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# **Can High Quality Financial Audit Assurance Substitute for CSR Assurance? Evidence from Spillover Effects of Engaging Big N Auditors**

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## **Can high quality financial audit assurance substitute for CSR assurance? Evidence from spillover effects of engaging Big N auditors**

### **Abstract**

We investigate the spillover effect of Big N financial auditors on client firms' CSR disclosure quality. Using an international sample of firms from 34 countries over the period 2008-2018 and using a measure of CSR disclosure quality from *Sustainalytics*, an independent CSR research firm, we find strong evidence that Big N auditors are positively associated with CSR disclosure quality. In cross-sectional analysis, we find that the relation between Big N auditors and CSR disclosure quality is accentuated when the information environment is poorer and when the financial reporting environment and legal institutions are weaker. Finally, we document that firms with Big N auditors also exhibit better CSR performance. Our study extends the literature by showing that engaging Big N auditors has positive spillover effects that enhance both CSR disclosure quality and CSR performance.

**Keywords:** Auditor Quality; Corporate Social Responsibility; Disclosure Quality, Information Environment; Financial Reporting Environment; Legal Institutions.

## 1. Introduction

CSR reporting has become increasingly important to investors, managers, regulators and scholars due to increasing public concerns about social and environmental issues (Porter and Kramer 2006; Snider et al. 2003). However, voluntary CSR disclosures are informative and useful only if they are perceived to be credible (Coram et al. 2009). To enhance the credibility of CSR disclosure, some firms have begun to seek CSR assurance by an independent third party (Casey and Grenier 2015; Simnett et al. 2009). However, as reported in Casey and Grenier (2015) and Simnett et al. (2009), only a small proportion of firms' CSR reporting is assured by independent third parties, a result that these authors find puzzling, given that CSR disclosures with assurance are perceived to be more credible. Casey and Grenier (2015) assert that regulatory oversight may be acting as a substitute for CSR assurance.

In this study, we build on their reasoning and argue that high-quality and reputable financial auditors such as the Big N auditors may be acting as a substitute for the assurance of CSR reports. In particular, we posit that engaging Big N financial auditors has positive knowledge spillover effects that enhance the quality and credibility of CSR disclosure, which potentially explains why some firms do not seek third party assurance of their CSR disclosures. To answer this research question, we focus on the disclosure quality of firms that do not seek CSR assurance from an independent third party because we are interested in the knowledge spillover effect of engaging Big N auditors rather than the direct CSR assurance effect of Big N auditors on firm's CSR disclosure quality.<sup>1</sup> We investigate whether engaging Big N auditors for financial audit assurance also helps to enhance CSR disclosure quality despite auditors not providing direct assurance for CSR disclosure.

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<sup>1</sup> Simnett et al. (2009) find that only one of their sample of sustainability reports assured by the audit profession was assured by a non-Big N auditor. Therefore, examining firms that do not seek CSR assurance helps us to better investigate the knowledge spillover effect of Big N auditors as compared to non-Big N auditors.

We posit that Big N auditors can improve CSR disclosure quality and thus substitute for CSR assurance for several reasons. First, Big N auditors have a sound understanding of their clients' operations and business environment. To help them in audit risk assessment, auditors also evaluate clients' nonfinancial information, including CSR risks (Murphy and Hogan 2016; PCAOB 2004, 2007). Through this process of risk assessment, Big N auditors may influence their client firm's reporting on sustainability issues and CSR risk because it is a means for improving the overall quality of the company's reporting and enhancing its credibility. Second, although auditors are not required to provide additional assurance on the unaudited portion of the annual report, we expect Big N auditors to go beyond the directive of auditing standards and use the information they gather from the review of CSR activities to help client firms improve the quality of their CSR disclosure (Legoria et al. 2018). Third, Big N auditors have a dominant share in the CSR assurance market and thus have the expertise and incentives to offer additional value-adding sustainability services to help clients improve their CSR disclosure during the auditing process to retain or to build a good relationship with their clients. Therefore, we expect firms audited by Big N auditors to have higher CSR disclosure quality. However, auditors are engaged to provide audit services and opine on the quality of financial reporting, they are not obligated to review and improve non-financial information such as CSR disclosure. The additional costs incurred by auditors in familiarizing and reviewing such information may outweigh the benefits. Hence, whether auditor quality relates to CSR disclosure quality is ultimately an empirical question.

We examine the relation between auditor quality and CSR disclosure quality using a large sample of 16,377 firm-year observations across 34 countries spanning the years 2008 to 2018. Following prior CSR studies (Bartov et al. 2020; Dai et al. 2020; Dyck et al. 2019), we construct measures of CSR disclosure quality using data from *Sustainalytics*,

an independent provider of ESG disclosure, governance, and performance ratings. As in prior studies (Teoh and Wong 1993; Becker et al. 1998; Fan and Wong 2005; Choi and Wong 2007; Behn et al. 2008), we use an indicator variable for Big N membership to proxy for auditor quality. Consistent with our prediction, we find strong and robust evidence that Big N auditors are positively associated with CSR disclosure quality. We subject our main results to a battery of alternative models and variable specifications, including using an instrumental variable approach to mitigate endogeneity concerns, and a sub-sample analysis to address selection bias. Our findings are robust to these sensitivity tests.

The benefits of engaging a Big N auditor in enhancing CSR disclosure quality may not be uniform across countries with different institutional environments, because countries differ in the characteristics of their institutional structures. We examine whether cross-country differences in institutional structures moderate the impact of Big N auditors on CSR disclosure quality. We consider three country-level institutional characteristics – information environment, financial reporting environment, and legal institutions – that may systematically moderate the relation between auditor quality and CSR disclosure quality. Our empirical results show that the impact of Big N auditors on CSR disclosure quality is more pronounced when the information environment is poorer, and when the financial reporting environment and the legal institutions are weaker, settings where the benefits of engaging Big N auditors are likely to be greater.

Finally, we also investigate whether the benefits of engaging Big N financial auditors spillover to improve CSR performance. We predict that during the assessment of business risk, auditors communicate frequently with the client firm's executives, which provides a good opportunity for auditors to advise and help clients integrate CSR activities with the firm's strategy and thus improve CSR performance. Moreover, through the

review of CSR disclosure, auditors enhance the quality of information for strategic decision making and resource allocation for CSR activities and thus improve CSR performance (Ballou et al. 2012), consistent with findings in the literature that better information quality enhances real activities such as investment efficiency (Biddle et al. 2009) and tax planning (Gallemore and Labro 2015). Consistent with our prediction, we find that Big N auditors are positively associated with CSR performance.

Our study contributes to the literature in several important ways. First, our study extends the audit literature on the benefits of engaging Big N auditors. This literature suggests that Big N auditors enhance both financial and non-financial disclosure in the U.S. and around the world. We document the spillover effects of engaging Big N financial auditors in enhancing the quality of CSR disclosure, an increasingly important dimension of non-financial disclosure. Further, most prior studies focus primarily on the issuance of CSR reports as a dichotomous proxy for CSR disclosure quality (Simnett et al. 2009; Casey and Grenier 2015; Chen et al. 2016). In contrast to these studies, we utilize the CSR disclosure scores issued by an independent third-party provider of ESG ratings, which provides greater cross-sectional variation in CSR disclosure quality.<sup>2</sup> The finding is important as it supports the thesis that Big N auditors can provide stakeholders with more transparent and credible financial as well as non-financial information, even when the CSR information is not verified by an independent third party. We also extend the findings of Dal Maso et al. (2020) who find that the benefits of engaging Big N auditors in CSR

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<sup>2</sup> Our study is closely related to Chen et al. (2016) who find that firms are willing to pay higher audit fees to signal their commitment to providing credible CSR information. Our study differs from Chen et al. (2016) in several aspects. First, audit fees may be a noisy proxy for audit effort or quality. As noted by DeFond and Zhang (2014), audit fees can capture either audit effort or risk premium, and hence higher audit fees could indicate higher audit effort or a compensation for clients' higher audit risk arising from CSR activities. Second, our study also investigates the effect of high-quality auditors on CSR performance, which is not examined in Chen et al. (2016). Lastly, Chen et al. (2016) utilize U.S. firms in their tests, and it is plausible that their results may not be generalizable to other countries with different institutional backgrounds.

disclosure assurance spills over to financial audit assurance by documenting that the spillover also goes from financial audit to CSR disclosure.<sup>3</sup>

Second, very limited accounting research investigates the effect of high-quality auditors on CSR performance, as most studies focus primarily on CSR disclosure quality (Chen et al. 2016). As more investors have begun to pay attention to companies' environmental, social, and governance (ESG) practices (Bernow et al. 2017; Forbes 2018) and are now incorporating firms' CSR performance into investment decisions (Amel-Zadeh and Serafeim 2018), it is important to further understand the determinants of CSR performance (Amel-Zadeh and Serafeim 2018; Liang and Renneboog 2017). By providing evidence that Big N auditors help improve firms' CSR performance, we also extend the accounting literature on the effects of high-quality auditors on real CSR performance. Moreover, we contribute to the extant literature that documents that better information quality has real effects on investment efficiency (Biddle et al. 2009) and tax planning (Gallemore and Labro 2015).

Third, our study contributes to the general literature on corporate social responsibility. Prior studies in finance show that legal origin, institutional ownership and managers' characteristics explain firms' CSR performance (Masulis and Reza 2015; Cronqvist and Yu 2017; Liang and Renneboog 2017; Dyck et al. 2019). We extend this line of research by showing that Big N auditors play a significant role in enhancing CSR disclosure quality and performance.

Lastly, our study should be of interest to stakeholders and regulators concerned about the quality of CSR disclosure. Our findings suggest that the influence of Big N auditors on the quality of CSR disclosure varies with differences in the institutional

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<sup>3</sup> Dal Maso et al. (2020) find that the provision of financial audit and CSR assurance services by the same audit firm is associated with better assessment of going concern risk, which suggests knowledge spillovers from CSR assurance to financial audit assurance. However, they do not consider the knowledge spillovers from financial audit assurance to firm's CSR disclosure, which is the focus of this study.



environment, and the use of high-quality auditors is even more important in countries with a weak institutional environment. The findings of our study also provide a potential explanation for why prior work (Simnett et al. 2009; Casey and Grenier 2015) documents the puzzling finding that the level of CSR assurance in the U.S. is relatively low. Our results suggest that high-quality auditors may be acting as a substitute for CSR assurance.

The rest of this study is organized as follows. In section two, we discuss related research on Big N auditors and CSR and develop our predictions on the relation between auditor quality and CSR disclosure quality. We present the measures of our primary variables of interest and research design in section three, discuss the main results in section four, and the results of cross-sectional analyses in section five. We provide our conclusion in section six.

## **2. Research Background and Hypotheses**

### **2.1 Prior Research on CSR**

Corporate social responsibility (CSR) has become an increasingly important and integral part of firms' strategy and business operations around the world due to the growing public concerns about social and environmental issues (Snider et al. 2003; Porter and Kramer 2006). According to KPMG (2017), the vast majority (78 percent) of the world's top companies now integrate CSR information in their annual financial reports, with large differences in CSR reporting practices persisting across countries and regions. Following prior research (e.g., Lins et al. 2017), we view CSR as an activity that demonstrates "the commitment of a business to contribute to sustainable economic development, working with employees, their families, the local community, and society at large to improve the quality of life (World Business Council for Sustainable Development)."

Beyond meeting their financial objectives, firms face growing internal and external pressures to improve performance along various non-financial dimensions, including environmental impacts, social welfare, and fair labor practices (Bénabou and Tirole 2010; Hart and Zingales 2017). Firms are also increasingly being held accountable for the adverse effects of their activities, such as environmental externalities, unhealthy or unsafe products, and improper labor practices, on stakeholders.<sup>4</sup> A growing number of investors are now incorporating and integrating CSR performance into their stock and bond investment decisions (Dhaliwal et al. 2012; Durand et al. 2019).<sup>5</sup> Consequently, CSR is employed as a popular tool for corporations to build social capital and enhance stakeholder trust (McWilliams and Siegel 2001; Dhaliwal et al. 2011; Christensen et al. 2019), and to enhance the public perception of the firm's ability to create "long-term and shared stakeholder value" (Gamerschlag et al. 2011; Ballou et al. 2012).

Recent studies show that CSR reporting is associated with numerous economic benefits. For example, CSR disclosures are associated with lower cost of equity (Dhaliwal et al. 2011), lower cost of debt (Amiraslani et al. 2016; Barth et al. 2020), higher firm value (Matsumura et al. 2014; Ferrell et al. 2016), higher stock market return (Flammer 2015), better accounting performance (Lev et al. 2010; Flammer 2015), and lower analyst forecast error (Dhaliwal et al. 2012).

