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Article

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Voluntary CSR disclosure, institutional environment, and independent audit demand



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ABSTRACT

Using a sample of A-share listed companies on the Shanghai and Shenzhen Stock Exchanges, this study examines the impact of voluntary corporate social responsibility (CSR) disclosure on independent audit demand in different institutional environments. The sample covers the 2008–2016 period and excludes firms that are required to disclose CSR information. The findings show that compared with companies that choose to not disclose such information, companies that voluntarily disclose CSR information prefer to employ “small” accounting firms for auditing services, although the auditing fees are much higher. However, as the institutional environment improves, this preference is weakened. Further analyses show that this preference is stronger in enterprises where CSR disclosure is driven by strong political motivations and managerial self-interest motivations. Legitimate motivations and economic motivations do not significantly impact the preference for “small” audit firms. Furthermore, this preference is more obvious in enterprises with poor operational performance and low information disclosure quality, and it increases as CSR disclosure level decreases. The study enriches our understanding of the economic consequences of voluntary CSR disclosure and the factors that influence independent audit demand. The results also have implications for the construction and regulation of China’s system for supervising CSR information disclosure in the transitional phase.

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1. Introduction

Stakeholders have diverse information needs, and as financial information cannot meet all of their decision-making needs, non-financial information has become increasingly important. Since 2009, the China Securities Regulatory Commission (CSRC) has required that some listed companies to disclose their social responsibility reports together with their annual reports, while other listed companies can independently decide whether to disclose their social responsibility reports. According to the Rankins CSR Ratings, the number of listed companies issuing CSR reports increased from 471 in 2009 to 795 in 2016, and the proportion of firms voluntarily issuing CSR reports increased from 28.03% (132) to 47.55% (378) over the same period. Thus, both the number of listed companies disclosing their CSR activities and the proportion of firms voluntarily disclosing CSR activities are increasing. However, CSR disclosure is not uniform, and the content and form of the reports are largely arbitrary and inconsistent (Shen and Jin, 2006; Quan et al., 2015).

Non-financial information is more difficult to manipulate than financial information, so it is useful for evaluating financial information (Dhaliwa et al., 2011). As important participants in the capital market, the Public Company Accounting Oversight Board (PCAOB) believes that CPAs can use non-financial information as an independent and effective benchmark for evaluating financial reporting data and can use non-financial data to improve the detection of fraud. Therefore, non-financial information such as CSR reports has become an important component of audit risk assessment and risk response (Zhu et al., 2015). Although CSR disclosure has a “communication effect”, thus reducing information asymmetry (Li et al., 2013; Zhou et al., 2016), empirical evidence shows that CSR disclosure also has a “cover-up effect”, and can become a managerial tool for concealing immoral behaviors such as inadequate profitability or other bad news (Koehn and Ueng, 2010; Quan et al., 2015). In practice, once corporate immoral behavior is discovered or exposed, it will cause serious adverse consequences, as in the cases of the Sanlu “poisoned milk powder” incident in 2008, the “zombie meat” incident in 2015, the fake Nike “best basketball shoes” incident in 2017, and so on.

Accordingly, it is important to ask the following questions: how do companies’ CSR disclosure decisions affect their independent audit demand decisions? when selecting auditors, do they prefer “big” or “small” firms? In addition, due to regional differences in resource endowment, geographical location, and national policies, there are obvious differences in the institutional environments of Chinese listed companies in China’s transitional economy (Fan et al., 2011). As a result, companies’ motivation to disclose information and their capacity to misrepresent their activities are heterogeneous due to different institutional constraints (Cheng et al., 2011). Therefore, when examining the relationship between voluntary CSR disclosure and audit behaviors, enterprises’ institutional environments should be taken into account.

Regulatory factors can obscure companies’ motivation to issue CSR reports; that is, CSR reports that are part of a company’s mandatory disclosure are not entirely the product of managerial autonomy (Wang et al., 2014). Therefore, this study uses a sample from the 2008 to 2016 period of A-share listed companies on the Shanghai and Shenzhen Stock Exchanges that are not required to issue CSR reports. This allows the study to investigate the relationship between the voluntary disclosure of CSR information and independent auditing needs. It asks the following questions: (1) do enterprises that voluntarily disclose CSR reports prefer “big” or “small” audit firms, and how much do they pay for auditing services?; and (2) does the institutional environment affect the demand for independent audits among enterprises that voluntarily disclose CSR information?

The results indicate that enterprises that voluntarily disclose CSR information prefer “small” audit firms, which have a higher audit risk and charge higher auditing fees, but a good institutional environment can effectively suppress this preference. Further tests show that the impact of voluntary CSR disclosure on independent auditing needs varies with disclosure motivations, and that corporate performance and the quality of enterprises’ information disclosure influence this relationship. The lower the quality of information disclosure, the stronger the preference for “small” firms.

This study contributes to the literature in several ways. First, few studies of the factors that influence the demand for independent audits have explored the effect of voluntary CSR disclosure. As government supervision on CSR is in an important period of system construction and regulation, the study of the relationship between voluntary CSR disclosure and independent audit demand provides important empirical evidence for the effects of government supervision in a transition economy. Second, using independent audit needs as an

example, this study enriches our understanding of the consequences of disclosing non-financial information, and provides a new perspective for understanding how the institutional environment in China affects the micro-path of audit demand. Third, most studies of CSR disclosure do not distinguish between voluntary and mandatory disclosure. In fact, these two types of disclosure have quite different motivations. This study uses a sample that contains only enterprises that can choose whether to make CSR disclosures, which improves the reliability and pertinence of the research conclusions and provides better guidelines for improving relevant policies.

The rest of the paper is organized as follows. [Section 2](#) reviews the literature and develops our hypotheses. [Section 3](#) introduces the research design. [Section 4](#) reports the empirical results and analyses. [Section 5](#) presents further analyses. [Section 6](#) gives our robustness test. [Section 7](#) concludes the paper.

2. Literature and hypotheses development

Previous studies of the economic consequences of CSR disclosure focus on earnings management ([Hemingway and MacLagan, 2004](#); [Chen et al., 2018](#)), capital cost ([Dhaliwal et al., 2011](#); [Li et al., 2013](#)), tax avoidance ([Hoi et al., 2013](#); [Zou, 2018](#)), and so on. Their conclusions are inconsistent. Most studies of the impact of CSR disclosure on audit behavior consider its effect on audit fees ([Zhu et al., 2015](#); [Peter et al., 2017](#)), and very few consider its relationship with independent audit needs. In fact, auditors have a number of reasons for paying attention to clients' CSR disclosures. First, because auditors have a deep understanding of their customer's business environment and financial situation, they are able to evaluate non-financial information disclosed by the customer. As CSR is an important type of non-financial information, auditors can obtain additional information through its disclosure, which in turn provides favorable conditions for audit risk assessment. Second, CSR disclosure tends to attract the attention of external stakeholders ([Kong et al., 2013](#); [Wang et al., 2014](#)), thus creating a kind of supervisory pressure on auditors' behaviors, so auditors need to consider CSR disclosure in risk assessment procedures. Third, some studies indicate that CSR is used by managers to pursue their self-interest ([Hemingway and MacLagan, 2004](#); [Quan et al., 2015](#)), which can influence business operation risk and consequently affect the evaluation of audit risk. Based on the above analysis, this study argues that it is necessary and important to examine the impact of voluntary CSR disclosure on independent audit needs.

