social information. Our study attempts to address this gap in the literature.

The success of a company with CSR strategies is likely to be influenced by the stakeholders (COSO, 2006). The stakeholder theory suggests that top management must develop diverse business strategies to satisfy the various demands of different stakeholders and resolve issues relating to moral values in order to achieve organization sustainability (Freeman, 1984). Unlike the agency theory, the stakeholder theory argues that organizations should be concerned with not only the interests of shareholders (i.e., the major stakeholders), but also their social and ethical duty to employees, unions, customers, suppliers, communities and others. Since there exists information asymmetry between the management and all stakeholders, these stakeholders generally have high concerns about the firm's reporting transparency (which is relevant to their interests). Such pressure may lead the management to engage industry-specialist auditors. In fact, Simnett et al. (2009) investigate a 31-country sample of 2,113 international companies and find that companies located in stakeholder-oriented countries prefer to select high quality auditors in order to establish their corporate reputation and to enhance the reliability of their financial reports.

According to the agency theory, sound corporate governance mechanisms, such as an effective audit committee, established by the shareholders may compel the management to hire a specialist auditor to alleviate information asymmetry (between shareholders and the management). Likewise, other stakeholders also have a strong demand for high quality reporting due to specific incentives such as concerns for product quality, union relations, communities, no-layoff policy, environmental protection and others. In particular, a number of diversified issues⁸ associated with social and financial disclosures are increasingly scrutinized by the communities, public media, employees, consumers, environmental protection groups and regulators. McWilliams and Siegel (2001) state that the greater media attention to social activism may heighten the public awareness of CSR, reduce information asymmetry and further affect the demand for CSR due to the access to new information regarding social attributes. In response to stakeholders' expectations, socially responsible firms may attempt to engage industry-specialist auditors to provide more credible financial and social reporting since industry-specialist auditors are believed to effectively improve client disclosure quality (Dunn & Mayhew, 2004).

From the perspective of the integrative theory, a firm has to integrate social demands into its business operation because its success depends on societal needs. Integrative theory is the combination of various theories (e.g., issues

⁷ According to Cohen et al. (2004), corporate governance mechanisms include five main stakeholders: audit committee, board of directors, external auditor, internal auditor and management.

⁸ For example, philanthropic donations, tax evasion, diversified managerial philosophy, women and minority contracting, anti-discrimination employment policies, financial provision of health, safety and layoffs, estimated product warranty liabilities, environmental protection plans, recycling expenditures and contingent liabilities for pollutions, hazardous waste and poisonous products.

management, principle of public responsibility and stakeholder management) discussing how firms can integrate social demands. For instance, issues management refers to processes of a firm identifying, evaluating and responding to social issues that may impact its operation (Garriga & Mele, 2004). Meanwhile, the principle of public responsibility is the public process that provides a guideline for a legitimate managerial responsibility. The guideline can be found within the framework of relevant public policy that consists of literal text of law and regulation, and social direction reflected in public opinion, emerging issues, formal legal requirements, and enforcement or implementation practices. Finally, stakeholder management is the approach of focusing on stakeholders or those who affect and are affected by corporate policies and practices (Garriga & Mele, 2004). In the context of the current study, integrative theory suggests firms' tendency to invest in CSR and hire high quality auditors to address the public's interest in CSR activities and financial and social disclosure quality. Specifically, stakeholders care about whether a firm provides green products for customers and plans environmental protection for their hazardous waste and poisonous products. In addition, stakeholders are concerned with the societal impressions on women and minority hiring or innovatively manufactured goods associated with ethics, such as R&D in genetic engineering. Besides, corporate charitable giving is usually used as an effective means for motivating employees' efforts to follow organizational endeavors (Balakrishnan et al., 2011). To ensure future success, firms investing in CSR (higher CSR ratings) are more likely to pursue advanced social and financial reporting than their counterparts and, in turn, select an auditor specialist.

CSR firms' engagement of industry-specialist auditors can also be explained by the ethical theory. According to this theory, CSR firms should select high quality auditors to attest their social and financial reporting because it is the morally right thing to do. Indeed, CSR firms should be accountable for corporate social performance and the improvement of appropriate measures and reporting techniques (Crowther, 2000). Briefly, from the ethical perspective, CSR firms should enhance the reliability of their social and financial disclosures through hiring an industry-specialized auditor.

Regarding business reputation, firms with better CSR ratings usually pursue a strategy of brand differentiation. Engaging specialist auditors in a specific industry may help firms separate themselves from competitors in the minds of accounting information users and market investors (Hay & Jeter, 2011). Recent research⁹ also explores the influences of CSR on firms' earnings quality (Kim et al., 2012), fund raising activities (Dhaliwal et al., 2011), and investor judgments (Brown-Liburd et al., 2012). Dhaliwal et al. (2012), for instance, examined CSR reports of 1,297 firms from 31 countries and concluded that firms engaging in more CSR related activities have lower analyst forecast errors. Additionally, CSR firms are more concerned about the compliance with governmental laws (e.g., labor health, safety, diversity, or environment related laws) in order to demonstrate to the public that they act as good citizens and thus, demand additional compliance audit services from industry-specialist auditors.

In addition, large firms are generally subject to high litigation risk (Kim & Skinner, 2012). Since large firms have a better ability to invest in CSR activities, such litigation exposure may lead them to select high-quality auditors.¹⁰ With their professional capability, industry-specialist auditors are expected to perform superior quality audits. However, there is a potential variation in the three levels of auditor industry specialization including national-level, city-level, and joint city-national industry leadership. A national-level industry audit leader has a national reputation and the transferability of national-specific expertise. A city-level industry audit leader has a local reputation and human capital in local accounting firms. A joint city-national industry audit leader has both national and local reputation and industry-specific knowledge. Due to a firm's differential demand for industry expertise, we investigate the impact of CSR on the selection of different types of industry audit leaders.

Lastly, CSR firms' decision of hiring industry-specialist auditors may result from the desire to increase not only the credibility of financial reporting but also the credibility of sustainability reports. Given the fact that sustainability

⁹ Dhaliwal et al. (2011) investigate 213 US public firms from 1993 to 2007 and find that firms with higher CSR performance have a lower cost of equity capital and raise a greater amount of such capital. Kim et al. (2012) investigate 18,160 US firms from 1990 to 2008 and find that firms with better CSR ratings are more likely to restrict earnings management and that their chief executives are less likely to be the targets of SEC investigations. The disclosure of CSR information may also influence investor behavior. Brown-Liburd et al. (2012) use an experiment to explore factors affecting investors' judgement and find that investors' stock price assessment is significantly dominated by CSR information.

¹⁰ This refers to 'deep pocket' theory.

reports are one of the sources employed for CSR ratings (MSCI, 2015) and that the public has been increasingly interested in the transparency of sustainability reports (Peters & Romi, 2015), it is believed that firms reporting CSR are motivated to have their financial and sustainability reports externally assured. If a firm does not seek external assurance of their CSR reports, the firms can still enhance investors' confidence in the reliability and credibility of sustainability reports through hiring a high quality auditor. As aforementioned, a firm can signal the credibility of their voluntary disclosures of CSR information when the firm shows their commitment to the provision of high quality financial reports (Chen et al., 2016). Moreover, sustainability reports include various issues and topics which are different by company and industry (GRI, 2013). Accordingly, hiring industry-specialist auditors may enable firms with more CSR activities to have higher quality and reliability of their financial and sustainability reports.

In summary, we provide five main reasons for the relationship between CSR performance and the selection of industry-specialist auditors, based on stakeholder theory and ethical theory. First, stakeholders would prefer an audit industry specialist who can provide better corporate reporting in material CSR issues in a specific industry. Eccles et al. (2014) suggest that better CSR performance signifies superior communication between stakeholders and the management over material environment, social and governance issues; and such effective communication transforms managerial resource allocation decisions in adjusting long-term corporate strategy to meet the stakeholders' demands. However, the materiality of CSR information is determined by an industry rather than by a company (Eccles et al., 2014). For example, the US Sustainability Accounting Standards Board (SASB, 2016) classifies a CSR issue as material when it is material in a given industry. Therefore, stakeholders seeking for relevant CSR information would expect and urge the board and audit committee to select an audit industry specialist who has better ability to identify and report material CSR information.

Second, shareholders, the major stakeholders, would choose an audit industry specialist who is more likely to increase financial performance by achieving high ratings on material CSR issues. Khan, Serafeim, and Yoon (2016) document that firms with high ratings on material CSR issues have significantly better financial performance than those with low ratings on CSR issues. Therefore, shareholders are likely to influence a firm's auditor selection decision due to financial performance consideration.

Third, stakeholders would expect firms to offer timely alerts of any potential risk of law noncompliance in a specific industry (e.g., the violation of environmental protection laws). An audit industry specialist is more likely to identify and fairly report material CSR legal risk in that industry.

Fourth, the management with high ethical concerns is more likely to engage an audit industry specialist to avoid corporate misreporting (that will have a negative impact on firm value) and to demonstrate a differential brand reputation. Stakeholders have a high incentive to request the board to engage an audit industry specialist. This is supported by the extant literature (Chen et al., 2011; Li, Xie, & Zhou, 2010) indicating that selecting an audit industry specialist shows better brand reputation and effectively reduces a firm's cost of capital.

Fifth, an ethical management would strive for integrated reporting that includes both financial and CSR reporting. Meanwhile, an audit industry specialist has better ability to connect financial and CSR information and reports such integrated information in a specific industry.