Because of the substantial benefits of CSR activities, CSR reporting is employed as a strategic tool for firms to meet stakeholder demands for disclosure about firms'

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<sup>4</sup> Media coverage of a company's poor ESG practices could lead to negative market reactions by investors (Grewal et al. 2018; Capelle-Blancard and Petit 2019). For example, Smith et al. (2011) report that British Petroleum lost 50% of its share value in the three months after the Deepwater Horizon oil spill in April 2010. Similarly, after the media revealed that Cambridge Analytica illegally accessed the information of millions of Facebook users, Facebook lost \$37 billion of its market value (<https://www.malaymail.com/news/opinion/2018/03/22/facebooks-pr-crisis-is-largely-self-inflicted-karalaimo/1604607>).

<sup>5</sup> For example, BlackRock CEO Larry Fink recently sent a letter to investors detailing his plans to incorporate ESG as a new standard for investing (BlackRock 2020).

sustainable/responsible practices (Simnett et al. 2009; O'Dwyer 2011; Cohen and Simnett 2015). However, voluntary CSR disclosures are useful only if they are perceived to be credible (Coram et al. 2009). Unlike financial reporting, CSR reporting is less regulated and there is substantial variation in firms' CSR reporting practices. Consequently, managers have considerable discretion to disclose CSR information strategically, and hence stakeholders might be skeptical about the credibility of CSR reports (Cho and Patten 2007; Cho et al. 2015), and public confidence in these disclosures has been low (Dando and Swift 2003; Adams and Evans 2004). Consistent with the symbolic view of CSR reporting, Cho et al. (2010) find that poor environmental performers are more likely to have optimistic and uncertain tones in their environmental disclosures ("greenwashing"), and tend to disclose more CSR-related information in response to social and political pressure (Wiseman 1982; Patten 2002; Cho and Patten 2007). Some sustainability investments are also found to be inefficient because of managers' incentives to extract private benefits (Brammer and Millington 2008; Cheng et al. 2019) or to serve political beliefs and agendas (Di Giuli and Kostovetsky 2014). In summary, CSR can be used as a managerial tool to conceal self-serving behaviors and therefore CSR disclosure credibility becomes a concern when managers disclose CSR information strategically (Ingram and Frazier 1980; Hobson and Kachelmeier 2005; Holder-Webb et al. 2009).

To enhance the credibility of CSR disclosures, some firms voluntarily seek independent assurance of CSR reports, either by accounting firms or professional consultants (Casey and Grenier 2015; Cohen and Simnett 2015). For example, Simnett et al. (2009) find that companies seeking to enhance the credibility of their CSR reports to build their corporate reputation are more likely to have their sustainability reports assured, although these firms are indifferent to whether the assurance provider comes from the auditing profession. In their sample, only about 30% of firms seek independent assurance.

Similarly, Casey and Grenier (2015) find that only about 9% of their sample firms are independently assured.<sup>6</sup> In other words, a majority of CSR reports provided by firms are *not* verified by an independent external party, a result that these authors find puzzling. In this study, we argue that high-quality and reputable financial auditors could serve as a substitute for the assurance of CSR reports. This idea is consistent with prior findings that firms can enhance the credibility of their voluntary disclosures when they can commit to provide independent and high-quality financial reports (Dunn and Mayhew 2004; Ball et al. 2012). In particular, we focus on the disclosure quality of firms that do not seek CSR assurance from an independent external party and explore the knowledge spillover effect of Big N financial auditors on CSR disclosure quality.

## **2.2 Big N Financial Auditor and CSR Disclosure Quality**

The major role of financial auditors is to provide an opinion on whether the financial statements and their related disclosures are presented fairly, in all material respects. Prior studies show that hiring a high-quality auditor such as a Big N auditor enhances the credibility of financial statements due to greater audit ability and incentives. Because of reputational concerns, Big N auditors have greater incentive to ensure that their clients' financial statements faithfully reflect the underlying economic transactions (DeAngelo 1981).<sup>7</sup> Firms audited by Big N auditors also report higher levels and quality of voluntary disclosure, such as providing enhanced disclosures beyond annual reports (Dunn and Mayhew 2004), more information via the Internet (Bonsón and Escobar 2006), higher quality of management forecasts (Ball et al. 2012), and higher likelihood of

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<sup>6</sup> Similar to that reported by Simnett et al. (2009) and Casey and Grenier (2015), only 16% of our sample firms seek external assurance. See Section 4.1 for more details.

<sup>7</sup> For instance, studies in the U.S. show that earnings management is lower, earnings response coefficients are higher and cost of capital is lower for clients of Big N auditors relative to clients of non-Big N auditors (Teoh and Wong 1993; Becker et al. 1998; Mansi et al. 2004). In cross-country settings, prior studies also document that Big N auditors are associated with higher financial disclosure quality, lower tax avoidance and lower cost of equity (Khurana and Raman 2004; Choi et al. 2008; Francis and Wang 2008; Kanagaretnam et al. 2010, 2016; El Ghoul et al. 2016).

voluntarily disclosing the identity of firms' major customers (Legoria et al. 2018). In sum, the greater expertise and reputational incentives of Big N auditors in financial reporting are likely to spill over to non-financial disclosures, such as CSR disclosure.

We predict that firms audited by a Big N auditor report higher CSR disclosure quality through three channels. First, the International Auditing and Assurance Standards Board (IAASB) and Public Company Accounting Oversight Board (PCAOB) believe that auditors can use non-financial information as an independent and effective benchmark to assess plausible relationships with financial reporting data, to check for inconsistencies, and to improve fraud detection (PCAOB 2004, 2007; IAASB 2010a). Consistent with this view, prior studies find that both financial and non-financial information help auditors in evaluating material misstatement risk (Bell et al. 2005; Knechel 2007; Brazel et al. 2009). CSR disclosure also helps outsiders to appraise the extent of risks associated with CSR (Steinmeier and Stich 2019). Through the review of non-financial information, auditors may acquire knowledge about new types of CSR risks on matters such as firms' legal responsibilities relating to labor employment and product safety or environmental regulation (Dal Maso et al. 2020).<sup>8</sup> These risks have become more important because the regulatory environment is increasingly influenced by the stakeholder view of the firm, and hence the additional information about CSR risk through a firm's CSR disclosures can in turn assist with audit risk assessment. Moreover, some prior studies indicate that CSR is used by managers to pursue their self-interest (e.g., Hemingway and Maclagan 2004; Cheng et al. 2019), which can influence business operation risk or reflect "tone at the top" and consequently affect the evaluation of audit risk. Therefore, non-financial information

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<sup>8</sup> Some CSR projects have a direct positive cash flow effect even in the short run, which may help auditors assess the financial health of their clients. For example, practices related to environmental protection and employee welfare improvement can boost employee morale, increase production efficiency, and reduce potential litigation and pollution cleaning costs (Dhaliwal et al. 2011).

such as CSR information can become an important component of audit risk assessment and risk response. Compared with non-Big N auditors, Big N auditors have greater expertise and incentives to influence their client's reporting on sustainability through the audit process, because it is a means for improving the overall quality of the company's reporting and enhancing its credibility.

Second, under International Standard of Auditing 720 (ISA 720) and Auditing Standard 550 (AS 550), auditors are required to review the unaudited portion of the annual report that contains the audited financial statements to ensure that the disclosures therein are not inconsistent with the audited financial statements. (IAASB 2010b; PCAOB 2013). Although auditors are not required to provide additional assurance on the unaudited portion of the annual report, Legoria et al. (2018) find that high-quality auditors go beyond the directive of auditing standards and help client firms improve the quality of their disclosure of major customers after reviewing the unaudited portion of the filing. In a similar vein, through the review of CSR disclosure contained in the unaudited portion of the annual report, we expect Big N auditors to enhance the quality of CSR disclosure.

Third, as argued by Behn et al. (1997), clients may demand more than just an audit opinion and may want to benefit from the auditors' business expertise. Audit firms have incentives to exceed client expectations and maximize client satisfaction by offering more value-adding practical advice beyond GAAP compliance. CSR information is increasingly integrated into the annual financial reports and creates strong demand from client firms to acquire advisory services from Big N auditors because of their understanding of the client business and their specialization in the sustainability assurance market. Among the CSR assurance providers, Big N auditors have a dominant share in the assurance market because of their competencies to undertake assurance engagements in reporting domains

such as CSR reporting (Cohen and Simnett 2015; KPMG 2015).<sup>9</sup> With this knowledge and expertise, the audit engagement team can better assist audit clients to improve their CSR disclosure. Big N auditors also have incentives to offer additional sustainability services to help clients improve their CSR disclosure during the auditing process to retain or to build a good relationship with their clients. An inability to offer sustainability advice during the financial audit may impair the auditor's ability to offer comprehensive financial audit and sustainability assurance services in the future. Hence, we expect Big N auditors to influence CSR disclosure quality through the provision of these value-adding services.

Based on the above arguments, we state our first hypothesis as follows:

*H1: Firms audited by Big N financial auditors have higher CSR disclosure quality.*

Although we hypothesize a positive relation between Big N auditors and CSR disclosure quality, we may not observe the predicted relation. There are additional costs that both the auditor and the client firm must bear. Getting CSR information, which does not conform to GAAP, reviewed by Big N auditors could be costly for many firms. From the auditor's perspective, adding non-financial information to the scope of the audit review would entail higher costs. The auditor is required to be knowledgeable about the non-financial reporting standards (e.g., GRI Standards), assessment procedures and systems underlying the performance metrics, as well as the data integrity of third-party providers of these performance metrics. The time involved to acquire this knowledge as well as the time taken to review this non-financial information will certainly drive up the cost of the audit (Ballou et al. 2006; Murphy and Hogan 2016). Also, client firms may not want a Big N auditor to review non-financial information if the additional billable costs outweigh its

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<sup>9</sup> As reported by a Verdantix analysis of global sustainability assurance providers, Big N audit firms lead the market (<https://www.environmentalleader.com/2011/06/big-four-audit-firms-lead-sustainability-assurance-services/>).

benefits. Hence, whether Big N auditors increase CSR disclosure quality can only be determined empirically.

### **3. Research Design**

#### **3.1 Measure of auditor quality**

We use Big N membership (*BIGN*) to proxy for auditor quality because prior studies (e.g., Teoh and Wong 1993; Becker et al. 1998) have shown that Big N auditors are associated with higher audit quality,<sup>10</sup> which likely is related to their ability to recruit higher quality personnel, increased emphasis on learning, and stronger incentives and monitoring systems (Che et al. 2020).

#### **3.2 Measures of CSR disclosure quality**

Our measure of CSR disclosure quality is obtained from the *Sustainalytics* database. *Sustainalytics* is an independent provider of ESG disclosure, governance and performance ratings, and this database has been used in several recent studies (e.g., Bartov et al. 2020; Dai et al. 2020; Dyck et al. 2020). The key ESG issues are identified based on analysis of a company's peer group and its broader value chain, review of its business model, and the key activities associated with environmental and/or social impacts. Performance related to ESG issues is then analyzed by looking at a comprehensive set of core and sector-specific metrics, which are then weighted to determine a company's overall ESG performance score that ranges from 0 to 100.

We use individual values in the governance category to measure CSR disclosure quality. The main variable *CSR\_disclosure\_quality*, which ranges from 0 to 5, measures

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<sup>10</sup> Lawrence et al. (2011) do not find a significant difference in quality between Big N and non-Big N auditors after controlling for self-selection using a Propensity Score Matching (PSM) research design. However, DeFond et al. (2016) show that Lawrence et al.'s results are sensitive to the research design choices inherent in a PSM design. Using a battery of alternate matching procedures, they find that Big N auditors are consistently associated with higher audit quality.



the overall quality of CSR information disclosed by firms. *Sustainlytics* evaluates CSR disclosure quality by examining whether company reporting meets international best practice standards (e.g., Global Reporting Initiative and Carbon Disclosure Project) and is transparent with respect to most material ESG issues. We compute CSR disclosure quality from *Sustainlytics* by averaging the monthly disclosure scores. We also use participation in the Carbon Disclosure Project (*Carbon\_disclosure\_quality*) and scope of corporate reporting on GHG Emissions (*GHG\_disclosure\_quality*) as supplementary measures of CSR disclosure quality. The value of the supplementary measures ranges from 0 to 1, with higher values indicating higher disclosure quality. Following Dyck et al. (2019), we take the natural logarithm after adding one to the values to obtain better distributional properties and to reduce the impact of extreme values.<sup>11</sup>

### 3.2 Empirical Model

We estimate the following cross-sectional regression to test our hypothesis,:

$$\begin{aligned} \log(\text{CSR\_disclosure\_quality}) = & \alpha_0 + \alpha_1 \text{BIGN} + \alpha_2 V + \alpha_3 W + \text{Industry\_FE} \\ & + \text{Year\_FE} + \varepsilon \end{aligned} \quad (1)$$

The dependent variable is  $\log(\text{CSR\_disclosure\_quality})$  for testing H1. *BIGN* is the measure of auditor quality, *V* is a vector of firm characteristics, and *W* is a vector of country characteristics. *Industry\_FE* and *Year\_FE* are industry and year fixed effects, respectively. The Appendix includes detailed definitions of all the variables. Based on our prediction, if Big N auditors enhance CSR disclosure quality, we expect  $\alpha_1$  to be positive.