According to principal-agent theory, managers use CSR to enhance their professional reputation and personal interests, and that this is at the expense of shareholders' interests. In other words, CSR disclosure has "cover-up effect." [Hemingway and MacLagan \(2004\)](#) argue that CSR is used to cover up managers' earnings manipulation and other misconduct. [Kim et al. \(2012\)](#) believe that the purpose of CSR disclosure is to create an apparently transparent social image for enterprises, which allows them to conduct earnings management behind the screen. [Gao et al. \(2012\)](#) finds that Chinese private enterprises are more likely to make charitable donations in the hope of covering up or diverting the public's attention from other improper behaviors such as the internal lack of social responsibility or the declining reputation of the enterprises. That is to say, the charitable donations of Chinese private enterprises are more "instrumental" and are "green scarf" rather than "red scarf."

In addition, in the context of China's special transition economy, the content and language of voluntary CSR disclosure are often selected to convey positive information about the company's active fulfillment of its responsibilities, for very obvious public relations purposes ([Song and Gong, 2006](#)). To some extent, CSR disclosure has become a tool for enterprises to seek rent from the government; that is, it can help enterprises obtain rent. [Zou \(2018\)](#) finds that CSR disclosure is negatively related to actual tax burden, and the relationship is more obvious among enterprises that disclose CSR information voluntarily, suggesting that enterprises proactively disclose CSR information, while secretly engaging in tax avoidance behaviors. [Li et al. \(2016\)](#) find that the tendency to make donations and the amount of donations of Chinese private listed companies are positively related to tax avoidance, which means that there is a phenomenon of "apparent donation, but secret tax avoidance" among these companies. As audits are external governance mechanisms, higher quality audits provide more supervision and more restriction on tax avoidance ([Jin and Lei, 2011](#)). The size of accounting firms is a basic guarantee of high audit quality ([De Angelo, 1981](#)). As large accounting firms have higher professional competence than smaller firms and are more concerned about reputation, litigation

risk, and audit failure penalties, firm size is usually used as a proxy for high-quality audits (Pan, 2010; Chen et al., 2013). Auditors can determine whether an enterprise's operation risk is increased by negative CSR performance (Koh and Tong, 2013). When auditing a client with high operation risk, big audit firms have the motivation and ability to increase the number of audit procedures applied to the client's accounting information, thus reducing the audit risk to an acceptable level. However, small audit firms may not have the professional competence or resources needed to detect false information. In reality, audit committees' choice of auditor is usually directed by managers, even directly decided by them (Zhang et al., 2010). Therefore, the managers of enterprises that have voluntarily disclosed CSR may select small audit firms to avoid unfavorable auditor supervision, which sends a negative signal to stakeholders. Based on the above analysis, we propose the following research hypothesis.

Hypothesis 1. Other factors being equal, companies that make voluntarily CSR disclosures are more likely to select “small” accounting firms as auditors than companies that do not disclose CSR.

What is the effect of selecting “small” audit firms on audit fees? Generally, there are three determinants of audit pricing: normal cost, risk premium, and reputation premium. Compared with “big” audit firms, “small” audit firms do not have a reputation premium. Therefore, assuming that normal audit cost is controlled, audit risk is the main factor in determining the audit fees of “small” audit firms. Confucian culture, which occupies a dominant position in Chinese culture, emphasizes “wise self-preservation, the doctrine of the mean,” which creates a universal mentality of “the less trouble the better” in listed companies, and this leads them to restrict the disclosure of information. According to Rankins CSR Ratings (RKS), “reporting before management” is a common problem among Chinese listed companies. Although the number of enterprises voluntarily disclosing CSR information is increasing, most of the CSR reports have low scores, well below the RKS passing grade. Furthermore, the content of most CSR reports are merely “gratifying” summaries, and there are “clone” CSR reports (Quan et al., 2015). The number of CSR reports assured by third-party authorities is very small, they are insufficiently independent, and the assurance practice standards are not uniform (Shen et al., 2011). In practice, enterprises labeled socially responsible have frequently engaged in activities that damaged social interests and their corporate reputations, for example, Vanke's “poisonous floor” case and Tsingtao Beer's “quality gate” case. Thus, the general public lacks confidence in the quality of CSR reports, and questions the motivations of enterprises that voluntarily disclose CSR information. Zhu et al. (2015) argue that as an important type of non-financial information, CSR reports can provide auditors with information that is important for the audit process, and is an important component of audit risk assessment and risk response. Specifically, when determining audit pricing, auditors may tend to think that voluntary CSR disclosure enhances audit risk and increases audit efforts, causing an increase in audit costs; thus, they will charge these audit clients higher audit fees. Based on the above analysis, we propose the following research hypothesis.

Hypothesis 2. Other factors being equal, companies that make voluntary CSR disclosures pay higher audit fees to employ “small” accounting firms than with companies that do not disclose CSR information.

Institutional environment is a basic determinant of the behaviors of economic subjects, and enterprise behaviors are often endogenous within a specific institutional environment. As China's capital market is a new and transitional market, there are significant differences in the institutional environments of different regions, which can cause differences in the motivations for information disclosure, the ability to make false statements (Cheng et al., 2011), and the corporate governance role of independent auditing. Hence, it can be reasonably inferred that the preference for “small” audit firms among enterprises that voluntarily disclose CSR information may be affected by the local institutional environment. First, as the level of marketization and legalization is relatively high in areas with good institutional environments, enterprises in these areas are motivated to provide more transparent and higher quality accounting information to alleviate the agency problem and strengthen the role of signal transmission (Liu and Wang, 2014); thus, the demand for high-quality auditing is strong. In contrast, in a bad institutional environment, investors have insufficient legal protection, and enterprises lack the need for high-quality auditing (Zhang et al., 2012). Second, in an area with strong legal protections and developed market intermediaries, enterprises' illegal or immoral behaviors are more likely to be investigated and exposed, and the subsequent losses are more serious. That is, the costs and risks of actively disclosing CSR information are greater, which makes the fulfillment of CSR more signif-

icant, and thus enterprises seek high quality auditing. Lastly, according to the reputation mechanism theory and “deep pocket” theory, reputation and legal punishment mechanisms are more likely to play a role in good institutional environments; thus, in these environments, auditors’ concerns for self-reputation and litigation risk will lead to high audit quality (Chen et al., 2010; Liu and Wang, 2014). Based on the above analysis, we propose the following research hypothesis.