Thus, firms with better CSR ratings have stronger incentives to maintain high quality financial reporting to satisfy the demand of stakeholders, to achieve better firm reputation, to have lower litigation risk, to have brand differentiation, and to be law compliant, resulting in the tendency to hire industry auditor specialists. Accordingly, we propose the following first hypothesis:

H1: Firms with better CSR ratings are more likely to hire industry-specialist auditors.

2.4.2 | The relationship between industry-specialist auditors and CSR for non-controversial/controversial industries

Prior empirical evidence indicates that controversial industries, such as alcohol, tobacco, gambling, military or nuclear power, are perceived to be unethical because of the deep suspicion related to the poisonous substances in their products and their disputed behaviors (Byrne, 2010; Palazzo & Richter, 2005). Due to higher litigation risk, stocks of firms

in controversial industries receive less coverage by financial analysts, are less held by institutional investors that are more in tune with societal norms, and thus are expected to have higher returns (Hong & Kacperczyk, 2009; Kim & Venkatachalam, 2011). Investors are also likely to overlook the stocks of firms in controversial industries and tend to assume additional financial costs in order to follow societal norms in their investment portfolios (Kim & Venkatachalam, 2011).

Firms engaging in CSR activities may provide stakeholders with a positive impression of their transparent financial reporting. However, managers may also use CSR practices to hide their earnings management behavior(s) behind the appearance of financial reporting transparency (Prior, Surroca, & Tribó, 2008), such as charitable giving for enhancing a company's reputation and hiding earnings manipulation. In this aspect, managers may initiate various CSR activities for their own self-interest, such as personal reputation, or the concealment of corporate misconduct (Fritzsche, 1991; Hemingway & Maclagan, 2004).

Cai et al. (2012) examine a US sample of firms from 1995 to 2009, and find that CSR firms in controversial industries experience positive effects on firm value, even though their products are perceived to have unfavorable impacts on the general public and the environment. They also point out that the top management of controversial firms increasingly recognizes the importance of CSR. Opponents, however, argue that most controversial firms tend to promote positive aspects of their environmental performance, and are reluctant to disclose negative aspects after adopting environmental disclosure practices (Deegan & Gordon, 1996). The question of whether better CSR performance leads to superior financial reporting quality by engaging an industry-specialist auditor or is merely a matter of window-dressing for controversial firms remains unclear.

In brief, prior research results with respect to the impact of CSR are mixed. Given several heterogeneous factors, such as firm behavior, firm-specific characteristics and systematic risks between controversial and non-controversial industries, we separately explore the effects of CSR on the selection of a specialized auditor in controversial and non-controversial industries. We expect that the management of firms in these two groups may have different incentives to employ industry-specialist auditors to compensate for their different systematic risks. Accordingly, our second hypothesis is developed as follows:

- H2:** The effects of CSR on the selection of industry-specialist auditors are different for firms in controversial industries and those in non-controversial industries.

3 | RESEARCH DESIGN AND DATA

3.1 | Empirical model

To examine whether firms with higher CSR ratings tend to select industry-specialist auditors to provide more relevant and reliable financial information for stakeholders, we follow prior literature (Abbott & Parker, 2000; Li et al., 2010) and employ the following logistic regression model (where subscript i denotes firm i in year t):

$$\begin{aligned} \text{Spec_Aud}_{t,i} = & \beta_0 + \beta_1 \text{CSR_R}_{t,i} + \beta_2 \text{CGOV_R}_{t,i} + \beta_3 \text{Log_Assets}_{t,i} + \beta_4 \text{TATurn}_{t,i} + \beta_5 \text{CurrRatio}_{t,i} + \beta_6 \text{ROA}_{t,i} + \beta_7 \text{LEV}_{t,i} \\ & + \beta_8 \text{Log_Segment}_{t,i} + \beta_9 \text{ExpSale_pct}_{t,i} + \beta_{10} \text{NewFunds_pct}_{t,i} + \beta_{11} \text{Log_FirmAge}_{t,i} + \beta_{12} \text{Litigation}_{t,i} \\ & + \beta_{13} \text{ACSize}_{t,i} + \beta_{14} \text{ACInd_pct}_{t,i} + \beta_{15} \text{ACFinExp}_{t,i} + \beta_{16} \text{BDSize}_{t,i} + \beta_{17} \text{BDInd_pct}_{t,i} + \sum_{k=1}^{13} \varphi_k \text{Industry}_k \\ & + \sum_{t=2002}^{2010} \delta_t \text{Year}_t + \varepsilon_{t,i} \text{U}_{ni} \end{aligned}$$

where:

- $\text{Spec_Aud} = 1$ if an auditor is one of the following three specialist auditors, (1) National-level industry leader (NL), (2) City-level industry leader CL, or (3) Both, and 0 otherwise;

(1) $NL = 1$ if an auditor is a national industry leader, 0 otherwise;

(2) $CL = 1$ if an auditor is a city-level industry leader, 0 otherwise;

(3) $Both = 1$ if an auditor is both a national-level industry leader and a city-level industry leader, and 0 otherwise;

CSR_R = Net score of CSR ratings, which is based on five social rating categories of KLD ratings data including community, diversity, employee relations, environment and product, is measured as total strengths minus total concerns;

$CGOV_R$ = Corporate governance rating from KLD ratings data, which is based on such rating categories as limited compensation, ownership, transparency, political accountability, and others, is measured as strengths minus concerns;

Log_Assets = Natural logarithm of total assets;

$TATurn$ = $Sales_t$ divided by total assets $_{t-1}$;

$CurrRatio$ = Current assets divided by current liabilities;

ROA = Net income $_t$ divided by total assets $_{t-1}$;

LEV = (Long term debt $_t$ plus debt in current liabilities $_t$) / total assets $_{t-1}$;

$Log_Segment$ = Natural logarithm of total number of business segments reported in Compustat segment file;

$ExpSale_pct$ = The proportion of a firm's foreign sales during the fiscal year;

$NewFunds_pct$ = (New debt plus equity issuance)/total assets;

$Log_FirmAge$ = Natural logarithm of total number of years a firm is listed on CRSP;

$Litigation$ = 1 if the firm operates in a high-litigation industry (SIC codes of 2833–2836, 3570–3577, 3600–3674, 5200–5961, and 7370), and 0 otherwise;

$ACSize$ = The number of audit committee members;

$ACInd_pct$ = The percentage of independent audit committee members, that is, outsiders/(insiders + outsiders + outsiders related) from Corporate Library database;¹¹

$ACFinExp$ = 1 if an audit committee has at least one financial expert, 0 otherwise;

$BDSIZE$ = The number of directors on a board; and

$BDInd_pct$ = The percentage of independent directors on a board.

As in Li et al. (2010), the dependent variable, *Spec_Aud*, is an indicator variable that is equal to 1 if a firm employs an industry-specialist auditor, and 0 otherwise. An industry-specialist auditor is measured using three specifications: (1) national-level industry leader (*NL*), (2) city-level industry leader (*CL*), and (3) both national- and city-level industry leader (*Both*). Consistent with Li et al. (2010), we use auditors' industry market share to measure industry-specialist auditor. An auditor's industry market share is the percentage of all clients' audit fees in a two-digit SIC industry group to total audit fees of all *Compustat* firms in the same two-digit SIC industry group. An auditor is classified as a national-level industry leader if the auditor has the highest market share at the national level. A city-level industry leader refers to an auditor with the highest two-digit SIC industry market share at the city level.

Prior studies indicate that firms with industry-specialist auditors have higher corporate disclosure quality (Carcello & Nagy, 2004; Dunn & Mayhew, 2004). Meanwhile, a firm is considered to be socially responsible when it meets stakeholders' expectations for appropriate and acceptable corporate behavior (Campbell, 2007). Therefore, firms with high CSR performance are expected to hire high quality auditors because the employment of industry-specialist auditors is perceived to be appropriate corporate behavior in order to maintain, achieve and signal high quality financial and social disclosures. Accordingly, CSR firms are more likely to select industry-specialist auditors, and thus *CSR_R* is expected to be positively related to *Spec_Aud*.

Moreover, firms with strong corporate governance are found to be more likely to select industry-specialist auditors (Abbott & Parker, 2000), and are associated with high financial reporting quality (Abbott, Parker, & Peters, 2004;

¹¹ Based on Exchange Act Rule 10A-3, all audit committee members must be independent (NYSE Listed Company Manual Section 303A.07; NASDAQ Rule 5605(c)(2)(A)(i)), NYSE and NASDAQ amend these rules in 2009. Data source: <http://www.sec.gov/rules/sro/nasdaq/2012/34-67468.pdf> and http://nysemanual.nyse.com/LCMTools/PlatformViewer.asp?selectednode=chp_1_4_3_3&manual=%2Ffcm%2Fsections%2Ffcm-sections%2F.

Bédard et al., 2004). The CSR rating in corporate governance category (*CSR_CGOV*) is related to compensation, ownership, transparency, political accountability, and other positive aspects of corporate culture. However, this variable may not fully capture the influence of audit committees and the board of directors on the selection of industry-specialist auditors. Therefore, we include five control variables, which are the characteristics of an audit committee (*ACSize*, *ACInd_pct* and *ACFinExp*), and those of a board of directors (*BDSIZE* and *BDInd_pct*) for the internal monitoring mechanisms. One of an audit committee's major responsibilities is auditor selection and retention. Abbott and Parker (2000) find evidence that the selection of industry-specialized auditors is positively associated with active and independent audit committees. Prior studies also indicate that independent directors on the board are more likely to choose a specialized auditor (Beasley & Petroni, 2001; Chen & Zhou, 2007). The characteristics of audit committees and the board of directors are used in prior research as the proxies for the level of monitoring mechanisms that may influence firms' auditor selection decision. We expect that these variables are associated with the selection of industry-specialist auditors.