We select firm-level controls that are documented to be associated with CSR outcomes. We control for firm size (*SIZE*), measured by the logarithm of total assets. Simnett et al. (2009) find that firm size plays a role in determining CSR assurance choices, because larger firms have greater need to enhance credibility. To capture the “doing good

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<sup>11</sup> Our main results are unaffected if we use the raw scores instead of the logged scores.

by doing well” effect, we follow Liang and Renneboog (2017) and control for firm performance, proxied by return on assets (*ROA*). We also control for future performance (*FROA*) because Lys et al. (2015) find that firms incur greater CSR expenditure in the current period to signal higher expected future financial performance. As argued in Dyck et al. (2019) and Dai et al. (2020), firms with profitable investment opportunities may invest less in CSR because they have attractive alternatives for the use of their funds. We use Tobin’s *q* (*Q*) to proxy for investment opportunities. In line with Dyck et al. (2019), we use leverage (*Leverage*) and asset tangibility (*Tangibility*) to control for credit constraints. We control for financial reporting quality (*FRQ*) using the absolute value of discretionary accruals, with lower values indicating higher reporting quality, because Kim et al. (2012) find that socially responsible firms are associated with higher financial reporting quality. Lastly, we control for CSR performance (*log(ES\_score)*) because firms that have superior CSR performance may be more likely to hire a Big N auditor and hence exhibit higher CSR disclosure quality.

Prior studies find that cross-country variation in CSR outcomes is associated with country-level institutions. We control for legal origin (*Common*) because firms from common law countries (i.e., shareholder-oriented countries) tend to underperform firms from civil law countries (i.e., stakeholder-oriented countries) in terms of social responsibility (Simnett et al. 2009; Liang and Renneboog 2017). We control for a set of country-level variables used in Liang and Renneboog (2017) such as the political institutions, which may both shape and reflect social preferences for CSR. In particular, we include Political Executive Constraints (*PEC*), developed by Polity IV, to proxy for the constraints on expropriation by the political elites; Corruption Control (*Corruption*), which measures the extent to which politicians are constrained from pursuing their self-interest through corruption; and Regulatory Quality (*Regulatory\_Quality*), which

measures the government's effectiveness in addressing social responsibility and market externalities in implementing policies and regulations that promote private sector development. We use a measure from the World Bank to proxy for *Regulatory\_Quality*.

As in Liang and Renneboog (2017), we control for a country's capitalist model using the Heritage Index of Economic Freedom (*Economic\_Freedom*), which consists of a broad series of sub-indices measuring different aspects of government interference in business activities, such as government spending, fiscal freedom, and business freedom. We control for a country's level of economic development using the logarithm of GDP per capita (*LGDP*) and Globalization Index (*Globalization*). GDP per capita captures income and wealth effects, as people in richer countries are more likely to care about sustainability, whereas those in poorer countries are more concerned about daily economic survival. The globalization index captures the spillover of CSR standards across countries, as corporations in more globalized countries are under greater pressure to comply with international conventions and principles that prescribe acceptable corporate social conduct. We control for labor protection (*Union*) because Baldini et al. (2018) find that CSR disclosure is higher when labor is more protected. Prior studies (e.g., Baldini et al. 2018; Griffin et al. 2021) find that national culture is related to CSR disclosure. Therefore, we control for national culture proxied by *Secrecy*, as computed in Hope et al. (2008). Because we conduct our estimation on a pooled sample, we cluster the standard errors by firm and include industry and year fixed effects in our regressions (Petersen 2009).<sup>12</sup> Simnett et al. (2009) report that certain industries such as the mining, production, utilities, and finance industries are more exposed to environmental and social risks and therefore

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<sup>12</sup> As stated in Kanagaretnam et al. (2010), "Petersen (2009) suggests that in the presence of cross-sectional and time-series dependence, one dependence effect can be addressed parametrically (e.g., including time [indicators] for cross-sectional dependence) and then standard errors clustered on the other dependence effect (e.g., clustering by firms for time-series dependence) can be estimated. As we have more firm than year observations, we use year [indicators] and cluster by [firm] because a larger number of clusters lead to standard errors that are less biased."

firms in these industries have incentives to increase the credibility of their reported CSR activities. Hence, we include industry fixed effects to control for inter-industry unobserved heterogeneity in corporate non-financial performance.<sup>13</sup> Finally, we include year fixed effects to capture the influence of time trends in specific years.

## 4. Results

### 4.1 Sample

We obtain CSR disclosure quality data from the *Sustainalytics* database for the period 2008–2018 and financial data from the *Compustat Global* database. The sample period begins in 2008 because this is the first year in which the CSR data are available in *Sustainalytics*. We obtain our initial list of countries from the 49 countries in La Porta et al. (1998). We drop five countries (Ecuador, Jordan, Uruguay, Venezuela, and Zimbabwe) because they do not have CSR disclosure quality data available in the *Sustainalytics* database. We drop six countries (Australia, Egypt, Hong Kong, Sri Lanka, Switzerland and Taiwan) because institutional variables (such as regulatory quality, globalization index, economic freedom index, national culture) are not available. We further drop Japan and Korea because the *Compustat Global* database does not provide the identity of the auditors, and we drop Kenya and Nigeria because they each have less than five observations. These sampling and data availability criteria result in a final sample that includes 34 countries and 16,377 firm-year observations. Because our research question focuses on the CSR disclosure quality of firms that do not seek external assurance, we remove 3,046 firm-years where firms' CSR disclosures are verified by a third party.<sup>14</sup> To

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<sup>13</sup> The classification of industry is defined as in Frankel et al. (2002).

<sup>14</sup> *Sustainalytics* does not provide the information on whether the external third-party assurer is an accounting or a consulting firm. The 3,046 firms that seek external assurance represents about 16% of our sample ( $3,046/(16,377+3,046)$ ). In comparison, using Thomson Reuters Asset 4 database, Dal Maso et al. (2020) reported in Figure 1 that 6,468 firms are verified by either external auditor or consulting firm, which represents about 22% of their overall sample ( $(6,468/(3,984+18,209+6,468))$ ).

mitigate the effects of extreme values, we winsorize each continuous firm-level variable at the 1% and the 99% level. The final sample size used in the main regression analyses is 16,377 firm-year observations over the 11-year sample period.

## 4.2 Descriptive Statistics

Table 1 reports the sample composition and the mean characteristics for each of the 34 countries. The sample size for each country ranges widely from 7 firm-year observations for Argentina to 6,852 firm-year observations for the U.S.<sup>15</sup> Our main test variable is  $\log(\text{CSR\_disclosure\_quality})$ . As observed from Table 1, CSR disclosure quality varies widely across countries. Argentina and New Zealand have the lowest scores (lower than 0.13) while Columbia and South Africa have the highest scores (greater than 0.8). The proportion of firms audited by Big N auditors also varies widely across countries. Less than 25% of the firms are audited by Big N auditors in Indonesia, Philippines and Turkey while all the firms in Argentina, Ireland and Portugal are audited by Big N auditors.<sup>16</sup>

Table 2 presents descriptive statistics and correlations of the regression variables for the full sample. As reported in Panel A, the mean (median)  $\log(\text{CSR\_disclosure\_quality})$  is 0.247 (0.000). On average, 88% of the firm-year observations in the sample employ Big N auditors. Panel B reports Spearman correlations between the variables. Consistent with our expectation, we observe a positive correlation between auditor quality ( $BIGN$ ) and CSR disclosure quality ( $\log(\text{CSR\_disclosure\_quality})$ ). Because these are pairwise univariate correlations, we defer the main inferences to the multivariate tests reported in the following section.

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<sup>15</sup> In robustness tests, we exclude US firms and countries with fewer than 100 observations. See Section 4.3.3.

<sup>16</sup> Note that our sample firms consist of firms reported by *Sustainlytics* that covers 4,500 companies in major global indices, hence it is not surprising that a large proportion of firms in our sample are larger firms that are audited by Big N auditors.

## 4.3 Empirical Results

### 4.3.1 Main Analysis

In this section, we report the results of the tests of H1, which examines the association between Big N auditors and CSR disclosure quality. Table 3 shows the results for H1. In Column 1, the dependent variable is  $\log(\text{CSR\_disclosure\_quality})$ , and in Columns 2 and 3, the dependent variables are the supplementary measures of CSR disclosure quality,  $\log(\text{Carbon\_disclosure\_quality})$  and  $\log(\text{GHG\_disclosure\_quality})$ , respectively. In all three columns, we observe a positive and statistically significant coefficient of *BIGN* at the 1% significance level, consistent with auditor quality being positively related to the quality of CSR disclosure. The marginal effect of *BIGN* on  $\log(\text{CSR\_disclosure\_quality})$  indicates that employing a Big N auditor rather than a non-big N auditor increases the quality of CSR disclosure by 9.0%,<sup>17</sup> which is also economically significant.

The signs of the coefficients of the control variables in main model (1) are largely consistent with prior literature and our expectations. We find that firm size is positively associated with CSR disclosure quality (Simnett et al. 2009). We also find that firms with higher financial reporting quality (that is, lower *FRQ*) exhibit higher CSR disclosure quality, consistent with our expectation that financial and non-financial reporting quality go hand-in-hand. In addition, we find that firms with better CSR performance are associated with higher CSR disclosure quality. For the set of country-level controls, we find that countries with common law tradition exhibit lower CSR disclosure quality, consistent with the finding in Liang and Renneboog (2017) and Simnett et al. (2009). We find that *Economic\_Freedom* and *Union* are positively associated with CSR disclosure

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<sup>17</sup> The impact of employing a Big N auditor (*BIGN*) on  $\log(\text{CSR\_disclosure\_quality})$  is computed as  $(\exp(0.086 \text{ (the coefficient of } BIGN)) - 1) \times 100\% = 9.0\%$ . The marginal effects of *BIGN* on  $\log(\text{Carbon\_disclosure\_quality})$  and  $\log(\text{GHG\_disclosure\_quality})$  are calculated analogously to be 6.8% and 2.6%, respectively.

quality, while *PEC*, *Corruption* and *LGDP* are negatively associated with CSR disclosure quality. However, unlike Liang and Renneboog (2017), we find that *Globalization* is negatively associated with CSR disclosure quality.

#### **4.3.2 Controlling for Endogeneity**

As with most studies that examine the effect of employing high-quality auditors on economic outcomes, our results and inferences may be spurious due to selection bias or omitted correlated variables that are potentially related to both the CSR disclosure quality and Big N auditors. We employ two approaches to mitigate these potential endogeneity concerns. First, we employ instrumental variable (2SLS) estimation. We use the proportion of firms in a country that employ Big N auditors as an instrument. This instrument is fairly intuitive. As the proportion of firms in a country that are audited by Big N auditors increases, the more likely is a firm in that country to hire a high-quality auditor (i.e., a Big N auditor). Hence we expect the proportion of Big N auditors ( $Pro(BIGN)$ ) to be positively associated with  $BIGN$ . However, it is less plausible that the proportion of firms audited by the Big N auditors in a country has a direct impact on firm-level CSR disclosure quality.<sup>18</sup>

Another potential endogeneity issue that may arise is if Big N financial auditors are more likely to accept clients with better CSR disclosure quality (“screening”) or firms with better CSR disclosure quality are more likely to engage Big N auditors (“selection”). Previous studies suggest that any endogeneity bias in coefficient estimates stemming from screening by large auditors and selection by their clients is more severe when the auditor tenure is short (Myers et al. 2003; Lennox and Pittman 2010; Guedhami et al. 2014). In other words, these endogeneity issues are likely to be pronounced when the auditor tenure

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<sup>18</sup> It could be the case that the economic resources available to Big N auditors to invest in sustainability expertise increases with the proportion of firms audited by the Big N auditors in a country. This is still consistent with our main hypothesis that Big N auditors affect CSR disclosure quality through their competence and expertise in CSR issues, which thus also satisfies the exclusion condition.

is short, and are less likely to be present when auditor tenure is long and the audit firm's appointment is essentially "pre-determined." Therefore, if this endogeneity stemming from screening or selection bias is driving our results, then we should not find any relation between auditor quality and CSR disclosure quality when we restrict the analysis to firms with long auditor tenure. Following Fang et al. (2017), we repeat the analysis after excluding firms that have the same auditor for less than five years to mitigate concerns that our inferences may be driven by endogenous auditor choice.