Hypothesis 3. Other factors being equal, improving the regional institutional environment can effectively restrain the preference of enterprises that voluntarily disclose CSR information for “small” accounting firms.

3. Research design

3.1. Sample selection and data source

We select all of the A-share companies listed on the Shanghai and Shenzhen Stock Exchanges between 2008 and 2016 as our initial sample. China began to implement a policy that is a mixture of mandatory and voluntary CSR disclosure in 2009, but as companies disclose their last year’s CSR reports during this year, 2008 is the initial year. Then, we exclude the following observations from the sample: (1) financial companies, because these companies have special operational characteristics and accounting systems; (2) companies with abnormal operations such as ST and *ST companies; (3) companies issuing B-shares, H-shares, and other foreign shares, because the market price, accounting standards, and regulatory environment of such stocks are different than those of A-share companies; (4) companies that are required to disclose CSR activities, because this study examines the differences in independent audit demand between companies that choose to disclose CSR activities and those that choose not to disclose CSR activities; and (5) any observation with missing data. The final sample has 13,340 observations, including 1622 observations of voluntary disclosure, and 11,718 observations with no disclosure. The financial data are mainly from the CSMAR database and the CSR report data are from the RKS database. In addition, to eliminate the interference of outliers on our regression tests, all of the continuous variables are winsorized at the 1% and 99% levels.

3.2. Models and variable definitions

We construct Model (1) to test Hypothesis 1 as follows:

$$\begin{aligned} Auditor_{i,t} = & \alpha_0 + \alpha_1 CSR_{i,t} + \alpha_2 Size_{i,t} + \alpha_3 Lev_{i,t} + \alpha_4 Growth_{i,t} + \alpha_5 Rev_{i,t} + \alpha_6 Inv_{i,t} + \alpha_7 Curr_{i,t} + \alpha_8 Roa_{i,t} \\ & + \alpha_9 Loss_{i,t} + \alpha_{10} Age_{i,t} + \alpha_{11} Top1_{i,t} + \alpha_{12} Seo_{i,t} + \alpha_{13} Soe_{i,t} + Year + Industry + \varepsilon_{i,t} \end{aligned} \quad (1)$$

where i indexes the firm and t indexes the year. The dependent variable, $Auditor_{i,t}$, is a dummy variable for the enterprise’s independent audit demand. Following previous studies, this study defines “big” accounting firms as firms that are ranked in the top 10 in the “Information about the Top 100 Ranked Firms in the Comprehensive Evaluation of Certified Public Accountants Firms” issued by the Chinese Association of Certified Public Accountants (CACPA). If an accounting firm employed by company i in year t is ranked in the top 10, $Auditor$ is equal to 0, and otherwise 1. The independent variable $CSR_{i,t}$ indicates whether company i voluntarily discloses its CSR report in year t ; if yes, the variable is equal to 1, and otherwise 0. Hypothesis 1 predicts that the regression coefficient α_1 of variable $CSR_{i,t}$ will be significantly positive.

We construct Model (2) to test Hypothesis 2 as follows:

$$\begin{aligned} Infee_{i,t} = & \alpha_0 + \alpha_1 CSR_{i,t} + \alpha_2 Auditor_{i,t} + \alpha_3 CSR_{i,t} \times Auditor_{i,t} + \alpha_4 Size_{i,t} + \alpha_5 Lev_{i,t} + \alpha_6 Growth_{i,t} \\ & + \alpha_7 Rev_{i,t} + \alpha_8 Inv_{i,t} + \alpha_9 Curr_{i,t} + \alpha_{10} Roa_{i,t} + \alpha_{11} Loss_{i,t} + \alpha_{12} Age_{i,t} + \alpha_{13} Top1_{i,t} + \alpha_{14} Seo_{i,t} \\ & + \alpha_{15} Soe_{i,t} + \alpha_{16} Auditop_{i,t} + \alpha_{17} Sqsub_{i,t} + Year + Industry + \varepsilon_{i,t} \end{aligned} \quad (2)$$

Model (2) is an OLS regression model that examines the effect of voluntary CSR disclosure on auditor selection and audit fees. The independent variable $\text{Infee}_{i,t}$ represents audit fee, which is equal to the natural logarithm of the domestic audit fees paid by enterprise i in year t . [Hypothesis 2](#) predicts that the regression coefficient α_3 of the interaction term $\text{CSR}_{i,t} \times \text{Auditor}_{i,t}$ will be significantly positive.

We construct Model (3) to test [Hypothesis 3](#) as follows:

$$\begin{aligned} \text{Auditor}_{i,t} = & \alpha_0 + \alpha_1 \text{CSR}_{i,t} + \alpha_2 \text{Hmkt}_{i,t} + \alpha_3 \text{CSR}_{i,t} \times \text{Hmkt}_{i,t} + \alpha_4 \text{Size}_{i,t} + \alpha_5 \text{Lev}_{i,t} + \alpha_6 \text{Growth}_{i,t} \\ & + \alpha_7 \text{Rev}_{i,t} + \alpha_8 \text{Inv}_{i,t} + \alpha_9 \text{Curr}_{i,t} + \alpha_{10} \text{Roa}_{i,t} + \alpha_{11} \text{Loss}_{i,t} + \alpha_{12} \text{Age}_{i,t} + \alpha_{13} \text{Top1}_{i,t} + \alpha_{14} \text{Seo}_{i,t} \\ & + \alpha_{15} \text{Soe}_{i,t} + \text{Year} + \text{Industry} + \varepsilon_{i,t} \end{aligned} \quad (3)$$

Model (3) is a logit regression model, which is used to test whether the relationship between voluntary CSR disclosure and independent audit demand is affected by differences in regional institutional environments. The variable $\text{Hmkt}_{i,t}$, a dummy variable representing institutional environment, is derived from the “Marketization Index” published by [Fan et al. in 2011](#). As this index only includes data up to 2010, we draw on [Yang et al. \(2014\)](#) to develop an index for 2011 and later years: for example, the index for 2011 is equal to the index of 2010 plus the average value added of 2008, 2009, and 2010 (the three previous years). The marketization indexes for each year in the 2012–2016 period are calculated in an analogous fashion. If the marketization index of the area where the enterprise is located is larger than the sample median, then $\text{Hmkt}_{i,t}$ equals 1, and otherwise 0. [Hypothesis 3](#) predicts that the regression coefficient of the interaction term $\text{CSR}_{i,t} \times \text{Hmkt}_{i,t}$ will be significantly negative.

Table 1
Variable definitions.