In addition, we include various control variables used in prior research that are likely to influence the selection of high quality/industry-specialized auditors (Abbott & Parker, 2000; DeFond, 1992; Lawrence et al., 2011). The control variables are classified into four main categories: (1) firms' financial condition: size (*Log_Assets*), asset turnover (*TATurn*), corporate solvency (*CurrRatio*) and profitability (*ROA*); (2) firms' agency costs: leverage (*LEV*); (3) firms' operational complexity: number of business segments (*Log_Segment*), and foreign transactions (*ExpSale_pct*); and (4) others: fund-raising activities (*NewFunds_pct*), firm age (*Log_FirmAge*) and litigation risk (*Litigation*). The model also includes industry and year dummy variables to control for industry and year fixed effects. Based on prior research (Abbott & Parker, 2000; DeFond, 1992; Eichenseher, 1985; Johnson & Lys, 1990; Lawrence et al., 2011; Simon, 1997), we expect the coefficients β_3 , β_6 , β_8 , β_9 and β_{10} to be positive since firms audited by industry-specialized auditors are more likely to be larger, be more profitable, have more business segments, have more foreign transactions, and engage in more fund-raising activities.

3.2 | Data and sample selection

CSR data are obtained from the Statistical Tool for Analyzing Trends in social and environmental performance (KLD STATS) database, which is a statistical summary of Kinder, Lydenberg and Domini's (KLD) in-depth research (Chatterji, Levine, & Toffel, 2009; Mattingly & Berman, 2006). While prior studies employ CSR ratings, KLD ratings are widely used (e.g., Attig & Cleary, 2015; Flammer, 2015). KLD STATS provides the environmental, social and governance (ESG) performance of companies whose stocks are included in the S&P 500 index, Domini 400 social index, 1,000 largest US companies, large cap social index, 2,000 small cap US companies, and broad market social index (KLD, 2008). ESG ratings are based on different sources including more than 100 specialized datasets (e.g., government, NGO, proprietary models), company disclosures (e.g., 10-Ks, sustainability reports, proxy reports), and more than 1,600 global and local media sources monitored daily (MSCI, 2015). KLD STATS database covers seven qualitative CSR-related infrastructures namely corporate governance, community, diversity, employee relations, environment, product and human rights characteristics, and concerns for six controversial business issues.¹² For each issue area, KLD STATS reports the number of strengths and concerns, from which we calculate CSR scores as the difference between total strengths and total concerns. Previous studies evaluate CSR disclosures using other methods. The first method is content analysis; that is, disclosure content is evaluated through word counts or page counts (Kothari, Li, & Short, 2009). The content analysis method, however, provides limited information about the quality and comprehensiveness of the disclosure (Hasseldine, Salama, & Toms, 2005; Jizi, Salama, Dixon, & Stratling, 2014). The second approach is constructing CSR scores using CSR information reported in annual reports (Jizi et al., 2014). While it is argued to be more qualified by external auditors, and under more control of the CEO and the board of directors, the information obtained from annual reports is more subjective than that provided by a third party. In this study, we use KLD ratings because the ratings provide a more objective measure of firms' CSR activities (Lanis & Richardson, 2015). Even though KLD ratings do not

¹² The definitions for each CSR-related category by strength and concern dimensions are available at http://cdnete.lib.ncku.edu.tw/93cdnet/english/lib/Getting_Started_With_KLD_STATS.pdf.

TABLE 1 Sample description

Panel A: Sample Selection	
	Full Sample
Compustat firms with CSR data (2002~2011)	27,698
Less: Finance firms (SICs 6000–6999)	(5,602)
Less: Missing financial data	(709)
Less: Less: Missing audit committee data	(6,505)
Less: Less: Missing board of directors data	(1,247)
Final sample for regression tests	13,635
Panel B: Sample by Year	
Year	Full Sample
2002	546
2003	975
2004	1,113
2005	1,154
2006	1,629
2007	1,713
2008	1,816
2009	1,987
2010	1,768
2011	934
Total	13,635
Panel C: Sample by Industry Classification	
	Full Sample
Mining and Construction (SICs 1000–1999, except 1300–1399)	257
Food (SICs 2000–2111)	393
Textiles and Printing/Publishing (SICs 2200–2799)	724
Chemicals (SICs 2800–2824, 2840–2899)	530
Pharmaceuticals (SICs 2830–2836)	871
Extractive (SICs 1300–1399, 2900–2999)	692
Durable manufacturers (SICs 3000–3999, except 3570–3579 and 3670–3679)	3,239
Transportations (SICs 4000–4899)	897
Utilities (SICs 4900–4999)	798
Retail (SICs 5000–5999)	1,724
Service (SICs 7000–8999, except 7370–7379)	1,277
Computers (SICs 3570–3579, 3670–3679, 7370–7379)	2,148
Others (SICs 0100–0999)	85
Total	13,635

optimally use publicly available data to rate different indicators, the ratings are more transparent about the past and future environmental performance (Chatterji et al., 2009).

Table 1 presents the sample selection process (Panel A) and the sample distribution by year (Panel B) and industry (Panel C). As noted in Panel A of Table 1, the sample is restricted to US publicly listed companies with available Compustat financial data and KLD CSR data. To examine the relationship between CSR ratings and the likelihood of firms selecting an industry-specialist auditor, we obtain an initial sample of 27,698 firm-year observations reporting

corporate social performance from 2002 to 2011 from the KLD STATS database. The data are restricted to the 2002–2011 period since the data on audit committee and board of directors from Corporate Library are available and CSR data cover more companies after the year 2002. We then match Compustat financial variables with KLD CSR data. We exclude 5,602 observations of financial institutions (SIC codes 6000–6999), due to their significantly different business characteristics and financial reporting format. After eliminating missing financial data, audit committee data and board of directors, the final sample reduces to 13,635 firm-year observations. The largest sample observations are in the year 2009 and are in the durable manufacturing industry. Given the large variation of the sample across industries, we control for the industry-specific effect in the regression analyses.

4 | RESULTS

4.1 | Descriptive statistics and univariate analysis

Table 2 reports the descriptive statistics for the test and control variables. All continuous variables are winsorized at the top and bottom one percentile to reduce the influence of extreme values. As shown in Panel A of Table 2, 28.3%, 33.8% and 13.2% of the sample firms hire industry-specialized auditors who are national-level industry leader (*NL*), city-level industry leader (*CL*), and joint city-national industry leader (*Both*), respectively. Following Kim et al. (2012), we decompose *CSR_R* into five components including *CSR_COM*, *CSR_DIV*, *CSR_EMP*, *CSR_ENV* and *CSR_PRO*. The mean values of *CSR_R*, *CSR_COM*, *CSR_DIV*, *CSR_EMP*, *CSR_ENV*, *CSR_PRO* and *CGOV_R* are -0.226 , 0.052 , 0.139 , -0.225 , -0.018 , -0.175 and -0.337 , respectively. Both *CSR_COM* and *CSR_DIV* are positive, indicating that the magnitudes of strengths are larger than those of concerns in community and diversity ratings. However, *CSR_R*, *CSR_EMP*, *CSR_ENV*, *CSR_PRO* and *CGOV_R* are all negative because the magnitudes of concerns are larger than those of strengths in the CSR rating related to employee relations, environment, product and corporate governance.

For control variables, the median values of firm size (*Assets*) and firm age (*FirmAge*) are approximately US\$ 1,311 million and 16 years, respectively. The average value of sales to total assets (*TATurn*) is 1.126, and the mean value of current assets to current liabilities (*CurrRatio*) is 2.515. Moreover, the average values of return on assets (*ROA*) and leverage (*LEV*) are 0.041 and 0.246, respectively. On average, each firm has about three business segments (*SumSeg*) and the sample firms' foreign sales account for 0.8% of total sales (*ExpSale_pct*). About 11% of the sample firms are involved in fund-raising activities (*NewFunds_pct*). In addition, the median audit committee size (*ACSize*) and board size (*BDSIZE*) are four and nine members, respectively while each firm has at least one financial expert on the audit committee (*ACFinExp*). Finally, the percentage of independent audit committee members (*ACInd_pct*) and independent directors on a board (*BDInd_pct*) is 100% and 86%, respectively.

Panel B of Table 2 reports the descriptive statistics of the seven main variables, *CSR_R*, *CSR_COM*, *CSR_DIV*, *CSR_EMP*, *CSR_ENV*, *CSR_PRO* and *CGOV_R*, and univariate tests of the differences in means and medians for the three different firm groups with industry-specialist auditors (*NL*, *CL*, *Both*) and the firm group with non-specialized auditors (*Non-Leader*). The univariate tests show that the group of firms with industry-specialized auditors have significantly higher CSR performance in *CSR_R*, *CSR_DIV*, *CSR_ENV* and *CSR_PRO* than the group of firms with non-specialized auditors. In addition, the two firm groups with national-level industry leaders (*NL*) and joint city-national industry leaders (*Both*) demonstrate a significantly higher percentage of corporate governance ratings (*CGOV_R*) than the firm group with non-specialized auditors. Finally, the percentages of community (*CSR_COM*) and employee relations ratings (*CSR_EMP*) related to national-level industry leaders (*NL*) are significantly higher than the firm group with non-specialized auditors.