In Table 4, we report the results for the instrumental variable (2SLS) estimation in Columns 1 and 2, and the results for the restricted sample consisting of firms with the same auditor for at least five years in Column 3. Column 1 shows the results of the first-stage regression. Consistent with our expectations, *Pro(BIGN)* is significantly and positively associated with *BIGN*.<sup>19</sup> We then use the predicted value of *BIGN* (*Pred\_BIGN*) from the first-stage regression as our instrument in the second stage and test our prediction in H1. The results are reported in Column 2. The coefficient of *Pred\_BIGN* is positively and significantly associated with CSR disclosure quality, which is consistent with the main results reported in Table 3. For the long auditor-tenure sample, the results in Column 3 again show that the coefficient of *BIGN* is positive and significant at the 1% level, consistent with our main findings.

Overall, the results from the instrumental variable estimation and the subsample analysis indicate that our main results still hold after controlling for potential omitted correlated variable and selection biases.

### 4.3.3 Sensitivity analyses

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<sup>19</sup> To ensure that our 2SLS estimation does not suffer from a weak instrument problem, we test the strength of our instrument by computing the partial F-statistic for the instrument in the first-stage regression. The partial F-statistic is 3,380.26, much higher than the minimum benchmark of 8.96 for a model with one instrument, as reported by Larcker and Rusticus (2010). This result suggests that our 2SLS estimation does not suffer from a weak instrument problem.



We estimate several alternative specifications to assess the robustness of our main findings and report the results in Table 5. In Column 1, we employ a weighted least squares (WLS) approach so that each of the 34 countries receives equal weight in the regression estimation (Dittmar et al. 2003). In Column 2, we include firm fixed-effects in the regression to control for unobserved time-invariant firm characteristics and assume that the potential endogeneity is constant over time. The inclusion of firm fixed effects is “analogous to a difference-in-differences specification” (Balakrishnan et.al. 2014).<sup>20</sup> In Column 3, we include country fixed-effects in the regression to control for unobserved time-invariant country-level characteristics that could be correlated with our test variable and dependent variable. Because U.S. firms constitute a large proportion of our sample and therefore could have an undue influence on our results, we exclude these firms from the overall sample and report the results in Column 4. In our sample, the firms in some countries are almost entirely audited by the Big N auditors and thus may unduly influence our results. To assess the robustness of our main results, we remove observations from countries where the proportion of clients audited by a Big N auditor is more than 95% and present the results in Column 5. In Column 6, we remove observations from countries with less than 100 observations to test whether our results are unduly influenced by firms from these countries. Finally, in Column 7, we control for audit fees ( $\log(afee)$ ), using a restricted sample where we are able to obtain audit fee data, to show that our results are not driven by firms that are willing to pay higher audit fees to signal their commitment to provide credible CSR information, as documented by Chen et al. (2016). As indicated in Table 5, we continue to find a robust positive and statistically significant coefficient of *BIGN* in all seven columns, which is consistent with our prediction in H1 that auditor quality is positively related to the quality of CSR disclosure.

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<sup>20</sup> We only include firm-level variables as country-level variables tend to be stationary over time.

## 5. Cross-sectional and other Analyses

### 5.1 Cross-sectional Analyses

In our main analyses, we predict and find robust evidence that *BIGN* is positively associated with client firms' CSR disclosure quality. In this section, we explore cross-sectional differences in country-level characteristics that influence Big N auditors' ability to enhance CSR disclosure quality to provide further corroborating evidence of the mechanisms through which Big N auditors may influence CSR disclosure quality. In addition, the benefits of Big N auditors in enhancing CSR disclosure quality may not be uniform across different institutional environments. To explore these cross-sectional variations, we consider three country-level characteristics – information environment, financial reporting environment, and legal institutions.

To explore the interactions between Big N auditor and country-level institutional environments, we add the moderating variable (*Moderating\_VAR*) and its interaction with *Big N* to Equation (1), and estimate the following cross-sectional regression:

$$\begin{aligned} \log(\text{CSR\_disclosure\_quality}) = & \alpha_0 + \alpha_1 \text{BIGN} + \alpha_2 \text{BIGN} \times \text{Moderating\_VAR} \\ & + \alpha_3 \text{Moderating\_VAR} + \alpha_4 V + \alpha_5 W + \text{Industry\_FE} \\ & + \text{Year\_FE} + \varepsilon \end{aligned} \quad (2)$$

#### 5.1.1 Information environment

The incremental value of engaging Big N auditors to provide audit assurance and to enhance the quality of financial reporting is likely to be higher where there is greater information asymmetry between managers and outsiders, as well as between informed and uninformed investors because Big N auditors are “expert informational intermediaries” (Weber and Willenborg 2003). Consistent with this argument, prior research finds that the benefits of high-quality auditors are higher when the information environment is poorer.

For example, Gul et al. (2013) find that firms with higher information asymmetry problems benefit more from Big N auditors in terms of lower cost of debt. Bae et al. (2017) find that the effect of Big N auditors in improving client investment efficiency is more pronounced for clients with greater information asymmetry. Based on these findings, we predict that the benefits of Big N auditors in improving client firms' CSR disclosure quality are more pronounced when the information environment is poorer.

We use three proxies for information environment. The first proxy is the probability of informed trading (*PIN*) derived from the market microstructure model of Easley et al. (2002), which represents the level of information asymmetry among market participants. Higher values of *PIN* indicate a poorer information environment. We obtain the country-level *PIN* measure from Lai et al. (2014). The second proxy is the opacity index (*OPACITY*) created by Kurtzman et al. (2004), which measures the degree to which there is a lack of clear, accurate, easily discernible and widely accepted practices governing the relationships among businesses, investors and governments. Higher scores indicate higher opacity and hence, a poorer information environment. The third proxy is the mean country-level institutional ownership (*INST*) from Dyck et al. (2019), with higher institutional ownership indicating a better information environment.

We report the results in Table 6. The coefficients of the interactions between *BIGN* and *PIN*, *OPACITY* (*INST*) are positive (negative) and statistically significant at 1% . These results are consistent with our prediction that the benefits of Big N auditors in improving client firms' CSR disclosure quality are more pronounced in countries where the information environment is poorer.

### **5.1.2 Financial reporting environment**

The institutional setting for financial reporting determines the audit environment in which auditors perform their role and the regulators' enforcement activities taken

against noncompliance with accounting standards (Brown et al. 2014). According to Brown et al. (2014), both the audit environment and accounting enforcement are important to promote financial disclosure quality in the capital markets. A good audit environment ensures auditors have the necessary skillsets and oversight to perform their duties, while strong accounting enforcement ensures accounting rules are properly implemented and enforced. When the financial reporting environment is stronger, the incremental benefits of engaging Big N auditors may be less pronounced due to the consistently good supervision, skills and training of auditors, as well as strong accounting enforcement in the country. On the other hand, when the financial reporting environment is weaker, the incremental benefits of engaging Big N auditors will be more pronounced due to their ability to provide consistent audit quality around the world because of their access to an international network and resources from Big N partnerships globally (Simunic and Stein 1987; Kanagaretnam et al. 2016; Ege et al. 2020), as well as their reputation in upholding high standards of complying with national accounting rules. Therefore, we predict that the benefits of Big N auditors in improving client firms' CSR disclosure quality are more pronounced when the financial reporting environment is weaker.

We use three proxies for financial reporting environment following Brown et al. (2014). The first proxy is the audit environment index (*AUD\_ENV*) reported by Brown et al. (2014) to capture differences between countries in relation to the institutional setting for the auditing of financial statements.<sup>21</sup> The second proxy is the accounting enforcement index (*ACC\_ENF*) reported by Brown et al. (2014) that captures differences between

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<sup>21</sup> Brown et al. (2014) measure the quality of the audit environment by considering the presence or absence of a number of factors that are likely to affect the skills and training of auditors and their incentives to carry out their role effectively. These factors include audit licensing, training, and oversight, as well as levels of audit fees and litigation risk.

countries in relation to the degree of accounting enforcement activity.<sup>22</sup> Brown et al. (2014) show that both the audit environment index and the accounting enforcement index are useful for distinguishing the degree of enforcement of financial reporting practices between countries, in addition to the explanatory power provided by more general proxies for the legal setting. Our third proxy for financial reporting environment is the sum of the audit environment index and the accounting enforcement index (*AUD\_TOT*). Higher values of these proxies indicate a stronger financial reporting environment.

We report the results in Table 7. The coefficients of the interactions between *BIGN* and the moderating variables for financial reporting environment are negative and statistically significant at 1% across all the specifications. These results are consistent with our prediction that the benefits of Big N auditors in improving CSR disclosure quality are greater when the financial reporting environment is weaker.

### **5.1.3 Legal institutions**

In our final cross-sectional analysis, we explore the interactions between Big N auditors and legal institutions, and their joint effects on CSR disclosure. Prior research provides opposing views on the benefits of having high-quality auditors in strong versus weak legal institution environments. One view is that Big N auditors are better able to perform their roles when legal institutions that support enforcement and litigation against violations are stronger (Fan and Wong 2005). Consistent with this view, Francis and Wang (2008) find that the positive association between Big N audits and earnings quality is more pronounced when legal institutions are stronger.

The opposing view is that Big N auditors can serve a corporate governance role to safeguard shareholders' interests when legal institutions are weaker. Consistent with this

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<sup>22</sup> Brown et al. (2014) define accounting enforcement as the activities undertaken by independent bodies (monitoring, reviewing, educating and sanctioning) to promote firms' compliance with accounting standards in their statutory financial statements.

view, Choi and Wong (2007) find that the likelihood of engaging a Big N auditor is higher for firms with debt or equity issuances when the legal environment is weaker, which suggests that Big N auditors play a more essential governance role in weaker legal jurisdictions. Given these two competing views, the effect of legal institutions on CSR reporting is unclear and remains an empirical issue.

We use three proxies for legal institutions. The first two proxies, *Regulatory\_Quality* and *Corruption*, are the country-level controls used in the regression. Regulatory quality captures the ability of the government to implement sound policies and regulations that promote private sector development. The control of corruption captures the extent to which public power is exercised for private gain, including petty and grand forms of corruption, as well as the “capture” of the state by elites and private interests. The third proxy is the legal enforcement index (*LAW\_ENF*) reported in La Porta et al. (1998), which is measured as the mean score of the following three legal enforcement variables: efficiency of the judicial system, rule of law, and corruption. Higher values for all three proxies indicate better legal institutions.

We report the results in Table 8. The coefficients of the interactions between Big N auditor and legal institutions are negative and statistically significant at the 5% level or better in all the specifications, indicating that the positive associations between Big N auditor and client firms’ CSR disclosure quality are attenuated in countries with stronger legal institutions. Our results are consistent with the idea that the benefits of Big N auditors are greater (less) in countries with weaker (stronger) legal institutions (Choi and Wong 2007).

Overall, the cross-sectional results presented in Tables 6 through 8 indicate that the positive associations between Big N auditors and client firms’ CSR disclosure quality are stronger when the information environment is poorer and when the financial reporting

environment and the legal institutions are weaker.

## **5.2 Big N auditor and CSR performance**

Lastly, as an extension, we also investigate whether the engagement of Big N auditors helps to improve CSR performance. Recent research in finance investigates the determinants of CSR performance in an international setting. For example, Liang and Renneboog (2017) find that the legal origin of a firm's country and its CSR performance are strongly correlated. Dyck et al. (2019) document that institutional ownership is positively associated with environmental and social (E&S) performance. These findings in the finance literature motivate us to examine whether auditor quality also relates to CSR performance. During the assessment of business risk, auditors communicate frequently with the client firm's executives, which provides a good opportunity for auditors to advise and help clients integrate CSR activities with the firm's strategy and thus improve CSR performance. Moreover, through the review of CSR disclosure, auditors enhance the quality of information for strategic decision making and resource allocation for CSR activities and thus improve CSR performance (Ballou et al. 2012). This reasoning is consistent with findings in the literature that better information quality improves decision making and enhances real activities such as investment efficiency (Biddle et al. 2009) and tax planning (Gallemore and Labro 2015). Therefore, we expect that Big N auditors could help improve firms' CSR performance.