Variable name	Variable symbol	Variable definitions
Audit fees	Infee	Natural logarithm of the domestic audit fees paid by the enterprise
Independent audit demand	Auditor	Equal to 1 if a company employs a “non-top10” accounting firms for auditing, and otherwise 0
CSR information voluntary disclosing	CSR	Equal to 1 if a company discloses its CSR report voluntarily, and otherwise 0
Institutional environment	Hmkt	Equal to 1 if the marketization index is larger than the sample median, and otherwise 0.
Firm size	Size	Natural logarithm of total assets at the end of the year
Debt level	Lev	Ratio of total liabilities to the total assets at end of the year
Enterprise growth ability	Growth	Annual percentage revenue growth of the firm
Receivable items	Rev	Ratio of accounts receivable to the total assets at the end of the year
Inventory items	Inv	Ratio of inventories to the total assets at the end of the year
Liquidity ratio	Curr	Ratio of current assets to the current assets at the end of the year
Profitability	Roa	Ratio of annual net profit to the total assets at the end of the year
Operation loss	Loss	A dummy variable that equals 1 if the business operates at a loss in the current year, and otherwise 0.
Years of listing	Age	Natural logarithm of one plus the number of years a company has been listed
Ownership concentration	Top1	Shareholding ratio of the largest shareholder at the end of the year
Motivation of equity financing	Seo	An indicator variable that equals 1 if the firm has the demand of additional shares or rights issue in the current year, and otherwise 0.
Nature of property rights	Soe	An indicator variable that equals 1 if the firm is ultimately controlled by the government, and otherwise 0.
Audit opinions	Auditop	Equal to 1 if the firm obtains the standard unqualified audit opinion in that year, and otherwise 0.
Number of subsidiaries	Aqsub	Square roots of the number of subsidiaries included in the consolidated statements at the end of the year
Year variable	Year	Dummy variable, controlling the time effect
Industry variable	Industry	Dummy variable, controlling the industry effect. According to the industry classification standard of the Securities Regulatory Commission in 2012, the manufacturing industry is classified as a second-level industry, and all of the other industries are classified as first-level.

Following previous studies (Simunic, 1980; Wang et al., 2008; Yang et al., 2017), the following variables are controlled in the models: firm size, debt level, enterprise growth ability, receivable items, inventory items, liquidity ratio, profitability, operation loss, years of listing, ownership concentration, motivation of equity financing, nature of property rights, audit opinions, and number of subsidiaries.

The definitions of all of the variables are presented in Table 1.

4. Empirical results and analysis

4.1. Descriptive statistics

Table 2 reports the summary statistics, including the means, medians, minimum, maximum, and standard deviations of the variables. The mean, minimum, and maximum of Infee are 13.343, 12.206, and 14.845 respectively, indicating that the companies paid a range of audit fees. The mean of Auditor is 0.470, suggesting that more than half of the sample companies employ “Top 10” accounting firms. The mean of CSR is 0.122, showing that only 12.2% of the sample companies voluntarily disclose their CSR reports, indicating that Chinese enterprises are generally unwilling to voluntarily engage in CSR disclosure. In Table 3, the variables are grouped into subsamples of companies that voluntarily disclose their CSR reports and companies that do not disclose their CSR reports. The means are calculated for each subsample. The results show that the means of Infee and Auditor for companies that voluntarily disclose their social responsibility reports are significantly higher than those of companies that do not disclose their social responsibility reports, indicating that companies that practice voluntarily CSR disclosure are more willing to hire non-top 10 accounting firms to conduct audits and are willing to pay higher audit fees. The means of most of the control variables are significantly different between the subsamples.

4.2. Correlation analysis

Table 4 lists the Pearson correlation coefficients of the variables. The correlation coefficient between Auditor and CSR is 0.042, which is significantly positive at the 1% level, suggesting that companies that voluntarily disclose their CSR reports are more willing to employ “small” accounting firms than companies that do not disclose their CSR reports; thus Hypothesis 1 is preliminarily supported. The correlation coefficient between Infee and CSR is 0.125, which is also significantly positively correlated at the 1% level, indicating that companies that voluntarily disclose their CSR reports may pay higher audit fees than companies that do

Table 2
Descriptive statistics of the variables.

Variable	Obs	Mean	Median	Minimum	Maximum	Sd
Infee	13,340	13.343	13.305	12.206	14.845	0.506
Auditor	13,340	0.470	0	0	1	0.499
CSR	13,340	0.122	0	0	1	0.327
Size	13,340	21.678	21.605	19.436	24.477	1.017
Lev	13,340	0.425	0.416	0.046	0.896	0.213
Growth	13,340	0.223	0.111	−0.575	4.679	0.629
Rev	13,340	0.113	0.091	0	0.446	0.100
Inv	13,340	0.159	0.122	0	0.755	0.148
Curr	13,340	2.592	1.646	0.301	20.136	2.996
Roa	13,340	0.038	0.035	−0.160	0.191	0.051
Loss	13,340	0.091	0	0	1	0.288
Age	13,340	2.037	2.197	0	3.296	0.773
Top1	13,340	0.346	0.325	0.090	0.751	0.149
Seo	13,340	0.226	0	0	1	0.418
Soe	13,340	0.366	0	0	1	0.482
Sqsub	13,340	2.427	2.236	0	20.149	1.991
Auditop	13,340	0.972	1	0	1	0.164

Table 3
Mean difference tests of the variables.

Variable	Mean		Mean difference test
	CSR = 0	CSR = 1	
Infee	13.320	13.540	−0.194***
Auditor	0.462	0.526	−0.064***
Size	21.614	22.146	−0.532***
Lev	0.422	0.446	−0.024***
Growth	0.226	0.200	0.026*
Rev	0.115	0.098	0.017***
Inv	0.156	0.182	−0.026***
Curr	2.608	2.480	0.128*
Roa	0.038	0.043	−0.005***
Loss	0.094	0.070	0.024***
Age	2.025	2.125	−0.100***
Top1	0.345	0.358	−0.013***
Seo	0.226	0.224	0.002
Soe	0.360	0.412	−0.052***
Auditop	0.970	0.991	−0.021**
Sqsub	2.387	2.721	−0.334***

Note: The superscripts ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

not disclose their CSR reports. In addition, the absolute value of the correlation coefficients between variables is generally less than 0.5, which shows that there is no serious multi-collinearity problem in the model.