4.2 | The relationship between the selection of specialized auditors and CSR performance

Table 3 presents the logistic regression results for testing the association between CSR performance and the probability of firms selecting industry-specialist auditors. The three models with different proxies for auditor industry specialization are all significant (p -values < 0.001) and have reasonable explanatory power (i.e., the pseudo- R^2 s fall between 11.29% and 15.60%).

TABLE 2 Descriptive statistics

Panel A: Full Sample (N = 13,635)								
Variable	Mean	Median	Std. Dev.	25th Percentile	75th Percentile			
<i>Dependent Variables:</i>								
NL	0.283	0	0.451	0	1			
CL	0.338	0	0.473	0	1			
Both	0.132	0	0.132	0	0			
<i>Independent Variables:</i>								
CSR_R	-0.226	-1	2.278	-2	1			
CSR_COM	0.052	0	0.473	0	0			
CSR_DIV	0.139	0	1.396	-1	1			
CSR_EMP	-0.225	0	0.872	-1	0			
CSR_ENV	-0.018	0	0.825	0	0			
CSR_PRO	-0.175	0	0.598	0	0			
CGOV_R	-0.337	0	0.724	-1	0			
Assets	5,872	1,311	16,750	468	4,105			
Log_Assets	7.300	7.174	1.551	6.15	8.32			
TATurn	1.126	0.943	0.784	0.577	1.441			
CurrRatio	2.515	1.931	1.948	1.317	2.951			
ROA	0.041	0.054	0.134	0.012	0.103			
LEV	0.246	0.212	0.237	0.033	0.366			
SumSeg	2.802	2	2.078	1	4			
Log_Segment	0.778	0.693	0.7	0	1.386			
ExpSale_pct	0.008	0	0.044	0	0			
NewFunds_pct	0.110	0.035	0.183	0.007	0.129			
FirmAge	23.372	16	19.414	10	34			
Log_FirmAge	2.813	2.773	0.857	2.303	3.526			
Litigation	0.333	0	0.471	0	1			
ACSize	4.517	4	1.849	3	5			
ACInd_pct	0.996	1	0.026	1	1			
ACFinExp	0.752	1	0.432	1	1			
BDSIZE	8.850	9	2.148	7	10			
BDInd_pct	0.820	0.857	0.091	0.778	0.889			
Panel B: Distribution by Main Variables								
Variable		(1)	(2)	(3)	(4)	Difference Tests ^c		
		NL	CL	Both	Non-Leader	(1) vs. (4)	(2) vs. (4)	(3) vs. (4)
CSR_R	Mean	-0.125	-0.083	0.284	-0.370	<0.001	<0.001	<0.001
	Median	0	0	0	-1	<0.001	<0.001	<0.001
CSR_COM	Mean	0.050	0.083	0.132	0.031	0.120	0.299	<0.001
	Median	0	0	0	0	0.073	0.317	0.006
CSR_DIV	Mean	0.310	0.315	0.739	-0.043	<0.001	<0.001	0.002
	Median	0	0	0	0	<0.001	<0.001	0.001

(Continues)

TABLE 2 (Continued)

Variable		Panel B: Distribution by Main Variables				Difference Tests ^c		
		(1) NL	(2) CL	(3) Both	(4) Non-Leader	(1) vs. (4)	(2) vs. (4)	(3) vs. (4)
CSR_EMP	Mean	-0.186	-0.225	-0.173	-0.241	0.023	0.426	0.025
	Median	0	0	0	0	0.154	0.823	0.074
CSR_ENV	Mean	-0.083	-0.047	-0.123	0.020	<0.001	<0.001	<0.001
	Median	0	0	0	0	0.001	0.091	<0.001
CSR_PRO	Mean	-0.222	-0.210	-0.285	-0.136	<0.001	<0.001	<0.001
	Median	0	0	0	0	<0.001	<0.001	<0.001
CGOV_R	Mean	-0.338	-0.366	-0.431	-0.313	0.179	0.001	<0.001
	Median	0	0	0	0	0.475	0.002	<0.001
N		1,077	1,101	543	2,957			

Notes: The full sample contains 13,635 firm-year observations for the years 2002–2011. Observations with extreme values falling into the top and bottom one percentiles of the respective continuous variables are winsorized. The reported *p*-values for mean comparison and median comparison are based on the *t*-test and Wilcoxon test, respectively. All variables are defined in Appendix B.

As shown in the three models in Table 3, *CSR_R* is positively and significantly associated with *NL*, *CL* and *Both* (*p*-values < 0.001), indicating that firms with higher CSR ratings are more likely to select an industry-specialist auditor that is a national-level industry leader (*NL*), city-level industry leader (*CL*) or a joint city-national industry leader (*Both*). In other words, one unit point increase in *CSR_R* corresponds to a 5.6, 5.3, 6.4 percentage point increase in the probability of selecting industry-specialist auditors who are *NL*, *CL*, and *BOTH*, respectively. The results support H1.

For control variables, we only report the results for those variables that are statistically significant across the three models. The coefficients for the natural logarithm of total assets (*Log_Assets*) are positive and significant (*p*-values < 0.001), supporting the prediction that larger firms are more likely to hire industry-specialist auditors. The coefficients for asset turnover (*TATurn*), leverage (*LEV*), and litigation industry (*Litigation*) are negatively and significantly associated with *Spec_Aud*, indicating that firms with higher asset turnover, higher leverage ratio, and those in the litigation industry are less likely to select industry-specialist auditors.

Taken together, the empirical evidence is consistent with our expectation in H1 with regard to the positive association between CSR and the selection of an industry-specialist auditor. The results support the prediction that industry-specialized auditors with more knowledge about client firms, their industries, and environmental and social issues will be more likely to enhance the information quality of the firms' financial statements and social and environmental reports. In fact, the audit profession is believed to significantly contribute to the area of environmental accounting (Dixon, Mousa, & Woodhead, 2004). Auditors are also believed to be capable of evaluating the consequences of environmental issues in financial statements audits if they are trained to do so (Collison & Slomp, 2000). Likewise, industry-specialized auditors with knowledge and on-the-job training experience in auditing CSR firms may be able to reduce the information asymmetry and increase the credibility of CSR firms' financial and social reports. Given those facts, CSR firms with higher CSR ratings tend to hire high-quality auditors to ensure high quality financial and social information to meet stakeholders' expectations.

4.3 | The relationship between the selection of specialized auditors and two CSR dimensions

Prior studies classify CSR into two distinct dimensions: (1) the people dimension (*CSR_People*), which is associated with a community, diversity and employee relations; and (2) the product dimension (*CSR_Product*), which is associated with a product quality and environment (Johnson & Greening, 1999; Mahoney & Thorne, 2005). Using the classification, we further examine whether a certain dimension has a more significant effect on the selection of an industry-specialist auditor.

TABLE 3 Logistic regression results: CSR, corporate governance and the selection of specialist auditors

Variables	NL		CL		Both	
	coefficient estimate	<i>p</i> -value	coefficient estimate	<i>p</i> -value	coefficient estimate	<i>p</i> -value
Intercept	-19.424	0.871	-20.330	0.913	-19.805	0.901
CSR_R	0.056	<0.001	0.053	<0.001	0.064	<0.001
CGOV_R	-0.045	0.132	-0.049	0.091	-0.040	0.304
Firms' financial condition:						
Log_Assets	0.197	<0.001	0.254	<0.001	0.286	<0.001
TATurn	-0.060	0.076	-0.082	0.015	-0.126	0.008
CurrRatio	-0.016	0.237	0.015	0.200	-0.004	0.838
ROA	-0.031	0.861	-0.409	0.011	-0.245	0.301
Firms' agent costs:						
LEV	-0.610	<0.001	-0.324	0.001	-0.674	<0.001
Complexity of operations:						
Log_Segment	0.101	0.002	0.144	<0.001	0.176	<0.001
ExpSale_pct	0.649	0.161	-0.499	0.276	0.139	0.825
Others:						
NewFunds_pct	0.033	0.791	0.423	<0.001	0.090	0.602
Log_FirmAge	-0.016	0.568	-0.062	0.019	0.015	0.676
Litigation	-0.148	0.054	-0.270	<0.001	-0.462	<0.001
ACSize	0.058	<0.001	-0.014	0.371	0.024	0.254
ACInd_pct	1.382	0.093	-0.615	0.402	-0.288	0.777
ACFinExp	-0.173	0.016	0.164	0.021	-0.052	0.601
BDSize	-0.027	0.026	-0.012	0.316	-0.059	<0.001
BDInd_pct	0.149	0.544	0.815	0.001	0.126	0.704
Ind. dummies	included		included		included	
Year dummies	included		included		included	
Chi-Square	543.08		742.17		545.62	
<i>p</i> -value	<0.001		<0.001		<0.001	
Pseudo R ²	12.32%		15.60%		11.29%	
N	13,635		13,635		13,635	

Notes: The dependent variables are three proxies for industry-specialized auditors: *NL* indicates a national-level industry leader; *CL* indicates a city-level industry leader; and *Both* indicates a joint city-national industry leader. The independent variables of interest are *CSR_R* indicating net score of CSR ratings measured as total strengths minus total concerns; and *CGOV_R* indicating corporate governance rating measured as strengths minus concerns from KLD database. All other variables are defined in Appendix B. The black italics of *p*-value denote significance at 0.1, 0.05 or 0.01 levels.