Following prior studies (Lins et al. 2017; Dyck et al. 2019; Bartov et al. 2020), we measure CSR performance as the average of Environmental and Social scores, denoted as *ES\_score*. We exclude the governance category in measuring performance because corporate governance tends to benefit the firm's shareholders rather than the society-at-large. Also, the extant literature views corporate governance as a distinct construct from CSR (e.g., Kim et al. 2012). For completeness, we also report results based on individual

Environmental scores ( $E\_score$ ) and Social scores ( $S\_score$ ). As we do with the CSR disclosure quality measures, we log-transform these CSR performance measures. Consistent with our prediction, we find in Table 9 that Big N auditors are positively associated with CSR performance. This result suggests that engaging a Big N financial auditor not only has a positive spillover effect on CSR disclosure quality, it also has a positive spillover effect on CSR performance.

## **6. Conclusion**

Corporate social responsibility has increased in importance for managers, investors, regulators and scholars in recent years. However, skepticism about the credibility of voluntary CSR disclosure arises because of firms' incentives to selectively disclose CSR information strategically and opportunistically. We extend the current literature by examining whether auditor quality, proxied by Big N auditors, enhances CSR disclosure quality across countries and whether differences in country-level institutional characteristics systematically affect the association between auditor quality and firms' CSR activities.

Using a large sample of 16,377 firm-year observations from 34 countries spanning the years 2008 to 2018, and using measures of CSR disclosure quality from *Sustainalytics*, an independent CSR research firm, we document strong and robust evidence that Big N auditors are positively associated with CSR disclosure quality, after controlling for firm- and country-level factors that have been documented to be associated with CSR outcomes. Our main results continue to hold under a battery of sensitivity tests, including using an instrumental variable approach to mitigate endogeneity concerns, a sub-sample analysis to address selection bias, and several other specifications. In cross-sectional analyses, we find that auditor quality has a more pronounced relation with CSR disclosure quality when



the information environment is poorer, and when the financial reporting environment and the legal environment are weaker. In a final set of analyses, consistent with our predictions, we document that the positive spillover effects from engaging Big N financial auditors on CSR disclosure quality also positively affect CSR performance.

Our study contributes to the audit literature by showing that Big N auditors not only enhance the quality of CSR disclosure, but also CSR performance. This finding is important as it suggests that firms can provide stakeholders with more transparent and credible CSR information through the engagement of high-quality auditors. This finding also suggests that Big N auditors that provide financial audit assurance have a positive knowledge spillover effect on client firms' CSR disclosure, even when the CSR information is not independently assured by external third-party. Our study also offers important policy implications to regulators by suggesting that employing high-quality auditors to enhance CSR disclosure is even more important in countries with weak institutional environments.

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## APPENDIX: VARIABLES DEFINITION

<i>CSR_disclosure_quality</i>	=	CSR Disclosure Quality, as reported in the <i>Sustainalytics</i> database. Its value ranges from 0 to 5, with higher values indicating better overall CSR disclosure.
<i>Carbon_disclosure_quality</i>	=	Participation in carbon disclosure project, as reported in the <i>Sustainalytics</i> database. Its value ranges from 0 to 1, with higher values indicating better carbon emission disclosure.
<i>GHG_disclosure_quality</i>	=	Scope of corporate reporting on GHG Emissions, as reported in the <i>Sustainalytics</i> database. Its value ranges from 0 to 1, with a higher value indicating better GHG disclosure.
$\log(\text{CSR\_disclosure\_quality})$	=	Logarithm of one plus <i>CSR_disclosure_quality</i> .
$\log(\text{Carbon\_disclosure\_quality})$	=	Logarithm of one plus <i>Carbon_disclosure_quality</i>
$\log(\text{GHG\_disclosure\_quality})$	=	Logarithm of one plus <i>GHG_disclosure_quality</i>
<i>E_score</i>	=	Environment score, as reported in the <i>Sustainalytics</i> database. Its value ranges from 0 to 100, with a higher value indicating better environmental performance.
<i>S_score</i>	=	Social score, as reported in the <i>Sustainalytics</i> database, Its value ranges from 0 to 100, with a higher value indicating better social performance.
<i>ES_score</i>	=	Average of <i>E Score</i> and <i>S Score</i> .
$\log(\text{E\_score})$	=	Logarithm of one plus <i>E Score</i> .
$\log(\text{S\_score})$	=	Logarithm of one plus <i>S Score</i> .
$\log(\text{ES\_score})$	=	Logarithm of one plus <i>ES Score</i> .
<i>BIGN</i>	=	An indicator variable that equals one if the firm's auditor is a Big N auditor, and zero otherwise.
<i>SIZE</i>	=	Logarithm of total assets in U.S. dollars.
<i>ROA</i>	=	Return on assets, computed as income before extraordinary items divided by total assets.
<i>FROA</i>	=	ROA at year t+1.
<i>Q</i>	=	Sum of the market value of equity and the book value of debt, divided by total assets.
<i>Leverage</i>	=	Sum of long-term debt and short-term debt divided by total assets.
<i>Tangibility</i>	=	Gross value of property, plant and equipment divided by total assets.
<i>FRQ</i>	=	Financial reporting quality proxied by the logarithm of the absolute performance-matched discretionary accruals as in Kothari et al. (2005).
$\log(\text{afee})$	=	Logarithm of audit fees
<i>Common</i>	=	An indicator variable that equals one for common law countries, and zero otherwise.
<i>PEC</i>	=	Political Executive Constraints, developed by Polity IV, to proxy for the constraints on expropriation by the political elites.
<i>Corruption</i>	=	Control of corruption, which measures the extent to which public power is exercised for private gain, including petty and grand forms of corruption, as well as the "capture" of the state by elites and private interests. Its value ranges from -2.5 to 2.5, with higher values corresponding to better governance outcomes.
<i>Regulatory_quality</i>	=	Regulatory quality, which measures the ability of the government to implement sound policies and regulations that promote private sector development. Its value ranges from -2.5 to 2.5, with higher values corresponding to higher levels of regulatory quality.
<i>Economic_Freedom</i>	=	Heritage Index of Economic Freedom, which consists of a broad series of sub-indices measuring different aspects of government interference in business activities, such as government spending, fiscal freedom, business freedom.

<i>LGDP</i>	=	Logarithm of real historical Gross Domestic Product per capita (in billions of 2005 dollars).
<i>Globalization</i>	=	Economic Globalization Index constructed by the KOF Swiss Economic Institute.
<i>Union</i>	=	Union density which measures how employees are densely organized in unions, as reported in La Porta et al. (2008)
<i>Secrecy</i>	=	Inverse measure of trust, which is calculated by the sum of uncertainty avoidance (UA) and power distance (PD) and minus individualism (IND). All the information of UA, PD, and IND scores are from Hofstede (2001).
<i>PIN</i>	=	PIN score, which measures the probability of informed trading. Is derived from the market microstructure model of Easley et al. (2002) and reported in Lai et al. (2014).
<i>OPACITY</i>	=	An opacity index created by Kurtzman et al. (2004), which measures the degree to which there is a lack of clear, accurate, easily discernible and widely accepted practices governing the relationships among businesses, investors and governments. Higher scores indicate higher opacity.
<i>INST</i>	=	Mean country-level institutional ownership from Dyck et al. (2019).
<i>AUD_ENV</i>		Audit environment index in year 2008 reported by Brown et al. (2014) to capture differences between countries in relation to the institutional setting for the auditing of financial statements, with higher values indicating better audit environment.
<i>ACC_ENF</i>		Accounting enforcement index in year 2008 reported by Brown et al. (2014) to capture differences between countries in relation to degree of accounting enforcement activity by independent enforcement bodies, with higher values indicating better audit enforcement.
<i>AUD_TOT</i>		The sum of <i>AUD_ENV</i> and <i>ACC_ENF</i> .
<i>LAW_ENF</i>	=	The mean score of three legal enforcement variables reported in La Porta et al. (1998). The three variables are (1) the mean for 1980–1983 of a variable provided by Business International Corp., capturing the efficiency and integrity of the judicial system; (2) the mean for 1982–1995 of a rule of law variable obtained from International Country Risk; and (3) the mean for 1982–1995 of a corruption variable that assesses the corruption in government, obtained from International Country Risk. The law enforcement index values range from zero to ten, with higher scores for greater law enforcement.

**TABLE 1**  
**Sample Composition and Mean Characteristics by Country**

Country	<i>N</i>	<i>log(CSR disclosure quality)</i>	<i>BIGN</i>	<i>SIZE</i>	<i>ROA</i>	<i>FROA</i>	<i>Q</i>	<i>Leverage</i>	<i>Tangibility</i>	<i>FRO</i>	<i>log(ES score)</i>	<i>Common</i>	<i>PEC</i>
Argentina	7	0.08	1.00	8.69	0.02	0.01	0.26	0.26	1.45	-1.92	3.81	0	7.00
Austria	88	0.18	0.88	7.82	0.02	0.03	1.06	0.22	0.70	-3.76	4.01	0	7.00
Belgium	75	0.34	0.99	8.47	0.04	0.04	1.03	0.27	0.73	-3.14	4.04	0	7.00
Brazil	422	0.78	0.94	8.52	0.04	0.02	1.19	0.37	0.46	-2.97	4.10	0	6.00
Canada	1,786	0.15	0.98	7.88	0.01	-0.02	0.24	0.24	0.86	-1.92	3.96	1	7.00
Chile	140	0.71	0.99	8.81	0.04	0.03	3.97	0.32	0.86	-3.23	4.05	0	7.00
Colombia	52	1.06	0.94	8.77	0.04	0.03	1.79	0.31	0.60	-3.83	4.17	0	6.00
Denmark	98	0.21	0.95	7.56	0.10	0.10	3.45	0.19	0.36	-3.40	4.07	0	7.00
Finland	138	0.68	0.99	7.71	0.04	-0.01	1.61	0.26	0.64	-3.48	4.17	0	7.00
France	410	0.22	0.59	8.28	0.04	0.01	1.44	0.28	0.44	-3.51	4.04	0	6.00
Germany	761	0.14	0.88	7.80	0.03	0.02	1.31	0.20	0.47	-3.33	3.98	0	7.00
Greece	24	0.33	0.54	8.10	0.11	0.07	1.14	0.21	0.57	-3.08	3.97	0	7.00
India	703	0.45	0.34	8.40	0.08	0.08	2.30	0.25	0.49	-3.14	4.01	1	7.00
Indonesia	224	0.41	0.01	7.77	0.09	0.08	3.15	0.26	0.71	-3.20	3.93	0	6.68
Ireland	176	0.19	1.00	8.74	0.05	0.04	0.66	0.28	0.36	-1.99	3.98	1	7.00
Israel	132	0.15	0.33	8.25	0.05	0.02	1.20	0.37	0.54	-2.37	3.90	1	7.00
Italy	103	0.22	0.75	8.88	0.04	-0.01	1.60	0.29	0.42	-3.37	3.93	0	7.00
Malaysia	318	0.30	0.89	8.09	0.07	0.06	1.92	0.28	0.67	-3.42	3.90	1	5.00
Mexico	210	0.73	0.51	8.72	0.06	0.05	0.94	0.24	0.64	-3.38	4.00	0	6.00
Netherlands	298	0.26	0.96	7.58	0.02	-0.04	1.01	0.24	0.47	-2.98	4.00	0	7.00
New Zealand	110	0.12	0.88	7.41	0.04	0.03	1.78	0.24	0.80	-3.20	3.97	1	7.00
Norway	228	0.31	0.96	7.15	-0.03	-0.07	2.68	0.24	0.62	-3.10	4.05	0	7.00
Pakistan	18	0.23	0.33	7.83	0.15	0.12	0.93	0.11	0.51	-2.61	3.95	1	6.00
Peru	32	0.44	0.25	7.84	0.03	0.01	0.38	0.26	0.63	-2.28	3.86	0	7.00
Philippines	140	0.40	0.00	8.47	0.06	0.06	1.95	0.34	0.55	-3.21	3.85	1	6.00
Portugal	17	0.14	1.00	8.85	0.02	0.01	1.14	0.44	0.72	-3.76	4.02	0	7.00
Singapore	210	0.19	0.93	8.58	0.05	0.03	1.23	0.25	0.58	-3.11	3.88	1	3.00
South Africa	331	0.86	0.95	7.89	0.07	0.05	1.45	0.19	0.66	-2.97	4.13	1	7.00
Spain	96	0.34	0.97	7.96	0.06	0.04	1.71	0.27	0.57	-3.16	3.99	0	7.00
Sweden	360	0.41	0.91	7.64	0.06	0.05	2.18	0.25	0.40	-3.34	4.11	0	7.00
Thailand	231	0.61	0.83	8.23	0.08	0.06	2.32	0.32	0.74	-3.43	4.00	1	3.83
Turkey	164	0.48	0.23	8.49	0.07	0.06	1.23	0.30	0.64	-3.18	4.06	0	4.89
USA	6,852	0.13	0.98	8.74	0.04	0.01	0.29	0.29	0.57	-2.04	3.95	1	7.00
United Kingdom	1,423	0.25	0.96	7.74	0.06	0.03	1.59	0.23	0.46	-3.19	4.04	1	7.00