4.3. Multivariate regression analysis

Table 5 reports the results of the analyses of the relationships between voluntary CSR disclosure, institutional environment, and independent audit needs. The regression coefficient of CSR, shown in column (1), is 0.415 and is significantly positive at the 1% level, showing that companies that voluntarily disclose their CSR reports are more willing to employ “small” accounting firms than companies that do not disclose their CSR reports. Thus, Hypothesis 1 is supported. The regression coefficient of the interaction term CSR × Auditor, shown in column (2), is 0.044 and is significantly positive at the 5% level, suggesting that small accounting firms employed by the companies that voluntarily disclose their CSR reports charge higher audit fees, perhaps because small accounting firms believe that auditors’ efforts and audit risk are increased by voluntary CSR disclosure. The regression results for CSR are given in columns (3) and (4). The former is significantly positive at the 1% level, and the latter is negative and insignificant. The total regression results given in columns (2) to (4) support Hypothesis 2. The regression coefficient of CSR is significantly positive at the level of 1%, and the regression coefficient of the interaction term CSR × Hmkt is significantly negative at the 1% level, indicating that the preference for small accounting firms expressed by companies that voluntarily disclose their CSR reports decreases as the regional institutional environment improves. Thus, Hypothesis 3 is supported.

5. Further analysis

5.1. Motivations for CSR disclosure

Since 2009, China has had a policy that combines voluntary CSR disclosure with mandatory CSR disclosure. Scholars have conducted a series of studies on the motivations for CSR disclosure, including legitimacy motivation, economic motivation, political motivation, and managers’ self-interest motivation, which suggest the economic consequences of disclosing CSR reports driven by different motivations are different (Branco and Rodrigues, 2008; Dhaliwal et al., 2011; He et al., 2012; Zhang et al., 2014; Zou, 2018; Heminway and MacLagan, 2004). Therefore, it is necessary to examine whether the influence of voluntary CSR disclosure

Table 4
Pearson correlation coefficient.

	Infee	Auditor	CSR	Size	Lev	Growth	Rev	Inv	Curr	Roa	Loss	Age	Top1	Seo	Soe	Sqsub	Auditop
Infee	1																
Auditor	−0.164***	1															
CSR	0.125***	0.042***	1														
Size	0.647***	−0.086***	0.171***	1													
Lev	0.249***	0.046***	0.037***	0.449***	1												
Growth	0.080***	0.007**	−0.014**	0.086***	0.060***	1											
Rev	−0.012**	−0.038***	−0.057***	−0.142***	−0.038***	0.028***	1										
Inv	0.063***	0.019**	0.057***	0.166***	0.343***	0.038***	−0.120***	1									
Curr	−0.208***	−0.026***	−0.014**	−0.280***	−0.621***	−0.043***	−0.008**	−0.134***	1								
Roa	−0.009**	−0.037***	0.036***	−0.028***	−0.381***	0.179***	0.046***	−0.117***	0.237***	1							
Loss	−0.022**	0.021**	−0.027***	−0.058***	0.190***	−0.128***	−0.059***	0.005	−0.109***	−0.620***	1						
Age	0.143***	0.066***	0.042***	0.302***	0.423***	0.024***	−0.260***	0.165***	−0.350***	−0.218***	0.120***	1					
Top1	0.089***	−0.036***	0.028***	0.197***	0.044***	0.036***	−0.071***	0.070***	−0.016**	0.107***	−0.063***	−0.108***	1				
Seo	0.160***	−0.042***	−0.001	0.125***	0.074***	0.179***	0.084***	−0.011**	−0.100***	−0.011**	−0.024***	0.042***	−0.041***	1			
Soe	−0.012**	0.052***	0.036***	0.230***	0.297***	−0.045***	−0.178***	0.025***	−0.223***	−0.147***	0.079***	0.417***	0.151***	−0.094***	1		
Sqsub	0.253***	−0.023***	0.055***	0.278***	0.241***	0.003	−0.065***	0.120***	−0.183***	−0.034***	0.008**	0.197***	0.023***	−0.005	0.128***	1	
Auditop	0.038***	−0.023***	0.043***	0.106***	−0.114***	−0.002	0.045***	0.033***	0.057***	0.180***	−0.190***	−0.085***	0.060***	0.022**	−0.028***	0.033***	1

Note: The superscripts ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table 5

Regression results for relationships between voluntary CSR disclosure, institutional environment, and independent audit demand.

Variable	Dependent variable				
	Auditor		Infec		Auditor
	Full sample		Auditor = 1		Full sample
	(1)	(2)	(3)	(4)	(5)
CSR	0.415*** (7.398)	0.005 (0.315)	0.058*** (4.282)	−0.003 (−0.193)	0.641*** (8.292)
Auditor		−0.080*** (−11.903)			
CSR*Auditor		0.044** (2.241)			
Hmkt					−0.501*** (−11.940)
CSR*Hmkt					−0.588*** (−5.137)
Size	−0.162*** (−7.041)	0.284*** (61.683)	0.264*** (40.927)	0.306*** (46.435)	−0.151*** (−6.473)
Lev	0.131 (0.950)	−0.070*** (−2.853)	−0.054* (−1.663)	−0.104*** (−2.829)	0.028 (0.201)
Growth	0.049 (1.595)	0.016*** (2.824)	0.012 (1.498)	0.020** (2.456)	0.039 (1.262)
Rev	0.238 (1.107)	0.212*** (5.867)	0.152*** (2.841)	0.268*** (5.417)	0.492** (2.282)
Inv	0.224 (1.307)	−0.078*** (−2.772)	−0.017 (−0.458)	−0.133*** (−3.050)	0.262 (1.513)
Curr	0.010 (1.301)	−0.011*** (−8.982)	−0.013*** (−7.191)	−0.010*** (−5.698)	0.010 (1.206)
Roa	−1.586*** (−3.195)	−0.023 (−0.257)	0.041 (0.346)	−0.104 (−0.822)	−1.457*** (−2.907)
Loss	−0.154* (−1.911)	0.061*** (4.459)	0.060*** (3.124)	0.057*** (2.957)	−0.157* (−1.931)
Age	0.236*** (7.655)	−0.022*** (−4.294)	−0.021*** (−2.859)	−0.022*** (−2.994)	0.214*** (6.893)
Top1	−0.198 (−1.512)	0.032 (1.435)	0.018 (0.553)	0.047 (1.459)	−0.138 (−1.041)
Seo	−0.016 (−0.353)	0.019** (2.279)	0.013 (1.091)	0.022** (2.033)	−0.032 (−0.671)
Soe	−0.097** (−2.141)	−0.127*** (−16.475)	−0.114*** (−11.007)	−0.148*** (−12.707)	−0.184*** (−3.970)
Auditop		−0.126*** (−6.140)	−0.190*** (−6.802)	−0.052* (−1.837)	
Sqsub		0.066*** (25.612)	0.064*** (17.505)	0.066*** (18.427)	
Constant	4.266*** (8.774)	7.181*** (77.758)	7.520*** (58.147)	6.789*** (51.436)	4.041*** (8.242)
Year	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes
N	13,340	13,340	6265	7075	13,340
Wald Chi ² /F value	919.89	304.7	134.6	178.9	1113.40
Pseudo R ² /Adjusted R ²	0.056	0.522	0.503	0.520	0.069

on auditor selection varies with the motivation for engaging in CSR disclosure. First, following [Zhang et al. \(2014\)](#), the legitimacy motivation is explored by using the Senind variable, which represents industry sensitivity to social responsibility concerns. Companies in safe production sensitive industries, product quality sensitive industries and environmental protection-sensitive industries are classified as having high industry sensitivity. According to the Securities Regulatory Commission's 2012 industry classifications, Senind is equal

Table 6
Regression results for the different disclosure motivations.