As shown in Table 4, *CSR_People* is positively and significantly associated with the three types of industry-specialist auditors, i.e., *NL*, *CL* and *Both* (*p*-values <0.001). The results indicate that firms with higher ratings on community, diversity and employee relations are more likely to engage industry-specialized auditors. However, *CSR_Product* is not significantly associated with industry-specialized leaders. A possible explanation is that the inclusion of controversial firms in the full sample may lead to inconsistent outcomes.¹³ The results for the control variables are qualitatively similar to those in Table 3.

¹³ The details are discussed in industry analyses for controversial and non-controversial industries.

TABLE 4 Logistic regression results: CSR dimensions, corporate governance and selection of industry-specialist auditors

Variables	NL		CL		Both	
	coefficient estimate	<i>p</i> -value	coefficient estimate	<i>p</i> -value	coefficient estimate	<i>p</i> -value
Intercept	-19.292	0.872	-19.229	0.864	-19.604	0.902
CSR_People	0.076	<0.001	0.068	<0.001	0.091	<0.001
CSR_Product	0.016	0.452	0.019	0.357	0.014	0.581
CGOV_R	-0.045	0.135	-0.049	0.094	-0.042	0.285
Firms' financial condition:						
Log_Assets	0.182	<0.001	0.243	<0.001	0.264	<0.001
TATurn	-0.062	0.068	-0.084	0.013	-0.128	0.007
CurrRatio	-0.015	0.252	0.016	0.191	-0.003	0.868
ROA	-0.035	0.842	-0.410	0.011	-0.254	0.284
Firms' agent costs:						
LEV	-0.588	<0.001	-0.308	0.002	-0.635	<0.001
Complexity of operations:						
Log_Segment	0.099	0.002	0.143	<0.001	0.173	<0.001
ExpSale_pct	0.658	0.155	-0.493	0.281	0.161	0.799
Others:						
NewFunds_pct	0.037	0.769	0.425	<0.001	0.092	0.594
Log_FirmAge	-0.018	0.517	-0.064	0.015	0.012	0.749
Litigation	-0.151	0.049	-0.272	<0.001	-0.468	<0.001
ACSize	0.058	<0.001	-0.014	0.364	0.024	0.266
ACInd_pct	1.416	0.086	-0.595	0.418	-0.253	0.804
ACFinExp	-0.171	0.017	0.166	0.019	-0.048	0.628
BDSIZE	-0.029	0.018	-0.013	0.267	-0.062	<0.001
BDInd_pct	0.131	0.594	0.803	0.001	0.099	0.765
Ind. dummies	included		included		included	
Year dummies	included		included		included	
Chi-Square	551.49		745.97		557.71	
<i>p</i> -value	<0.001		<0.001		<0.001	
Pseudo R ²	12.40%		15.65%		11.42%	
N	13,635		13,635		13,635	

Notes: The dependent variables are three proxies for industry-specialized auditors: NL indicates a national-level industry leader; CL indicates a city-level industry leader; and Both indicates a joint city-national industry leader. The independent variables of interest are CSR_People indicating the sum of CSR ratings relating to community, diversity and employee relation categories in the end of year $t-1$; CSR_Product indicating the sum of CSR ratings relating to environment and product categories in the end of year $t-1$ from KLD database. All other variables are defined in Appendix B. The black italics of *p*-value denote significance at 0.1, 0.05 or 0.01 levels.

4.4 | The selection of specialized auditors and CSR in non-controversial/ controversial industries

Following El Ghoul et al. (2011), we identify the five most controversial industries in the US, namely alcohol, tobacco, gambling, military and nuclear power, and separate the full sample into (1) a subsample of controversial firms, and (2) a subsample of non-controversial ones. As shown in Table 5, the estimated coefficients for CSR_R in the models with

TABLE 5 Logistic regression results: CSR, corporate governance and selection of specialist auditors (industry analysis)

Variables	Controversial Firms						Non-Controversial Firms					
	NL		CL		Both		NL		CL		Both	
	coefficient estimate	p-value	coefficient estimate	p-value	coefficient estimate	p-value	coefficient estimate	p-value	coefficient estimate	p-value	coefficient estimate	p-value
Intercept	-16.775	0.936	-13.414	0.949	-16.693	0.911	-19.650	0.877	-19.791	0.868	-20.630	0.904
CSR_R	0.034	0.334	0.073	0.038	0.118	0.005	0.064	<0.001	0.054	<0.001	0.068	<0.001
CGOV_R	-0.056	0.604	0.319	0.004	0.396	0.004	-0.058	0.063	-0.077	0.011	-0.102	0.014
Firms' financial condition:												
Log_Assets	0.404	<0.001	0.535	<0.001	0.599	<0.001	0.169	<0.001	0.236	<0.001	0.250	<0.001
TA_Turn	-0.182	0.290	0.386	0.023	0.129	0.595	-0.055	0.118	-0.096	0.006	-0.137	0.005
CurrRatio	-0.122	0.137	0.074	0.279	0.049	0.623	-0.012	0.383	0.016	0.182	-0.006	0.744
ROA	-2.099	0.017	-2.123	0.013	-2.671	0.018	0.080	0.660	-0.339	0.040	-0.079	0.747
Firms' agent costs:												
LEV	-1.028	0.034	-0.437	0.357	-0.191	0.760	-0.593	<0.001	-0.330	0.001	0.232	<0.001
Complexity of operations:												
Log_Segment	-0.268	0.030	0.094	0.449	-0.140	0.363	0.145	<0.001	0.163	<0.001	0.232	<0.001
ExpSale_pct	-3.284	0.491	-28.39	0.013	-8.588	0.289	0.774	0.097	-0.233	0.613	0.345	0.585

(Continues)

TABLE 5 (Continued)

Variables	Controversial Firms						Non-Controversial Firms					
	NL		CL		Both		NL		CL		Both	
	coefficient estimate	p-value	coefficient estimate	p-value	coefficient estimate	p-value	coefficient estimate	p-value	coefficient estimate	p-value	coefficient estimate	p-value
<i>Others:</i>												
NewFunds_pct	0.927	0.080	-0.491	0.375	-1.127	0.242	-0.001	0.996	0.469	< 0.001	0.169	0.342
Log_FirmAge	0.150	0.103	0.138	0.136	0.150	0.208	-0.042	0.148	-0.088	0.002	-0.013	0.735
Litigation	-1.677	0.012	-1.888	0.007	-2.775	0.002	-0.124	0.110	-0.259	0.001	-0.420	< 0.001
ACSize	0.138	0.015	-0.147	0.011	-0.002	0.979	0.057	0.001	-0.002	0.895	0.032	0.159
ACInd_pct	-0.938	0.708	-8.266	0.004	-3.261	0.294	1.859	0.035	0.102	0.896	0.221	0.842
ACFinExp	-0.233	0.400	-0.607	0.024	-1.004	0.005	-0.169	0.024	0.227	0.002	0.031	0.770
BDSize	-0.095	0.047	-0.056	0.227	-0.012	0.830	-0.019	0.138	-0.003	0.839	-0.058	0.001
BDInd_pct	-1.095	0.325	1.201	0.280	-0.351	0.812	0.194	0.442	0.838	0.001	0.094	0.784
<i>Ind. dummies</i>	-	-	-	-	-	-	included	included	included	included	included	included
<i>Year dummies</i>	included	included	included	included	Included	Included	included	included	included	included	included	included
Chi-Squared	120.71	< 0.001	120.70	< 0.001	105.46	< 0.001	461.08	< 0.001	693.60	< 0.001	478.61	< 0.001
p-value	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Pseudo R ²	27.06%	27.06%	28.53%	28.53%	25.70%	25.70%	11.68%	11.68%	15.59%	15.59%	10.89%	10.89%
N	1,097	1,097	1,097	1,097	1,097	1,097	12,538	12,538	12,538	12,538	12,538	12,538

Notes: The controversial (sinful) firms include those in the alcohol, tobacco, nuclear power, gambling, military, and firearms industry. The dependent variables are three proxies for industry-specialized auditors: NL indicates a national-level industry leader; CL indicates a city-level industry leader; and Both indicates a joint city-national industry leader. The independent variables of interest are CSR_R indicating net score of CSR ratings measured as total strengths minus total concerns; and CGOV_R indicating corporate governance rating measured as strengths minus concerns from KLD database. All other variables are defined in Appendix B. The black italics of p-value denote significance at 0.1, 0.05 or 0.01 levels.

NL, *CL* and *Both* as dependent variables are positive and significant (p -values < 0.001) for non-controversial firms. These results suggest that non-controversial firms with higher CSR ratings tend to select high quality auditors. We also find the coefficients on *CSR_R* for firms in controversial industries are significant and positive for *NL* and *Both* leaders. The results suggest that both controversial and non-controversial firms with greater CSR ratings tend to hire high quality auditors. More noteworthy, the coefficient on *CGOV_R* is positive and significant (p -values = 0.004 and 0.004, respectively) for the controversial firms in the *CL* and *Both* models. The results may imply that controversial firms are more concerned about corporate governance than the public expectations about CSR.

To sum up, we find some evidence that controversial firms with better corporate governance and non-controversial firms with higher CSR ratings are more likely to select industry-specialist auditors. The findings show the different effects of CSR on controversial firms and non-controversial firms, thus supporting H2.

4.5 | The selection of industry-specialist auditors and CSR dimensions in non-controversial/ controversial industries

Table 6 reports results for the association between the selection of an industry-specialist auditor and CSR dimensions for controversial and non-controversial industries. All estimated coefficients for the people dimension (*CSR_People*) are positive and significant (all p -values < 0.001 for the *NL*, *CL* and *Both* models) for both non-controversial and controversial firms. The results show that firms with more diversified employees and higher ratings on employee relationships are more likely to engage industry-specialized auditors.