**TABLE 1 (continued)**

Country	Corruption	Regulatory_ Quality	Economic_ Freedom	LGDP	Globalization	UNION	Secrecy	PIN	OPACITY	INST	AUD_ENV	AUD_ENF	AUD_TOT	LAW_ENF
Argentina	-0.26	-0.42	48.00	9.24	67.14	0.30	89	0.35	43.8	-	9	2	11	5.79
Austria	1.52	1.46	71.66	10.78	88.76	0.52	26	0.28	22.8	18.4	19	8	27	9.36
Belgium	1.57	1.27	69.20	10.72	90.40	0.60	84	0.27	22.8	16.4	22	22	44	9.44
Brazil	-0.24	-0.06	56.24	9.35	60.22	0.25	107	0.29	40.4	22.5	15	8	23	6.13
Canada	1.94	1.74	79.51	10.81	83.78	0.30	7	0.27	23.2	42	32	22	54	9.75
Chile	1.33	1.43	77.89	9.58	77.73	0.12	126	0.32	28.4	6.1	4	5	9	6.52
Colombia	-0.35	0.42	70.23	8.91	64.16	0.08	134	-	42.6	4.1	-	-	-	4.78
Denmark	2.28	1.73	76.53	11.01	88.77	0.80	-33	0.27	18.8	22.9	27	22	49	10
Finland	2.22	1.84	73.47	10.75	86.98	0.84	29	0.24	12.6	31.4	20	12	32	10
France	1.40	1.17	63.66	10.63	86.87	0.09	83	0.24	36.8	25.6	29	16	45	8.68
Germany	1.82	1.65	72.67	10.70	87.65	0.38	33	0.21	24.8	27.9	23	21	44	9.05
Greece	-0.09	0.42	56.71	10.08	81.18	0.35	137	0.25	40.8	13.2	17	9	26	6.82
India	-0.38	-0.37	55.07	7.44	61.99	0.03	69	0.26	48.6	15.8	15	6	21	5.58
Indonesia	-0.48	-0.18	58.75	8.23	63.45	0.01	112	0.39	59.4	10.9	8	6	14	2.9
Ireland	1.59	1.66	78.03	10.94	84.72	0.65	-7	0.26	25.6	39.6	29	12	41	8.36
Israel	0.92	1.24	69.33	10.40	77.15	0.30	40	0.27	30.4	24.7	24	24	48	7.72
Italy	0.10	0.74	61.46	10.46	82.11	0.40	49	0.22	43.2	14.4	27	19	46	7.07
Malaysia	0.21	0.69	70.09	9.28	80.49	0.10	114	0.31	34.8	8.1	21	19	40	7.72
Mexico	-0.69	0.34	65.84	9.21	70.27	0.40	133	0.32	43.6	18.6	12	13	25	5.37
Netherlands	2.02	1.83	74.77	10.85	90.17	0.28	11	0.21	24	35.7	24	19	43	10
New Zealand	2.28	1.95	82.20	10.50	78.23	0.24	-8	0.36	-	14	24	19	43	100
Norway	2.19	1.68	71.93	11.41	86.12	0.80	12	0.28	-	35.6	25	22	47	10
Pakistan	-0.86	-0.66	54.94	7.00	54.16	0.10	111	0.31	45.2	-	10	8	18	3.67
Peru	-0.45	0.49	67.88	8.70	70.18	0.05	135	0.39	-	-	11	5	16	-
Philippines	-0.49	-0.04	61.08	7.85	66.01	0.12	106	0.33	50.4	12.6	11	16	27	3.47
Portugal	1.02	0.82	64.06	9.99	82.43	0.35	140	0.29	35.2	10.6	17	12	29	7.19
Singapore	2.12	2.03	88.00	10.85	84.17	0.24	62	0.30	23.8	19.3	20	12	32	8.93
South Africa	0.00	0.29	62.61	8.92	70.23	0.30	33	0.31	33.6	21.4	19	10	29	6.45
Spain	0.78	0.96	68.10	10.32	84.53	0.13	92	0.21	33.8	13.4	26	16	42	7.14
Sweden	2.20	1.81	73.33	10.92	89.86	0.90	-11	0.24	19.4	39.4	25	9	34	10
Thailand	-0.40	0.21	64.39	8.66	71.77	0.10	108	0.31	35	13.6	11	12	23	4.89
Turkey	-0.10	0.26	63.65	9.51	71.19	0.12	114	0.22	43	14	11	9	20	4.79
USA	1.34	1.41	76.71	10.83	81.34	0.14	-5	0.19	20.8	-	32	24	56	9.5
United Kingdom	1.77	1.75	75.83	10.63	89.34	0.30	-19	0.25	18.8	34.3	32	22	54	9.22

This table provides the sample composition and selected mean characteristics by country. The detailed definitions of the variables are provided in the Appendix.

**TABLE 2**  
**Descriptive Statistics and Correlations**

**Panel A: Descriptive Statistics**

	N	Mean	Q1	Median	Q3	Std
<i>log(CSR_disclosure_quality)</i>	16,377	0.247	0.000	0.000	0.438	0.365
<i>BIGN</i>	16,377	0.881	1.000	1.000	1.000	0.324
<i>SIZE</i>	16,377	8.318	7.497	8.303	9.128	1.313
<i>ROA</i>	16,377	0.045	0.018	0.048	0.087	0.112
<i>FROA</i>	16,377	0.017	0.014	0.045	0.084	0.197
<i>Q</i>	16,377	0.953	0.226	0.415	0.975	1.607
<i>Leverage</i>	16,377	0.270	0.128	0.255	0.375	0.215
<i>Tangibility</i>	16,377	0.586	0.228	0.494	0.856	0.476
<i>FRQ</i>	16,377	-2.570	-3.545	-2.660	-1.649	1.689
<i>log(ES_score)</i>	16,377	3.982	3.845	3.973	4.111	0.178
<i>Common</i>	16,377	0.759	1.000	1.000	1.000	0.428
<i>PEC</i>	16,377	6.763	7.000	7.000	7.000	0.740
<i>Corruption</i>	16,377	1.246	1.270	1.380	1.840	0.780
<i>Regulatory_Quality</i>	16,377	1.274	1.260	1.460	1.700	0.618
<i>Economic_Freedom</i>	16,377	73.351	72.000	76.000	78.000	7.211
<i>LGDP</i>	16,377	10.396	10.612	10.789	10.840	0.915
<i>Globalization</i>	16,377	80.849	80.150	81.680	84.740	7.536
<i>Union</i>	16,377	0.235	0.139	0.139	0.300	0.181
<i>Secrecy</i>	16,377	20.845	-5.000	-5.000	33.000	43.314
<i>PIN</i>	16,325	0.234	0.190	0.220	0.272	0.048
<i>OPACITY</i>	16,007	25.880	20.800	20.800	24.800	9.337
<i>INST</i>	9,468	27.660	16.400	27.900	35.700	11.127
<i>AUD_ENV</i>	16,325	27.210	23.000	32.000	32.000	7.219
<i>AUD_ENF</i>	16,325	19.602	16.000	22.000	24.000	6.029
<i>AUD_TOT</i>	16,325	46.812	43.000	54.000	56.000	12.812
<i>LAW_ENF</i>	16,345	9.326	8.930	9.500	9.500	7.637

**TABLE 2 (continued)**

**Panel B: Correlations**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) <i>log(CSR_disclosure_quality)</i>	1.00												
(2) <i>BIGN</i>	0.01	1.00											
(3) <i>SIZE</i>	0.22	0.07	1.00										
(4) <i>ROA</i>	0.03	-0.03	-0.13	1.00									
(5) <i>FROA</i>	0.03	-0.03	-0.11	0.73	1.00								
(6) <i>Q</i>	0.17	-0.24	-0.16	0.06	0.06	1.00							
(7) <i>Leverage</i>	0.05	0.00	0.32	-0.28	-0.24	0.32	1.00						
(8) <i>Tangibility</i>	0.10	0.00	0.09	-0.14	-0.12	-0.01	0.19	1.00					
(9) <i>FRQ</i>	-0.16	0.12	-0.02	0.01	0.00	-0.36	-0.05	-0.10	1.00				
(10) <i>log(ES_score)</i>	0.59	0.07	0.20	0.03	0.03	0.09	0.00	0.11	-0.11	1.00			
(11) <i>Common</i>	-0.18	0.18	0.11	0.04	0.03	-0.39	0.02	0.06	0.25	-0.15	1.00		
(12) <i>PEC</i>	-0.16	0.23	-0.02	-0.02	-0.01	-0.29	-0.06	-0.01	0.18	-0.02	0.30	1.00	
(13) <i>Corruption</i>	-0.08	0.32	-0.18	-0.11	-0.10	0.00	-0.09	0.00	0.03	0.07	-0.07	0.34	1.00
(14) <i>Regulatory_Quality</i>	-0.09	0.35	-0.16	-0.07	-0.08	-0.04	-0.08	-0.01	0.03	0.03	0.06	0.39	0.84
(15) <i>Economic_Freedom</i>	-0.24	0.39	0.04	-0.06	-0.05	-0.47	-0.03	0.10	0.23	-0.15	0.51	0.38	0.42
(16) <i>LGDP</i>	-0.17	0.37	0.10	-0.06	-0.08	-0.37	0.07	-0.03	0.25	-0.04	0.20	0.40	0.46
(17) <i>Globalization</i>	-0.04	0.26	-0.17	-0.08	-0.09	0.13	-0.07	-0.07	-0.04	0.10	-0.18	0.27	0.83
(18) <i>Union</i>	0.05	0.26	-0.20	-0.07	-0.07	0.09	-0.11	-0.01	-0.05	0.12	-0.27	0.25	0.65
(19) <i>Secrecy</i>	0.16	-0.36	-0.02	-0.05	-0.05	0.23	0.02	0.11	-0.15	0.01	-0.48	-0.57	-0.37
(20) <i>PIN</i>	0.23	-0.27	-0.21	-0.02	-0.03	0.42	-0.05	0.11	-0.21	0.10	-0.31	-0.46	0.05
(21) <i>OPACITY</i>	0.12	-0.42	-0.02	-0.03	-0.02	0.21	0.01	0.09	-0.13	-0.02	-0.39	-0.52	-0.42
(22) <i>INST</i>	-0.20	0.38	-0.15	-0.14	-0.14	-0.41	-0.10	0.04	0.26	0.02	0.23	0.51	0.72
(23) <i>AUD_ENV</i>	-0.27	0.43	0.09	-0.04	-0.04	-0.53	0.01	0.01	0.29	-0.10	0.64	0.54	0.31
(24) <i>AUD_ENF</i>	-0.28	0.36	0.18	-0.02	-0.01	-0.54	0.06	-0.01	0.30	-0.16	0.58	0.45	0.04
(25) <i>AUD_TOT</i>	-0.28	0.39	0.18	-0.02	-0.02	-0.56	0.05	-0.02	0.30	-0.14	0.58	0.47	0.08
(26) <i>LAW_ENF</i>	-0.19	0.40	-0.04	-0.09	-0.09	-0.41	-0.02	0.06	0.23	-0.04	0.20	0.52	0.63



**TABLE 2 (continued)**

	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)
(14) <i>Regulatory_Quality</i>	1.00												
(15) <i>Economic_Freedom</i>	0.51	1.00											
(16) <i>LGDP</i>	0.46	0.43	1.00										
(17) <i>Globalization</i>	0.78	0.18	0.40	1.00									
(18) <i>Union</i>	0.64	0.16	0.16	0.61	1.00								
(19) <i>Secrecy</i>	-0.48	-0.50	-0.50	-0.38	-0.21	1.00							
(20) <i>PIN</i>	0.00	-0.29	-0.55	-0.01	0.28	0.57	1.00						
(21) <i>OPACITY</i>	-0.51	-0.47	-0.52	-0.43	-0.23	0.92	0.59	1.00					
(22) <i>INST</i>	0.67	0.69	0.79	0.51	0.53	-0.75	-0.29	-0.70	1.00				
(23) <i>AUD_ENV</i>	0.39	0.70	0.58	0.28	0.03	-0.76	-0.66	-0.75	0.83	1.00			
(24) <i>AUD_ENF</i>	0.12	0.55	0.61	0.00	-0.16	-0.62	-0.83	-0.64	0.67	0.86	1.00		
(25) <i>AUD_TOT</i>	0.15	0.58	0.63	0.05	-0.17	-0.67	-0.85	-0.68	0.78	0.91	0.98	1.00	
(26) <i>LAW_ENF</i>	0.60	0.63	0.74	0.39	0.33	-0.47	-0.33	-0.54	0.79	0.62	0.50	0.53	1.00

This table provides the descriptive statistics (Panel A) and Spearman's correlations (Panel B) of the main variables used in this study. The detailed definitions of the variables are provided in the Appendix. All correlations with absolute values greater than 0.02 are statistically significant at the 0.01 level or better (two-tailed).