Variable	Dependent variable: Auditor									
	Senind = 1 (1)	Senind = 0 (2)	CP = 1 (3)	CP = 0 (4)	Fseo = 1 (5)	Fseo = 0 (6)	Soe = 0 (7)	Soe = 1 (8)	Adm = 1 (9)	Adm = 0 (10)
CSR	0.373*** (5.563)	0.503*** (4.790)	0.653*** (4.199)	0.383*** (6.328)	0.470*** (4.071)	0.399*** (6.206)	0.490*** (6.642)	0.283*** (3.231)	0.652*** (7.862)	0.208*** (2.696)
Size	−0.168*** (−6.021)	−0.150*** (−3.572)	−0.305*** (−4.809)	−0.139*** (−5.563)	−0.153*** (−3.321)	−0.165*** (−6.138)	−0.135*** (−4.401)	−0.207*** (−5.686)	−0.230*** (−6.788)	−0.113*** (−3.284)
Lev	0.205 (1.229)	0.017 (0.069)	1.044*** (2.877)	0.012 (0.078)	−0.266 (−0.940)	0.242 (1.498)	0.155 (0.840)	0.217 (0.965)	0.338* (1.743)	−0.156 (−0.736)
Growth	0.040 (1.002)	0.068 (1.421)	0.050 (0.480)	0.046 (1.428)	−0.014 (−0.231)	0.071* (1.955)	0.043 (1.076)	0.064 (1.320)	0.066 (1.403)	0.028 (0.700)
Rev	0.180 (0.685)	0.348 (0.921)	0.099 (0.119)	0.240 (1.075)	−0.411 (−0.999)	0.440* (1.735)	0.953*** (3.612)	−1.018*** (−2.684)	0.534 (1.621)	0.018 (0.061)
Inv	0.188 (0.758)	0.373 (1.483)	0.347 (0.694)	0.199 (1.087)	0.406 (1.181)	0.143 (0.718)	−0.334 (−1.488)	1.019*** (3.642)	0.240 (0.902)	−0.042 (−0.179)
Curr	0.020** (2.145)	−0.014 (−0.947)	0.048*** (2.628)	0.003 (0.384)	−0.012 (−0.600)	0.016* (1.828)	0.013 (1.423)	0.016 (0.820)	0.018** (1.973)	0.011 (0.685)
Roa	−2.199*** (−3.803)	0.100 (0.100)	−2.984*** (−2.583)	−1.305** (−2.327)	0.021 (0.020)	−2.007*** (−3.537)	−1.865*** (−3.013)	−1.669* (−1.936)	−0.917 (−1.365)	−2.551*** (−3.316)
Loss	−0.240** (−2.539)	0.084 (0.538)	−0.576*** (−2.588)	−0.087 (−1.005)	−0.114 (−0.695)	−0.158* (−1.691)	−0.129 (−1.190)	−0.207* (−1.683)	0.011 (0.101)	−0.349*** (−2.901)
Age	0.248*** (6.764)	0.218*** (3.726)	0.204** (2.473)	0.247*** (7.335)	0.201*** (3.269)	0.250*** (6.943)	0.258*** (6.974)	0.153** (2.521)	0.244*** (5.407)	0.238*** (5.495)
Top1	0.111 (0.707)	−0.888*** (−3.775)	0.695* (1.867)	−0.308** (−2.188)	−0.273 (−0.998)	−0.161 (−1.080)	0.097 (0.567)	−0.585*** (−2.797)	−0.093 (−0.476)	−0.376** (−2.087)
Seo	0.013 (0.235)	−0.088 (−1.007)	0.075 (0.567)	−0.028 (−0.557)	−0.014 (−0.145)	−0.027 (−0.491)	−0.080 (−1.397)	0.093 (1.123)	−0.026 (−0.391)	−0.005 (−0.079)
Soe	−0.116** (−2.068)	−0.048 (−0.612)	0.045 (0.364)	−0.127*** (−2.580)	0.120 (1.251)	−0.157*** (−3.022)			−0.003 (−0.041)	−0.192*** (−3.075)
Constant	1.864*** (6.854)	2.175*** (5.933)	7.004*** (5.322)	3.805*** (7.290)	4.150*** (4.266)	4.298*** (7.589)	2.318*** (7.356)	1.881*** (5.311)	2.165*** (6.497)	2.091*** (6.395)
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	9379	3961	1910	11,430	3304	10,035	8452	4875	6670	6660
Wald Chi ²	553.65	371.74	220.15	740.60	202.04	740.77	584.25	365.62	482.11	497.81
Pseudo R ²	0.047	0.080	0.098	0.053	0.048	0.060	0.059	0.061	0.059	0.060
coefficient difference test of CSR		P = 0.295		P = 0.106		P = 0.589		P = 0.071		P = 0.000

to 1 if a company belongs to a sensitive industry such as mining, manufacturing, power, heat, gas, and water production and supply, and otherwise 0. Second, following [Zhang et al. \(2014\)](#), we adopt two variables—customer distance (CP) and refinancing demand (Fseo)—to investigate the economic motivation. If a company belongs to the textile, clothing, fur, food, beverage, or pharmaceutical industry, then the variable CP is equal to 1, and otherwise 0. For refinancing demand, if the company has additional issuance or allotment in the following year, Fseo is 1, and otherwise 0. Third, due to their close relationship with the government, state-owned enterprises are more likely to get preferential policies ([Li and Zheng, 2016](#)), whereas it is more difficult for non-state-owned enterprises to obtain government resources. Thus, the motivation of rent-seeking from the government through voluntary disclosure of CSR information is stronger for non-state-owned enterprises ([Godfrey, 2005](#); [Zou, 2018](#)). Therefore, non-state-owned enterprises are more inclined than state-owned enterprises to voluntarily disclose their CSR reports. Finally, the principal-agent theory suggests that the disclosure of CSR information may be a tool to “whitewash” managerial misconduct. As the agent cost of managers is one of the necessary conditions for the existence of this “cover-up effect” ([Tian and Wang, 2017](#)), we use the variable of agency cost (Adm) to test the existence of managers’ self-interest motivation; the higher the agency cost, the stronger the self-interest motivation of managers. Following [Li \(2014\)](#), agency cost is measured as the

Table 7
Regression results for firm performance and information disclosure quality.