It is noted that there is a positive association between the product dimension (*CSR_Product*) and the selection of an industry-specialist auditor for non-controversial firms while *CSR_Product* is negatively associated with the engagement of an industry-specialist auditor for controversial firms. Specifically, the estimated coefficient for *CSR_Product* is negative and significant for controversial firms selecting a national-level industry auditor (*NL*); however, the estimated coefficient for *CSR_Product* is positive and significant for non-controversial ones engaging a national-level industry auditor (*NL*). There are several possible explanations for this result. First, controversial firms often act in opposition to public opinion and societal norms.¹⁴ Second, as Moser and Martin (2012) argue, 'some firms may engage in CSR activities at the shareholders' expense', controversial firms may over-invest in CSR activities associated with environment and product issues in order to avoid environmental fines, increase the perceived quality of their manufactured goods and services, and to disguise the sin nature of their products. The results for the relationship between industry auditor specialization and CSR ratings related to product quality in controversial industries can also be explained from the external auditors' perspective. Specifically, because of the high litigation risk relating to controversial industries, industry-specialist auditors with reputational concern may not choose to audit high-risk firms (those firms with high CSR ratings relating to product quality).

5 | ADDITIONAL ANALYSES

5.1 | The selection of industry-specialist auditors and individual CSR components in controversial/ non-controversial industries

Following prior studies (Kim et al., 2012; Mattingly & Berman, 2006), we use five sub-ratings of CSR categories to examine whether a certain component has a more significant impact on the selection of industry-specialist auditors. The sub-rating of each category is a net score measured as total strengths minus total concerns.

Table 7 reports the regression results for the associations between industry-specialized auditors and individual CSR components for controversial and non-controversial industries. For non-controversial industries, we find that the estimated coefficients on *CSR_COM*, *CSR_DIV* and *CSR_PRO* in the models with *NL*, *CL* and *Both* as dependent variables are

¹⁴ For instance, the World Health Organization (WHO, 2004) states that firms in the tobacco industry face inherent conflicts with regard to their products and government efforts to limit smoking.

TABLE 6 Logistic regression results: CSR Dimensions, corporate governance and selection of specialist auditors (industry analyses)

Variables	Controversial Firms						Non-Controversial Firms					
	NL		CL		Both		NL		CL		Both	
	coefficient estimate	p-value	coefficient estimate	p-value	coefficient estimate	p-value	coefficient estimate	p-value	coefficient estimate	p-value	coefficient estimate	p-value
Intercept	-16.072	0.940	-13.138	0.950	-16.084	0.916	-19.635	0.877	-19.652	0.868	-20.495	0.904
CSR_People	0.171	<0.001	0.161	0.001	0.210	<0.001	0.067	<0.001	0.063	<0.001	0.084	<0.001
CSR_Product	-0.164	0.011	-0.062	0.339	-0.012	0.877	0.062	0.007	0.031	0.166	0.042	0.136
CGOV_R	-0.029	0.790	0.338	0.003	0.414	0.002	-0.059	0.058	-0.077	0.011	-0.103	0.012
Firms' financial condition:												
Log_Assets	0.263	0.002	0.447	<0.001	0.496	<0.001	0.167	<0.001	0.229	<0.001	0.238	<0.001
TA Turn	-0.193	0.263	0.379	0.026	0.124	0.608	-0.055	0.117	-0.098	0.005	-0.139	0.005
CurrRatio	-0.145	0.081	0.063	0.364	0.033	0.743	-0.012	0.383	0.017	0.174	-0.005	0.767
ROA	-1.994	0.022	-2.046	0.017	-2.532	0.024	0.077	0.670	-0.340	0.039	-0.086	0.722
Firms' agent costs:												
LEV	-0.734	0.132	-0.261	0.585	0.035	0.956	-0.590	<0.001	-0.321	0.002	-0.706	<0.001
Complexity of operations:												
Log_Segment	-0.254	0.041	0.114	0.361	-0.118	0.446	0.144	<0.001	0.161	<0.001	0.229	<0.001
ExpSale_pct	-4.492	0.368	-31.345	0.010	-9.982	0.236	0.786	0.092	-0.226	0.622	0.366	0.561

(Continues)

TABLE 6 (Continued)

Variables	Controversial Firms						Non-Controversial Firms					
	NL		CL		Both		NL		CL		Both	
	coefficient estimate	p-value	coefficient estimate	p-value	coefficient estimate	p-value	coefficient estimate	p-value	coefficient estimate	p-value	coefficient estimate	p-value
<i>Others:</i>												
NewFunds_pct	0.975	0.066	-0.476	0.392	-1.167	0.229	-0.001	0.995	0.471	<0.001	0.170	0.338
Log_FirmAge	0.132	0.157	0.119	0.201	0.139	0.244	-0.043	0.139	-0.089	0.002	-0.015	0.699
Litigation	-1.731	0.009	-1.938	0.006	-2.812	0.001	-0.125	0.106	-0.261	0.001	-0.425	<0.001
ACSize	0.139	0.015	-0.146	0.012	-0.002	0.978	0.056	0.001	-0.003	0.875	0.031	0.169
ACInd_pct	-0.422	0.868	-7.836	0.006	-3.052	0.326	1.868	0.035	0.112	0.886	0.235	0.831
ACFinExp	-0.242	0.383	-0.618	0.022	-1.020	0.004	-0.169	0.024	0.228	0.002	0.033	0.756
BDSize	-0.087	0.069	-0.052	0.264	-0.005	0.927	-0.019	0.130	-0.004	0.774	-0.060	0.001
BDInd_pct	-1.158	0.300	1.216	0.277	-0.333	0.823	0.193	0.445	0.831	0.001	0.080	0.815
Ind. dummies	-	-	-	-	-	-	included	included	included	included	included	included
Year dummies	included	included	included	included	included	included	included	included	included	included	included	included
Chi-Squared	131.47		125.42		110.14		463.48		695.50		485.01	
p-value	<0.001		<0.001		<0.001		<0.001		<0.001		<0.001	
Pseudo R ²	28.68%		29.27%		26.56%		11.71%		15.61%		10.97%	
N	1,097		1,097		1,097		12,538		12,538		12,538	

Notes: The controversial (sinful) firms include those in the alcohol, tobacco, nuclear power, gambling, military, and firearms industry. The dependent variables are three proxies for industry-specialized auditors: NL indicates a national-level industry leader; CL indicates a city-level industry leader; and Both indicates a joint city-national industry leader. The independent variables of interest are CSR_People indicating the sum of CSR ratings relating to community, diversity and employee relation categories in the end of year_{t-1}; CSR_Product indicating the sum of CSR ratings relating to environment and product categories in the end of year_{t-1}; and CSR_R indicating corporate governance rating measured as strengths minus concerns from KLD database. All other variables are defined in Appendix B. The black italics of p-value denote significance at 0.1, 0.05 or 0.01 levels.

TABLE 7 Logistic regression results: CSR components, corporate governance and selection of specialist auditors (industry analyses)

Variables	Controversial Firms						Non-Controversial Firms					
	NL		CL		Both		NL		CL		Both	
	coefficient estimate	p-value	coefficient estimate	p-value	coefficient estimate	p-value	coefficient estimate	p-value	coefficient estimate	p-value	coefficient estimate	p-value
Intercept	-16.414	0.938	-13.459	0.949	-17.162	0.909	-19.723	0.877	-19.644	0.868	-20.491	0.904
CSR_COM	0.310	0.021	0.494	< 0.001	0.599	< 0.001	0.101	0.035	0.167	0.001	0.124	0.034
CSR_DIV	0.105	0.145	0.045	0.524	0.053	0.527	0.044	0.018	0.097	< 0.001	0.109	< 0.001
CSR_EMP	0.217	0.009	0.193	0.022	0.230	0.022	0.091	< 0.001	-0.030	0.210	0.015	0.641
CSR_ENV	-0.084	0.270	-0.217	0.007	-0.013	0.884	0.028	0.358	-0.019	0.531	0.013	0.736
CSR_PRO	-0.384	< 0.001	0.094	0.357	-0.127	0.292	0.106	0.006	0.099	0.009	0.082	0.089
CGOV_R	-0.016	0.883	0.333	0.003	0.430	0.002	-0.059	0.061	-0.081	0.008	-0.105	0.011
Chi-Squared	136.93		135.46		116.42		465.32		713.80		488.24	
p-value	< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001	
Pseudo R ²	29.69		30.63%		27.57%		4.70%		15.86%		11.02%	
N	1,097		1,097		1,097		12,538		12,538		12,538	

Notes: The controversial (sinful) firms include those in the alcohol, tobacco, nuclear power, gambling, military, and firearms industry. The dependent variables are three proxies for industry-specialized auditors: NL indicates a national-level industry leader; CL indicates a city-level industry leader; and Both indicates a joint city-national industry leader. The independent variables of interest are CSR_COM indicating CSR ratings relating to community category; CSR_DIV indicating CSR ratings relating to the diversity category; CSR_EMP indicating CSR ratings relating to the employee relations category; CSR_ENV indicating CSR rating relating to the environment category; CSR_PRO indicating CSR ratings relating to the product category; and CGOV_R indicating corporate governance rating measured as strengths minus concerns from the KLD database. Control variables and fixed effects are not reported in the table for brevity. All other variables are defined in Appendix B. The black italics of p-value denote significance at 0.1, 0.05 or 0.01 levels.

positive and significant. This suggests that non-controversial firms are more likely to hire industry-specialist auditors when the firms have stronger CSR performance in three dimensions including (1) community dimension (i.e., charitable giving, or support for housing and education to the economically disadvantaged and youths); (2) diversity dimension (the employment of women, minorities, and the disabled, or the work-life benefits of employees, such as work schedule flexibility or dependent care assistance); and (3) product dimension (i.e., a well-developed quality program, a leader in its industry for R&D and innovation, and the provision of products or services for the economically disadvantaged). In contrast, the results show that the coefficients on *CSR_ENV* and *CSR_PRO* for *NL*, *CL* and *Both* models are negative for controversial firms, indicating firms with higher CSR performance in environment and product dimensions tend to select industry-specialized auditors. Our findings for non-controversial firms support stakeholders and ethical theories that non-controversial firms with better CSR performance are more likely to engage an audit industry specialist. In contrast, controversial firms with better CSR performance in product or environment issues are less likely to engage an audit industry specialist because controversial firms utilize CSR reporting as the opportunistic green-washing behavior to conceal the sin nature of their operation. The untabulated results for the remaining control variables are qualitatively similar to those in Table 3.