**TABLE 3**  
**Relation between Big N Auditors and CSR Disclosure Quality**

	(1) <i>log(CSR_disclosure_</i> <i>quality)</i>	(2) <i>log(Carbon_disclosure_</i> <i>quality)</i>	(3) <i>log(GHG_disclosure_</i> <i>quality)</i>
<b>BIGN</b>	<b>0.086</b> <b>(4.42)***</b>	<b>0.066</b> <b>(3.98)***</b>	<b>0.026</b> <b>(2.32)**</b>
<i>SIZE</i>	0.008 (1.92)*	-0.004 (-0.87)	0.016 (4.15)***
<i>ROA</i>	-0.007 (-0.24)	-0.036 (-1.32)	-0.007 (-0.25)
<i>FROA</i>	-0.005 (-0.47)	-0.002 (-0.16)	0.001 (0.12)
<i>Q</i>	-0.010 (-2.67)***	0.004 (1.24)	0.007 (1.80)*
<i>Leverage</i>	0.006 (0.34)	-0.019 (-1.04)	-0.014 (-0.86)
<i>Tangibility</i>	0.015 (1.28)	-0.021 (-1.97)**	-0.016 (-1.65)*
<i>FRQ</i>	-0.005 (-2.41)**	-0.003 (-1.34)	-0.002 (-1.20)
<i>log(ES_score)</i>	0.922 (31.87)***	0.878 (28.89)***	0.623 (28.26)***
<i>Common</i>	-0.076 (-2.80)***	0.081 (3.55)***	0.098 (4.66)***
<i>PEC</i>	-0.024 (-2.36)**	-0.007 (-0.71)	0.012 (1.43)
<i>Corruption</i>	-0.094 (-3.71)***	-0.030 (-1.37)	0.023 (1.36)
<i>Regulatory_Quality</i>	0.022 (0.71)	0.101 (3.21)***	0.015 (0.58)
<i>Economic_Freedom</i>	0.006 (2.91)***	-0.009 (-4.94)***	-0.002 (-1.35)
<i>LGDP</i>	-0.075 (-3.98)***	-0.020 (-1.22)	-0.022 (-1.31)
<i>Globalization</i>	-0.007 (-3.51)***	-0.006 (-3.42)***	0.002 (0.90)
<i>Union</i>	0.320 (7.44)***	0.239 (5.97)***	0.047 (1.55)
<i>Secrecy</i>	0.000 (1.20)	-0.001 (-2.87)***	-0.000 (-0.43)
Constant	-2.490 (-8.59)***	-2.110 (-7.93)***	-2.494 (-9.39)***
Observations	16,377	15,281	8,525
R-squared	0.455	0.281	0.346

This table reports the regression results of the relation between Big N auditor and CSR disclosure quality. The dependent variable is *log(CSR\_disclosure\_quality)* in Column 1, *log(Carbon\_disclosure\_quality)* in Column 2, and *log(GHG\_disclosure\_quality)* in Column 3. The detailed definitions of all variables are provided in the Appendix. Coefficients on the year indicator variables are not tabulated for brevity. The t-statistics are reported in parentheses. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels (two-tailed), respectively.

**TABLE 4**  
**Relation between Big N Auditors and CSR Disclosure Quality:**  
**Controlling for Endogeneity**

Dep Var =	(1) <i>BIGN</i>	(2) <i>log(CSR_disclosure_</i> <i>quality)</i>	(3) <i>log(CSR_disclosure_</i> <i>quality)</i>
<i>Pred BIGN/ BIGN</i>		<b>0.380</b> <b>(19.24)***</b>	<b>0.090</b> <b>(3.89)***</b>
<i>Pro (BiGN)</i>	0.890 (58.14)***		
<i>SIZE</i>	0.010 (5.91)***	0.006 (3.20)***	0.006 (1.50)
<i>ROA</i>	0.052 (2.64)***	-0.014 (-0.61)	-0.021 (-0.78)
<i>FROA</i>	0.034 (3.22)***	-0.012 (-0.97)	0.007 (0.59)
<i>Q</i>	-0.005 (-3.25)***	-0.009 (-5.75)***	-0.013 (-3.18)***
<i>Leverage</i>	0.015 (1.55)	0.004 (0.32)	0.009 (0.43)
<i>Tangibility</i>	0.006 (1.35)	0.014 (2.52)**	0.018 (1.44)
<i>FRQ</i>	0.003 (2.57)**	-0.006 (-3.98)***	-0.004 (-1.94)*
<i>log(ES_score)</i>	0.123 (10.00)***	0.860 (59.01)***	0.893 (28.50)***
<i>Common</i>	0.140 (13.50)***	-0.116 (-9.53)***	-0.063 (-2.05)**
<i>PEC</i>	0.008 (1.99)**	-0.022 (-4.95)***	-0.027 (-2.46)**
<i>Corruption</i>	-0.031 (-3.22)***	-0.094 (-8.62)***	-0.107 (-3.86)***
<i>Regulatory_Quality</i>	-0.012 (-0.66)	0.033 (1.60)	0.016 (0.47)
<i>Economic_Freedom</i>	-0.001 (-0.65)	0.004 (4.08)***	0.006 (2.55)**
<i>LGDP</i>	0.056 (8.49)***	-0.126 (-15.69)***	-0.077 (-3.85)***
<i>Globalization</i>	0.005 (6.51)***	-0.006 (-6.92)***	-0.005 (-2.74)***
<i>Union</i>	-0.034 (-2.07)**	0.252 (13.42)***	0.364 (7.09)***
<i>Secrecy</i>	-0.000 (-1.11)	0.000 (2.44)**	0.000 (0.64)
Constant	-1.162 (-9.62)***		-2.376 (-7.52)***
Observations	16,377	16,377	13,093
R-squared	0.430	0.381	0.437

This table reports the regression results of the relation between Big N auditor and CSR disclosure quality, based on an instrumental variable (2SLS) approach and restricted sample approach. In Column 1, we report the results of the first-stage regression, where we regress *BIGN* on the annual proportion of firms audited by Big N auditors in a country (*Pro(BIGN)*) as the instrument, and other control variables in the main regression. In Column 2, we report the second-stage regression using the predicted value of *BIGN* from the first-stage. Column 3 shows the results using the restricted sample with long auditor tenure. The detailed definitions of all variables are provided in the Appendix. Coefficients on the industry and year indicator variables are not tabulated for brevity. The t-statistics are reported in parentheses. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels (two-tailed), respectively.

**TABLE 5**  
**Sensitivity Analysis and Robustness Checks**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>BIGN</i>	<b>0.082</b> (2.81)***	<b>0.020</b> (1.86)*	<b>0.028</b> (3.18)***	<b>0.084</b> (3.92)***	<b>0.048</b> (2.06)**	<b>0.083</b> (4.24)***	<b>0.030</b> (2.91)***
<i>SIZE</i>	0.009 (1.00)	0.011 (2.31)**	0.012 (6.08)***	0.011 (1.96)*	0.021 (2.43)**	0.008 (1.95)*	-0.003 (-1.13)
<i>ROA</i>	-0.099 (-1.63)	-0.033 (-1.76)*	0.007 (0.31)	0.011 (0.28)	0.027 (0.37)	0.001 (0.05)	0.020 (0.84)
<i>FROA</i>	-0.021 (-0.66)	-0.001 (-0.11)	0.006 (0.48)	-0.030 (-1.55)	0.042 (1.07)	-0.005 (-0.45)	-0.019 (-1.40)
<i>Q</i>	-0.004 (-0.72)	-0.000 (-0.17)	-0.013 (-8.04)***	-0.010 (-2.61)***	-0.017 (-3.69)***	-0.011 (-2.95)***	-0.006 (-3.21)***
<i>Leverage</i>	0.115 (1.86)*	-0.042 (-3.06)***	0.005 (0.46)	0.008 (0.26)	0.001 (0.01)	0.003 (0.17)	-0.001 (-0.05)
<i>Tangibility</i>	-0.008 (-0.35)	0.004 (0.46)	0.021 (4.04)***	0.021 (1.18)	0.046 (1.48)	0.016 (1.35)	0.021 (3.45)***
<i>FRQ</i>	-0.006 (-1.23)	-0.002 (-1.48)	-0.004 (-2.94)***	-0.008 (-2.70)***	-0.010 (-2.00)**	-0.005 (-2.26)**	-0.006 (-3.45)***
<i>log(ES_score)</i>	1.251 (18.83)***	0.586 (31.15)***	0.855 (63.19)***	1.100 (27.18)***	1.264 (22.43)***	0.912 (31.41)***	0.797 (51.38)***
<i>log(afee)</i>							0.015 (5.42)***
<i>Common</i>	-0.098 (-2.06)**			-0.061 (-2.15)**	0.047 (1.16)	-0.057 (-2.07)**	-0.051 (-3.22)***
<i>PEC</i>	-0.023 (-1.66)*			-0.020 (-2.05)**	-0.015 (-1.27)	-0.022 (-2.08)**	-0.040 (-5.33)***
<i>Corruption</i>	-0.167 (-3.28)***			-0.136 (-4.39)***	-0.116 (-2.60)***	-0.083 (-3.20)***	-0.099 (-7.07)***
<i>Regulatory_Quality</i>	0.156 (2.16)**			0.121 (2.42)**	-0.043 (-0.66)	0.010 (0.33)	-0.047 (-1.99)**
<i>Economic_Freedom</i>	0.007 (2.28)**			0.003 (1.34)	0.005 (1.71)*	0.005 (2.25)**	0.004 (3.32)***
<i>LGDP</i>	-0.081 (-2.62)***			-0.059 (-2.40)**	0.042 (1.33)	-0.070 (-3.65)***	-0.059 (-6.44)***
<i>Globalization</i>	-0.007 (-2.93)***			-0.009 (-4.45)***	-0.010 (-4.21)***	-0.006 (-3.28)***	0.002 (1.49)
<i>Union</i>	0.184 (3.20)***			0.245 (4.74)***	0.335 (3.70)***	0.336 (7.75)***	0.296 (13.45)***
<i>Secrecy</i>	0.000 (0.29)			0.000 (0.86)	0.001 (0.83)	0.001 (1.59)	-0.000 (-1.73)*
Constant	-3.774 (-6.61)***	-2.199 (-26.13)***	-3.321 (-29.16)***	-3.026 (-8.83)***	-4.742 (-10.21)***	-2.480 (-8.43)***	-2.556 (-14.34)***
Observations	16,377	16,377	16,377	9,525	5,141	16,223	10,887
R-squared	0.452	0.853	0.485	0.452	0.500	0.452	0.371

This table reports the regression results of the relation between Big N auditor and CSR disclosure quality. The dependent variable is *log(CSR\_disclosure\_quality)*. Column 1 shows the results using the weighted-least squares regression. Column 2 includes firm fixed-effects in the regression while Column 3 includes country fixed-effects in the regression. Column 4 shows the results after removing the U.S. sample. Column 5 shows the results after removing the country sample where the proportion of clients audited by Big N auditor is more than 95%. Column 6 shows the results after removing the country sample with less than 100 observations. Column 7 includes *log(afee)* as additional control in the regression. The detailed definitions of all variables are provided in the Appendix. Coefficients on the year indicator variables are not tabulated for brevity. The t-statistics are reported in parentheses. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels (two-tailed), respectively.