Variable	Dependent variable: Auditor							
	Profit and loss		Return on equity		Institutional ownership		Evaluation rating	
	loss	Profit	decline	not decline	low	high	pass/fail	good/excellent
CSR	0.764*** (2.971)	0.388*** (3.414)	0.478*** (4.046)	0.333** (2.563)	0.728** (2.490)	0.349** (2.487)	0.605*** (4.094)	0.286** (2.058)
Size	−0.353*** (−3.773)	−0.144*** (−3.119)	−0.184*** (−3.809)	−0.155*** (−3.068)	−0.208* (−1.880)	−0.130* (−1.953)	−0.204*** (−3.529)	−0.130** (−2.238)
Lev	0.251 (0.489)	0.240 (0.930)	0.230 (0.877)	0.250 (0.897)	0.208 (0.345)	−0.325 (−0.948)	0.259 (0.832)	0.055 (0.159)
Growth	−0.058 (−0.336)	0.039 (1.258)	0.097* (1.656)	0.032 (0.857)	−0.132 (−1.027)	0.114* (1.951)	0.057 (1.279)	0.042 (0.980)
Roa					−1.677 (−1.132)	−1.641* (−1.691)	−2.247*** (−2.813)	0.007 (0.008)
Rev	0.770 (0.781)	0.197 (0.479)	0.283 (0.634)	0.178 (0.382)	−0.502 (−0.494)	0.408 (0.805)	0.513 (0.994)	−0.036 (−0.065)
Inv	−0.285 (−0.441)	0.291 (0.880)	0.028 (0.081)	0.490 (1.351)	0.583 (0.773)	0.724 (1.567)	0.007 (0.016)	0.471 (1.116)
Curr	−0.015 (−0.312)	0.012 (0.941)	0.007 (0.463)	0.015 (0.945)	−0.002 (−0.053)	0.002 (0.111)	0.007 (0.451)	0.019 (1.049)
Age	0.435*** (2.683)	0.217*** (3.714)	0.248*** (4.041)	0.238*** (3.354)	0.286* (1.870)	0.166** (2.205)	0.228*** (3.332)	0.283*** (3.446)
Top1	−0.568 (−0.934)	−0.201 (−0.754)	0.025 (0.088)	−0.507* (−1.697)	0.363 (0.580)	0.137 (0.403)	0.385 (1.180)	−0.806** (−2.289)
Seo	−0.444** (−2.565)	0.020 (0.419)	0.009 (0.143)	−0.047 (−0.696)	−0.129 (−0.841)	0.047 (0.805)	−0.160** (−2.480)	0.111* (1.780)
Soe	−0.162 (−0.874)	−0.076 (−0.788)	−0.124 (−1.214)	−0.057 (−0.547)	−0.069 (−0.301)	−0.042 (−0.327)	−0.138 (−1.083)	−0.050 (−0.435)
Constant	7.767*** (4.012)	3.856*** (3.984)	4.555*** (4.520)	4.009*** (3.761)	5.244*** (2.300)	4.289*** (3.095)	5.323*** (4.380)	3.071*** (2.544)
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	1210	12,127	7118	6218	1123	7655	6598	6733
Wald Chi ²	108.83	434.53	361.17	282.41	126.50	261.94	346.89	220.12
Pseudo R ²	0.114	0.052	0.061	0.055	0.116	0.051	0.072	0.048
Coefficient difference test of CSR		P = 0.02		P = 0.07		P = 0.00		P = 0.05

ratio of management expenses to revenue. If the ratio is larger than the median of the sample, *Adm* is equal to 1, and otherwise 0.

Based on the above analysis, Table 6 reports the regression results for the disclosure motivations subsamples discussed above. The regression coefficients of CSR in column (1) are smaller than that in column (2), but there is no significant difference, suggesting that when voluntary CSR disclosure is driven by the legitimacy motivation, its effect on the demand for high-quality auditing is limited, perhaps because the legitimacy motivation cannot guarantee the disclosure level of CSR information. To reduce the risk of auditors' delivering negative signals to stakeholders, these enterprises may have a weak demand for high quality audits. There are no significant differences in the regression coefficients of CSR between columns (3) and (4), or between columns (5) and (6), indicating that economic motivations do not significantly affect the relationship between voluntary CSR disclosure and independent auditing demand, perhaps because Chinese listed companies can't make scientific decisions when they determine the disclosure level of CSR information in practice, the significant impact of customer proximity on CSR remains at the decision-making level of whether to disclose CSR reports, but not at the actual disclosure level of CSR information (Zhang et al., 2014). The supervision mechanism proposed by China's regulatory authorities, that "the refinancing of listed companies will be linked to the fulfillment of social responsibility", has not worked effectively, thus listed companies do not feel the need

Table 8
Regression results for the disclosure level of CSR information.

Variable	Dependent variable: Auditor		
Score	−0.030*** (−4.328)		
Med_score		0.494*** (4.090)	
Mea_score			0.583*** (4.778)
Size	−0.404*** (−4.958)	−0.441*** (−5.529)	−0.429*** (−5.360)
Lev	0.394 (0.790)	0.466 (0.933)	0.480 (0.961)
Growth	−0.015 (−0.123)	−0.013 (−0.104)	−0.026 (−0.213)
Rev	−1.028 (−1.429)	−0.934 (−1.308)	−0.954 (−1.334)
Inv	−0.003 (−0.005)	0.004 (0.007)	0.007 (0.013)
Curr	0.036 (1.426)	0.040 (1.600)	0.039 (1.558)
Roa	−0.426 (−0.275)	−0.177 (−0.114)	0.029 (0.019)
Loss	0.033 (0.129)	0.050 (0.195)	0.087 (0.333)
Age	0.280*** (2.910)	0.303*** (3.135)	0.297*** (3.090)
Top1	0.206 (0.547)	0.164 (0.436)	0.146 (0.387)
Seo	−0.195 (−1.411)	−0.188 (−1.363)	−0.189 (−1.371)
Soe	−0.256* (−1.903)	−0.259* (−1.919)	−0.252* (−1.857)
Constant	11.960*** (6.793)	11.351*** (6.375)	11.005*** (6.152)
Year	Yes	Yes	Yes
Industry	Yes	Yes	Yes
N	1580	1580	1580
Wald Chi ²	161.05	158.29	164.69
Pseudo R ²	0.094	0.093	0.096

to improve the disclosure level of CSR information when they have refinancing motivation (Zhang et al., 2012). Generally, high-quality auditing is more likely to discover the true “information content” of CSR reports. Therefore, to reduce the risk of conveying bad signals to stakeholders, companies in close contact with customers and companies with refinancing needs tend to choose low-quality audits when they voluntarily disclose CSR reports.