5.2 | The selection of industry-specialist auditors and CSR by total strengths and concerns in controversial/ non-controversial industries

Prior studies suggest that the net ratings of each CSR category might conceal important differences. If this is the case, a firm with three strengths and three concerns should be different from a firm with one strength and one concern (Chatterji et al., 2009; Kim et al., 2012; Mattingly & Berman, 2006). Hence, we decompose CSR ratings into total strengths and total concerns and re-examine the relationship between CSR, as measured by total strengths and concerns, and the selection of industry-specialist auditors. Table 8 shows that all coefficients on *CSR_Strengths* in the *NL*, *CL* and *Both* models are positive and significant for both controversial and non-controversial firms (*p-values* = 0.003, 0.067, 0.013, <0.001, 0.010 and 0.009, respectively). In addition, all coefficients on *CSR_Concerns* are negative and significant for non-controversial firms (*p-values* = 0.002, <0.001 and 0.042 in *NL*, *CL* and *Both* models, respectively). The results indicate that firms with increasing CSR strengths are more likely to engage industry auditor specialists. In particular, non-controversial firms with increasing CSR concerns are less likely to hire industry auditor specialists. The untabulated results for the remaining control variables are relatively similar to those in Table 3.

5.3 | Self-selection in the choice of industry-specialist auditors

Industry specialist auditors may be more willing to accept clients with higher CSR ratings since such clients are less likely to have fraudulent financial reporting, accounting restatements or become targets of SEC AAERs (Kim et al., 2012). Specialized auditors may also engage CSR firms for reputational purposes at both the individual auditor and audit firm levels.

Following Lawrence et al. (2011), we estimate the probability of firms employing an industry-specialist auditor by using propensity-score matching methods¹⁵ that matches two groups with similar characteristics (firms selecting an industry-specialist auditor and firms choosing a non-specialized auditor) in order to reduce selection bias. Table 9 indicates that all estimated coefficients on *CSR_R* are significant and positive for *NL*, *CL* and *Both* models using propensity-score matched sample. The results for control variables are similar to those shown in Table 3.

5.4 | The alternative measure of industry-specialist auditor

As a sensitivity test, we use Cenker and Nagy's (2008) method as an alternative measure of auditor industry specialization. According to Cenker and Nagy (2008), an accounting firm is classified as an industry specialist if its auditor market

¹⁵ The merits of using the propensity-score matching model include its provision of a direct estimate of treatment effects (Li & Prabhala, 2007), not relying on a specific functional form, such as a Heckman (1979) selection model, and the possibility of mitigating the potential influence of nonlinearities on estimating treatment effects if the functional form is nonlinear (Lawrence et al., 2011).

TABLE 8 Logistic regression results: CSR by total strengths and concerns, corporate governance and selection of specialist auditors (industry analyses)

Variables	Controversial Firms						Non-Controversial Firms					
	NL		CL		Both		NL		CL		Both	
	coefficient estimate	p-value	coefficient estimate	p-value	coefficient estimate	p-value	coefficient estimate	p-value	coefficient estimate	p-value	coefficient estimate	p-value
Intercept	-16.121	0.938	-13.384	0.949	-16.719	0.911	-19.567	0.878	-19.798	0.867	-20.437	0.904
CSR_Strengths	0.134	0.003	0.079	0.067	0.127	0.013	0.068	< 0.001	0.046	< 0.001	0.078	< 0.001
CSR_Concerns	0.051	0.272	-0.073	0.112	-0.122	0.032	-0.045	0.002	-0.058	< 0.001	-0.038	0.042
CGOV_R	-0.065	0.550	0.315	0.005	0.390	0.004	-0.064	0.042	-0.077	0.012	-0.112	0.007
Chi-Squared	129.09		12.110		106.36		462.53		693.74		484.77	
p-value	< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001	
Pseudo R ²	28.16%		28.60%		25.88%		11.69%		15.59%		10.95%	
N	1,097		1,097		1,097		12,538		12,538		12,538	

Notes: The controversial (sinful) firms include those in the alcohol, tobacco, nuclear power, gambling, military, and firearms industry. The dependent variables are three proxies for industry-specialized auditors: NL indicates a national-level industry leader; CL indicates a city-level industry leader; and Both indicates a joint city-national industry leader. The independent variables of interest are CSR_Strengths indicating total strengths of KLD's five social rating categories, i.e., community, diversity, employee relations, environment and product; and CSR_Concerns indicating total concerns of KLD's five social rating categories. Control variables and fixed effects are not reported in the table for brevity. All other variables are defined in Appendix B. The black italics of p-value denote significance at 0.1, 0.05 or 0.01 levels.

TABLE 9 Logistic regression results: CSR, corporate governance and the selection of specialist auditors in propensity-score matched sample

Variables	NL		CL		Both	
	coefficient estimate	p-value	coefficient estimate	p-value	coefficient estimate	p-value
Intercept	-18.094	0.911	-17.510	0.906	-17.275	0.947
CSR_R	0.062	<0.001	0.047	<0.001	0.069	<0.001
CGOV_R	-0.039	0.286	-0.027	0.429	-0.070	0.180
Firms' financial condition:						
Log_Assets	-0.005	0.836	0.049	0.030	0.046	0.197
TATurn	-0.077	0.062	0.070	0.082	0.009	0.894
CurrRatio	0.025	0.144	-0.013	0.337	-0.019	0.444
ROA	0.034	0.879	0.269	0.155	-0.195	0.552
Firms' agent costs:						
LEV	-0.063	0.639	0.117	0.320	-0.187	0.348
Complexity of operations:						
Log_Segment	0.031	0.435	-0.003	0.930	0.0003	0.995
ExpSale_pct	0.803	0.177	-0.164	0.762	-0.523	0.527
Others:						
NewFunds_pct	0.065	0.683	-0.034	0.802	0.136	0.576
Log_FirmAge	0.003	0.923	0.022	0.475	0.048	0.327
Litigation	-0.096	0.297	-0.275	0.002	-0.355	0.011
ASize	0.079	<0.001	-0.016	0.389	0.030	0.283
ACInd_pct	1.629	0.090	-0.773	0.368	-0.179	0.896
ACFinExp	-0.139	0.116	0.176	0.034	0.043	0.743
BDSIZE	-0.036	0.015	-0.018	0.199	-0.067	0.002
BDInd_pct	0.214	0.474	0.801	0.004	-0.028	0.950
Ind. dummies	Included		included		included	
Year dummies	Included		included		included	
Chi-Square	145.59		247.53		138.66	
p-value	<0.001		<0.001		<0.001	
Pseudo R ²	12.35%		13.72%		13.39%	
N	7,514		8,814		3,546	

Notes: The dependent variables are three proxies for industry-specialized auditors: NL indicates a national-level industry leader; CL indicates a city-level industry leader; and Both indicates a joint city-national industry leader. The independent variables of interest are CSR_R indicating net score of CSR ratings measured as total strengths minus total concerns; and CGOV_R indicating corporate governance rating measured as strengths minus concerns from KLD database. All other variables are defined in Appendix B. The black italics of p-value denote significance at 0.1, 0.05 or 0.01 levels.

share is at least 24% of the two-digit industry audit fees before 2002 (1 firm/5 firms \times 1.2 = 0.24) and at least 30% of the two-digit industry audit fees after 2003 (1 firm/4 firms \times 1.2 = 0.30). The untabulated results are similar to those in Table 3.