**TABLE 6**  
**Relation between Big N Auditors and CSR Disclosure Quality:**  
**Conditional on Quality of the Information Environment**

<i>INFOENV</i> =	(1) <i>PIN</i>	(2) <i>OPACITY</i>	(3) <i>INST</i>
<i>BIGN</i>	0.055 (2.99)***	0.009 (0.51)	0.235 (4.20)***
<b><i>BIGN*INFOENV</i></b>	<b>1.044</b> <b>(3.02)***</b>	<b>0.005</b> <b>(3.00)***</b>	<b>-0.007</b> <b>(-3.24)***</b>
<i>INFOENV</i>	-0.228 (-0.68)	-0.012 (-5.59)***	0.008 (3.07)***
<i>SIZE</i>	0.010 (2.61)***	0.008 (1.95)*	0.012 (2.19)**
<i>ROA</i>	0.001 (0.05)	-0.009 (-0.33)	0.019 (0.48)
<i>FROA</i>	-0.005 (-0.46)	-0.001 (-0.12)	-0.024 (-1.24)
<i>Q</i>	-0.011 (-2.88)***	-0.010 (-2.44)**	-0.010 (-2.54)**
<i>Leverage</i>	0.011 (0.56)	0.007 (0.38)	-0.002 (-0.07)
<i>Tangibility</i>	0.016 (1.34)	0.020 (1.60)	0.024 (1.31)
<i>FRQ</i>	-0.004 (-2.21)**	-0.005 (-2.45)**	-0.008 (-2.68)***
<i>log(ES_score)</i>	0.904 (30.91)***	0.913 (31.27)***	1.084 (26.60)***
<i>Common</i>	-0.111 (-3.60)***	-0.122 (-4.45)***	-0.077 (-2.65)***
<i>PEC</i>	-0.022 (-2.10)**	-0.020 (-2.05)**	-0.021 (-2.07)**
<i>Corruption</i>	-0.110 (-4.05)***	-0.093 (-3.54)***	-0.136 (-4.34)***
<i>Regulatory_Quality</i>	-0.012 (-0.37)	0.013 (0.43)	0.114 (2.25)**
<i>Economic_Freedom</i>	0.007 (3.08)***	0.006 (2.59)***	0.004 (1.82)*
<i>LGDP</i>	-0.057 (-2.73)***	-0.120 (-5.60)***	-0.080 (-2.99)***
<i>Globalization</i>	-0.005 (-2.74)***	-0.008 (-3.83)***	-0.009 (-4.38)***
<i>Union</i>	0.229 (4.22)***	0.251 (5.50)***	0.240 (4.64)***
<i>Secrecy</i>	-0.000 (-0.66)	0.001 (1.57)	0.000 (0.83)
Constant	-2.627 (-8.81)***	-1.750 (-5.33)***	-2.995 (-8.78)***
Observations	16,325	16,007	9,468
R-squared	0.451	0.465	0.459

This table reports the regression results of the role of information environment (*INFOENV*) on the relation between Big N auditor and CSR disclosure quality. The dependent variable is  $\log(\text{CSR\_disclosure\_quality})$ . *INFOENV* is proxied by *PIN* in Columns 1, by *OPACITY* in Column 2, and by *INST* in Column 3. The detailed definitions of all variables are provided in the Appendix. Coefficients on the industry and year indicator variables are not tabulated for brevity. The t-statistics are reported in parentheses. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels (two-tailed), respectively.

**TABLE 7**  
**Relation between Big N Auditors and CSR Disclosure Quality:**  
**Conditional on Quality of the Financial Reporting Environment**

<i>FRENV</i> =	(1) <i>AUD_ENV</i>	(2) <i>ACC_ENF</i>	(3) <i>AUD_TOT</i>
<i>BIGN</i>	0.271 (4.55)***	0.301 (5.77)***	0.300 (5.14)***
<b><i>BIGN*AUDENV</i></b>	<b>-0.009</b> <b>(-4.00)***</b>	<b>-0.015</b> <b>(-5.46)***</b>	<b>-0.006</b> <b>(-4.80)***</b>
<i>AUENV</i>	-0.001 (-0.19)	0.006 (1.84)*	-0.001 (-0.29)
<i>SIZE</i>	0.008 (2.02)**	0.008 (2.10)**	0.008 (1.98)**
<i>ROA</i>	0.001 (0.05)	-0.004 (-0.14)	-0.002 (-0.07)
<i>FROA</i>	-0.001 (-0.12)	-0.002 (-0.20)	-0.001 (-0.12)
<i>Q</i>	-0.011 (-2.95)***	-0.011 (-2.86)***	-0.011 (-2.94)***
<i>Leverage</i>	0.007 (0.39)	0.006 (0.30)	0.006 (0.32)
<i>Tangibility</i>	0.017 (1.43)	0.018 (1.53)	0.017 (1.46)
<i>FRQ</i>	-0.005 (-2.32)**	-0.005 (-2.44)**	-0.005 (-2.38)**
<i>log(ES_score)</i>	0.912 (31.45)***	0.904 (31.24)***	0.905 (31.34)***
<i>Common</i>	-0.021 (-0.57)	-0.069 (-2.57)**	-0.024 (-0.74)
<i>PEC</i>	-0.014 (-1.26)	-0.014 (-1.32)	-0.009 (-0.79)
<i>Corruption</i>	-0.091 (-3.50)***	-0.095 (-3.68)***	-0.101 (-3.91)***
<i>Regulatory_Quality</i>	-0.021 (-0.64)	-0.026 (-0.83)	-0.029 (-0.91)
<i>Economic_Freedom</i>	0.004 (1.75)*	0.007 (3.56)***	0.005 (2.53)**
<i>LGDP</i>	-0.029 (-0.99)	-0.056 (-2.58)***	-0.019 (-0.69)
<i>Globalization</i>	-0.004 (-1.86)*	-0.004 (-2.05)**	-0.003 (-1.38)
<i>Union</i>	0.262 (5.23)***	0.213 (4.30)***	0.212 (3.94)***
<i>Secrecy</i>	-0.000 (-0.20)	0.000 (0.02)	-0.000 (-0.27)
Constant	-2.948 (-8.91)***	-2.924 (-9.47)***	-3.161 (-9.30)***
Observations	16,325	16,325	16,325
R-squared	0.453	0.456	0.456

This table reports the regression results of the role of financial reporting environment (*FRENV*) on the relation between Big N auditor and CSR disclosure quality. The dependent variable is *log(CSR\_disclosure\_quality)*. *FRENV* is proxied by *ACC\_ENF* in Column 1, by *ACC\_ENF* in Column 2, and by *AUD\_TOT* in Column 3. The detailed definitions of all variables are provided in the Appendix. Coefficients on the industry and year indicator variables are not tabulated for brevity. The t-statistics are reported in parentheses. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels (two-tailed), respectively.

**TABLE 8**  
**Relation between Big N Auditors and CSR Disclosure Quality:**  
**Conditional on the Quality of Legal Institutions**

<i>LEGAL=</i>	(1) <i>Regulatory Quality</i>	(2) <i>Corruption</i>	(3) <i>LAW_ENF</i>
<i>BIGN</i>	0.177 (5.29)***	0.134 (4.74)***	0.109 (4.33)***
<b><i>BIGN*LEGAL</i></b>	<b>-0.118</b> <b>(-4.77)***</b>	<b>-0.076</b> <b>(-3.81)***</b>	<b>-0.003</b> <b>(-2.07)**</b>
<i>Regulatory_Quality</i>	0.113 (3.04)***	0.017 (0.54)	0.029 (0.93)
<i>Corruption</i>	-0.085 (-3.31)***	-0.031 (-0.94)	-0.091 (-3.45)***
<i>LAW_ENF</i>			0.002 (1.22)
<i>SIZE</i>	0.009 (2.37)**	0.009 (2.27)**	0.007 (1.85)*
<i>ROA</i>	-0.002 (-0.06)	-0.002 (-0.07)	-0.006 (-0.23)
<i>FROA</i>	-0.003 (-0.25)	-0.003 (-0.29)	-0.005 (-0.43)
<i>Q</i>	-0.010 (-2.62)***	-0.010 (-2.57)**	-0.010 (-2.66)***
<i>Leverage</i>	0.008 (0.41)	0.007 (0.38)	0.006 (0.32)
<i>Tangibility</i>	0.016 (1.37)	0.017 (1.39)	0.016 (1.33)
<i>FRQ</i>	-0.005 (-2.46)**	-0.005 (-2.44)**	-0.005 (-2.52)**
<i>log(ES_score)</i>	0.911 (31.46)***	0.914 (31.52)***	0.919 (31.75)***
<i>Common</i>	-0.095 (-3.51)***	-0.091 (-3.37)***	-0.079 (-2.92)***
<i>PEC</i>	-0.022 (-2.21)**	-0.022 (-2.15)**	-0.023 (-2.29)**
<i>Economic_Freedom</i>	0.007 (3.68)***	0.007 (3.74)***	0.006 (3.01)***
<i>LGDP</i>	-0.105 (-5.16)***	-0.094 (-4.76)***	-0.079 (-4.15)***
<i>Globalization</i>	-0.007 (-3.54)***	-0.007 (-3.50)***	-0.007 (-3.61)***
<i>Union</i>	0.302 (6.98)***	0.319 (7.39)***	0.315 (7.29)***
<i>Secrecy</i>	0.000 (0.49)	0.000 (0.78)	0.000 (1.16)
Constant	-2.305 (-7.77)***	-2.410 (-8.22)***	-2.424 (-8.15)***
Observations	16,377	16,377	16,345
R-squared	0.460	0.459	0.457

This table reports the regression results of the role of legal institutions (*LEGAL*) on the relation between Big N auditor and CSR disclosure quality. The dependent variable is *log(CSR\_disclosure\_quality)*. *LEGAL* is proxied by *Regulatory\_Quality* in Column, by *Corruption* in Column 2, and by *LAW\_ENF* in Column 3. The detailed definitions of all variables are provided in the Appendix. Coefficients on the industry and year indicator variables are not tabulated for brevity. The t-statistics are reported in parentheses. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels (two-tailed), respectively.

**TABLE 9**  
**Relation between Big N Auditors and CSR Performance**

Dep Var =	(1) <i>log(ES score)</i>	(2) <i>log(E score)</i>	(3) <i>log(S score)</i>
<i>BIGN</i>	<b>0.007</b> (3.42)***	<b>0.008</b> (3.07)***	<b>0.008</b> (3.50)***
<i>SIZE</i>	0.006 (12.81)***	0.005 (10.42)***	0.007 (11.41)***
<i>ROA</i>	0.006 (1.39)	0.004 (0.76)	0.010 (1.74)*
<i>FROA</i>	0.003 (1.46)	0.005 (2.18)**	0.002 (0.47)
<i>Q</i>	0.001 (1.91)*	0.001 (1.93)*	0.001 (1.70)*
<i>Leverage</i>	-0.008 (-3.01)***	-0.012 (-4.02)***	-0.005 (-1.60)
<i>Tangibility</i>	0.004 (3.38)***	0.006 (4.08)***	0.004 (2.59)***
<i>FRQ</i>	-0.000 (-0.34)	-0.000 (-0.97)	0.000 (0.09)
<i>lag_Dep var</i>	0.940 (296.03)***	0.908 (229.37)***	0.935 (278.48)***
<i>Common</i>	-0.009 (-3.17)***	-0.014 (-3.95)***	-0.006 (-1.85)*
<i>PEC</i>	-0.005 (-4.42)***	-0.005 (-4.03)***	-0.005 (-3.61)***
<i>Corruption</i>	0.010 (4.20)***	0.010 (3.33)***	0.012 (3.55)***
<i>Regulatory_Quality</i>	-0.016 (-3.46)***	-0.028 (-5.05)***	-0.005 (-0.80)
<i>Economic_Freedom</i>	0.000 (0.29)	0.001 (2.09)**	-0.001 (-1.84)*
<i>LGDP</i>	-0.007 (-4.26)***	-0.006 (-2.81)***	-0.010 (-4.92)***
<i>Globalization</i>	0.001 (2.84)***	0.001 (4.04)***	0.000 (0.80)
<i>Union</i>	0.012 (2.84)***	0.020 (3.89)***	0.009 (1.62)
<i>Secrecy</i>	-0.000 (-3.07)***	-0.000 (-3.05)***	-0.000 (-2.48)**
Constant	0.295 (9.80)***	0.354 (9.71)***	0.391 (10.39)***
Observations	13,592	13,592	13,592
R-squared	0.914	0.885	0.901

This table reports the regression results of the relation between Big N auditor and CSR performance. The dependent variable is *log(ES\_score)* in Column 1, *log(E\_score)* in Column 2, and *log(S\_score)* in Column 3. The regression control for the lag dependent variable (*lag\_Dep var*) in the model. The detailed definitions of all variables are provided in the Appendix. Coefficients on the industry and year indicator variables are not tabulated for brevity. The t-statistics are reported in parentheses. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels (two-tailed), respectively.