5.5 | The endogenous effect

Larcker and Rusticus (2010) indicate that instrumental variable (IV) methods are generally used in accounting research when the explanatory variables are endogenous. They propose the over-identifying test and Hausman specification

test (Durbin, 1954; Hausman, 1978; Wu, 1973) before the appropriate use of IV method since the use of the Hausman specification test can statistically assess the differences between the IV estimates and ordinary least square (OLS). We follow prior studies (Khan, Muttakin, & Siddiqui, 2013; Roberts, 1992) and conduct the following first stage regression model:

$$\begin{aligned} CSR_R_{t,i} = & \alpha_0 + \alpha_1 Spec_Aud_{t-1,i} + \alpha_2 INSIDEpct_{t-1,i} + \alpha_3 LEV_{t-1,i} + \alpha_4 CEOduality_{t-1,i} + \alpha_5 Log_Assets_{t-1,i} \\ & + \alpha_6 MBA_{t-1,i} + \alpha_7 RETSTD_{t-1,i} + \alpha_8 Log_Age_{t-1,i} + \sum_{k=1}^{13} \varphi_k Industry_k + \sum_{t=2002}^{2010} \delta_t Year_t + \delta_{t,i} \quad (\text{stage 1}) \end{aligned}$$

$$\begin{aligned} Spec_Aud_{t,i} = & \beta_0 + \beta_1 CSR_R_{t,i} + \beta_2 CGOV_R_{t,i} + \beta_3 Log_Assets_{t,i} + \beta_4 TATurn_{t,i} + \beta_5 CurrRatio_{t,i} + \beta_6 ROA_{t,i} + \beta_7 LEV_{t,i} \\ & + \beta_8 Log_Segment_{t,i} + \beta_9 ExpSale_pct_{t,i} + \beta_{10} NewFunds_pct_{t,i} + \beta_{11} Log_FirmAge_{t,i} + \beta_{12} Litigation_{t,i} \\ & + \beta_{13} ACSize_{t,i} + \beta_{14} ACInd_pct_{t,i} + \beta_{15} ACFinExp_{t,i} + \beta_{16} BDSIZE_{t,i} + \beta_{17} BDInd_pct_{t,i} + \sum_{k=1}^{13} \varphi_k Industry_k \\ & + \sum_{t=2002}^{2010} \delta_t Year_t + \epsilon_{t,i} \quad (\text{stage 2}) \end{aligned}$$

where:

INSIDEpct = Percentage of common stock held by top management and directors plus shareholders holding more than 5% of shares;

LEV = The total debts divided by total assets;

CEOduality = An indicator variable that is equal to 1 if CEO serves as the chair of the board or president of the company or both, 0 otherwise;

MBA = The market value of total assets divided by the book value of total assets;

RETSTD = The standard deviation of share returns during the previous 60 months; and

Log_Age = Natural logarithm of firm age.

The untabulated results indicate that the instrument variable is valid since the over-identifying test is insignificant (all *p*-values > 0.50). In addition, the Hausman test does not reject the exogeneity of *CSR_R* (all *p*-values > 0.50). Taken together, the evidence suggests that logistic regression results are appropriate since IV estimates are likely to be more biased than the logistic estimates.

6 | CONCLUSION

This study examines the effect of CSR on the selection of an industry-specialist auditor, using a sample of US publicly listed companies. We hypothesize that firms with higher CSR scores are more likely to select industry-specialist auditors and that the effect of CSR on the auditor selection may be different between firms in controversial industries and those in non-controversial industries. We investigate 13,635 firm-year observations for the 2002–2011 period and find that firms with higher CSR ratings are more likely to select industry-specialist auditors who are national-level industry leaders or joint city-national industry leaders. The positive effect of CSR on specialized auditor selection still exists after controlling for the potential effect of corporate governance strength. These findings suggest that in order to meet societal needs for high quality reporting of financial statements and environmental issues, firms tend to hire high quality auditors. The results support prior research's findings and our expectations. For instance, prior studies found that with their competences, knowledge and legitimacy, auditors can enhance the perceived quality of CSR reports (Collison, 1996; De Beelde & Tuybens, 2015). Collison and Slomp (2000) add that auditors may be able to evaluate environmental issues as long as they have some training in those areas. Previous studies also show

with their industry-specific knowledge, industry-specialized auditors can provide high quality services such as higher quality auditor reports, higher level of assurance, and more effective detection of errors within the auditor's expertise (Balsam et al., 2003). Similarly, industry-specialized auditors auditing CSR firms are believed to employ their knowledge on the client firms' industry, and environmental and social issues to enhance the credibility of the client firms' financial statements and reports of environmental and social issues.

In the industry analysis, the results indicate that firms in non-controversial industries with higher CSR ratings are more likely to hire industry-specialized auditors who are national-level industry leaders, city-level industry leaders, or joint city-national industry leaders. However, firms with better CSR performance related to product quality and environmental issues in controversial industries tend to select non-specialized auditors. A possible explanation for this is that controversial firms overinvest in CSR activities associated with environment and product issues to disguise the sin nature of their manufactured goods and simultaneously engage non-specialized auditors perhaps to avoid potential environmental and legal liabilities.

This study is subject to a number of limitations which might be explored in future research. The sample is only limited to US publicly listed firms. It would be interesting if the study were extended to other countries with different cultures, economics and regulatory environments. Moreover, in the current study, we find that CSR performance of firms in non-controversial industries is positively associated with the selection of an industry-specialized auditor. However, we fail to document such evidence in the sample of firms in controversial industries. Further examination to explain the differences between controversial industries and non-controversial industries is out of the scope of this study.

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APPENDIX A

Practical case: Dell 2012 Corporate Responsibility Report

As Lydenberg and Wood (2010) document that ‘readers may find third-party assurance of the accuracy of the information in a company’s CSR report ... To be credible, they should be issued by independent third parties. The Big Four accounting firms are major players in this field, and according to CorporateRegister.com, conduct about 40 percent of these audits’. Therefore, specialized auditors could ensure the accuracy of CSR disclosure information for firms. For example, Dell published a 2012 Corporate Responsibility Report that indicated the firm’s financial information needs independent and specialized auditors to provide their assurance for the firm’s data. Dell’s statements in the 2012 Corporate Responsibility Report are partially presented as follows (Dell, 2012):

- In 2012, our greenhouse gas (GHG) data were *third-party assured* using the AA1000 Assurance Standard (Page 6).
- We conducted more than 1,000 scheduled and unannounced, *third-party audits* of our Asset Resale and Recycling partners globally (page 47).
- Continue with a goal of 100 supplier facility audits including more than 25 Electronic Industry Citizenship Coalition (EICC) *third-party validated audits* (page 51).
- Collect Tier 2 information from Tier 1 suppliers through the use of a *third-party* software application in order to understand our progress in promoting inclusion and improve cooperation among our prime suppliers (page 52).
- Dell conducted 125 audits, including 25 EICC *third-party validated audits*, at our supplier facilities – exceeding our stated goal (page 54).
- Conduct at least 50 *third-party validated audits*, at our supplier facilities, doubling our goal stated in FY12 (page 54).

APPENDIX B

Definition of variables

Variable	Definition
<i>Spec_Aud</i>	1 if an auditor is one of the following three specialist auditors, (1) National-level industry leader (NL), (2) City-level industry leader CL, or (3) Both, and 0 otherwise; (1) NL = 1 if an auditor is a national industry leader, 0 otherwise; (2) CL = 1 if an auditor is a city-level industry leader, 0 otherwise; (3) Both = An indicator variable that is equal to 1 if an auditor is both a national-level industry leader and a city-level industry leader, 0 otherwise;
<i>CSR_R</i>	Net score of CSR ratings, which is based on five social rating categories: including community, diversity, employee relations, environment, and product, is measured as total strengths minus total concerns;
<i>CSR_People</i>	The sum of CSR ratings relating to community, diversity and employee relations categories in the end of year _{<i>t</i>-1} ;
<i>CSR_Product</i>	The sum of CSR ratings relating to environment and product categories in the end of year _{<i>t</i>-1} ;
<i>CSR_COM</i>	CSR ratings relating to community category;
<i>CSR_DIV</i>	CSR ratings relating to diversity category;
<i>CSR_EMP</i>	CSR ratings relating to employee relations category;
<i>CSR_ENV</i>	CSR rating relating to environment category;
<i>CSR_PRO</i>	CSR ratings relating to product category;
<i>CSR_Strengths</i>	Total strengths of KLD's five social rating categories, i.e., community, diversity, employee relations, environment and product;
<i>CSR_Concerns</i>	Total concerns of KLD's five social rating categories;
<i>CGOV_R</i>	Corporate governance rating from KLD database, which is based on such rating categories as compensation, ownership, accounting, transparency, political accountability, and others, is measured as strengths minus concerns;
<i>Assets</i>	Total assets in millions;
<i>Log_Assets</i>	Natural logarithm of total assets;
<i>TATurn</i>	Sales _{<i>t</i>} divided by total assets _{<i>t</i>-1} ;
<i>CurrRatio</i>	Current assets divided by current liabilities;
<i>ROA</i>	Net income _{<i>t</i>} divided total assets _{<i>t</i>-1} ;
<i>LEV</i>	(Long term debt _{<i>t</i>} plus debt in current liabilities _{<i>t</i>})/total assets _{<i>t</i>-1} ;
<i>SumSeg</i>	Total number of business segments reported in Compustat segment file at the fiscal year;
<i>Log_Segment</i>	Natural logarithm of total number of business segments reported in Compustat segment file;
<i>ExpSale_pct</i>	The proportion of a firm's foreign sales during the fiscal year;
<i>NewFunds_pct</i>	(New debt plus equity issuance) /total assets;
<i>FirmAge</i>	Total number of years a firm exists in the CRSP database;
<i>Log_FirmAge</i>	Natural logarithm of total number of years;
<i>Litigation</i>	1 if the firm operates in a high-litigation industry, and 0 otherwise (high-litigation industries are industries with SIC codes of 2833–2836, 3570–3577, 3600–3674, 5200–5961 and 7370);
<i>ACSize</i>	The number of audit committee members;
<i>ACInd_pct</i>	The percentage of independent audit committee members;
<i>ACFinExp</i>	1 if financial experts serve on audit committee, 0 otherwise;
<i>BDSize</i>	The number of directors on a board; and
<i>BDInd_pct</i>	The percentage of independent directors on a board.