Comparisons of the regression coefficients of CSR between columns (7) and (8) and between columns (9) and (10) shows that (7) and (9) are significantly larger than (8) and (10) correspondingly, which means the relationship between voluntary CSR disclosure and independent audit demands is significantly influenced by political motivations and managerial self-interest motivation. Specifically, the disclosure of CSR information may allow managers to conceal misconduct (Hemingway and MacLagan, 2004; Zou, 2018). For managers, voluntary CSR disclosure can reduce the demand for high-quality audits and thus reduce the possibility that auditors will convey to stakeholders bad signals that could damage the enterprises’ or their own reputation. As a resource of great value, political connections can be exploited by managers conducting rent-seeking activities, and the transactions that can help obtain various benefits from government officials are often in a “grey zone” of activities forbidden by the formal system (Tang et al., 2011). Obviously, managers do not want sensitive information related to rent-seeking activities to be made public and become the focus of attention from external investors and regulators. As auditing is an external supervision mechanism, political connections will weaken the demand for high-quality audits (Du and Zhou, 2010).

5.2. Firm performance and information disclosure quality

As CSR disclosure can allow managers to cover up inadequate profitability or other bad news, it can be expected that firm performance and information disclosure quality may have different effects on the relationship between CSR disclosure and audit demand. Therefore, we further divide the sample into subsamples based on firm performance and information disclosure quality. Specifically, to examine firm performance, the sample is divided into subsamples of enterprises with and without operational losses and into subsamples of enterprises with declining or not declining business operations. If the net profit of an enterprise is less than 0, it is classified as operating at a loss; if the rate of return on common stockholders’ equity is lower than in the previous year, the firm is classified as having performance declines. Columns 2–5 of Table 7 show that compared with companies that do not disclose CSR information, companies that make voluntary CSR disclosures are more inclined to select “small” accounting firms for auditing when their business is operating at a loss or firm performance is declining. To examine information disclosure quality, we create subsamples based on institutional ownership and on the evaluation of information disclosure. Previous studies indicate that enterprises with high institutional ownership have relatively high quality information disclosure (Velury and Jenkins, 2006; Gao and Zhang, 2008). In this sample, if the percentage of institutional ownership of an enterprise is higher than the sample median, we assume that the quality of information disclosure is high. The Shenzhen Stock Exchange grades the information disclosure quality of enterprises as excellent, good, pass, or fail. Following Yi et al. (2010), this study treats grades of “good” or “excellent” as indicators of high quality of information disclosure. As shown in columns 6–9 of Table 7, the preference of enterprises that voluntarily disclose CSR information for “small” audit firms is stronger in enterprises with low quality information disclosure.

5.3. Disclosure level of CSR information

The previous section examines the influence of voluntary CSR disclosure on audit demand; however, as China does not yet have clear provisions for the format and content of CSR disclosure reports, the level of disclosure in CSR reports is uneven. Hence, we restrict the sample to enterprises that voluntarily disclose CSR information to further test the effect of disclosure level on audit demand. Drawing on Huang and Zhou (2017) and Chen et al. (2018), the RKS rating scores are used to measure the disclosure level of CSR information. The higher the rating score, the higher the disclosure level. Specifically, we use two measures of disclosure level. The first directly uses the rating scores (Score). The second is a dummy variable Med_score (Mea_score) calculated from the sample median (mean) of the rating scores; if the score is less than the sample

Table 9
Regression results of models after PSM.

Variable	Dependent variables		
	Auditor (1)	Infee (2)	Auditor (3)
CSR	0.345*** (4.484)	−0.008 (−0.413)	0.621*** (5.627)
Auditor		−0.107*** (−5.539)	
CSR*Auditor		0.080*** (2.975)	
Hmkt			−0.503*** (−4.393)
CSR*Hmkt			−0.617*** (−3.960)
Size	−0.297*** (−5.682)	0.328*** (29.781)	−0.271*** (−5.110)
Lev	−0.068 (−0.208)	−0.194*** (−3.170)	−0.230 (−0.688)
Growth	−0.052 (−0.876)	0.028*** (2.937)	−0.064 (−1.075)
Rev	−0.321 (−0.662)	0.353*** (4.001)	0.004 (0.009)
Inv	0.167 (0.448)	0.105 (1.618)	0.147 (0.389)
Curr	0.005 (0.293)	−0.016*** (−5.164)	0.010 (0.542)
Roa	−1.499 (−1.367)	−0.256 (−1.265)	−0.966 (−0.856)
Loss	−0.177 (−0.979)	0.079** (2.373)	−0.161 (−0.866)
Age	0.290*** (4.359)	−0.031** (−2.561)	0.268*** (3.962)
Top1	0.032 (0.121)	−0.014 (−0.291)	0.109 (0.410)
Seo	−0.031 (−0.310)	0.023 (1.288)	−0.066 (−0.659)
Soe	−0.077 (−0.828)	−0.143*** (−8.460)	−0.191** (−1.984)
Auditop		−0.039 (−0.744)	
Sqsub		0.056*** (10.141)	
Constant	6.552*** (5.550)	6.497*** (25.882)	6.611*** (5.468)
Year	Yes	Yes	Yes
Industry	Yes	Yes	Yes
N	3106	3106	3106
Wald Chi ² /F value	233.53	81.39	322.06
PseudoR ² /adjusted R ²	0.064	0.539	0.090

median (mean), Med_score (Mea_score) is equal to 1, and otherwise 0. The regression results, given in Table 8, show that the regression coefficient of Score is significantly negative at the 1% level, and the regression coefficients of Med_score (Mea_score) are significantly positive at the 1% level, indicating that among companies that voluntarily disclose their CSR reports, lower disclosure levels increase the likelihood of “small” accounting firms being employed to conduct audits, perhaps because the disclosure of CSR information has a “cover-up” effect. Compared with small accounting firms, big accounting firms devote more auditing resources to CSR information because of their professional competence and their concerns for reputation loss, litigation

Table 10

Two stage least square regression with an instrumental variable.

variable	Dependent variables			
	CSR (1)	Auditor (2)	Infee (3)	Auditor (4)
Mean_pro	3.113*** (31.011)			
P_CSR		0.915*** (9.615)	0.160*** (2.866)	0.598*** (6.092)
Auditor			−0.126*** (−14.420)	
P_CSR*Auditor			0.209*** (3.558)	
Hmkt				−0.289*** (−7.213)
P_CSR* Hmkt				−1.222*** (−3.888)
Size	0.362*** (19.801)	−0.237*** (−16.230)	0.326*** (69.618)	−0.163*** (−9.789)
Lev	−0.437*** (−3.766)	0.507*** (6.071)	−0.165*** (−6.689)	0.307*** (3.618)
Growth	−0.099*** (−3.455)	0.063*** (3.371)	0.015** (2.512)	0.042** (2.227)
Rev	−0.545*** (−3.263)	−0.251* (−1.930)	0.363*** (9.797)	−0.089 (−0.680)
Inv	0.389*** (3.862)	0.191* (1.843)	−0.122*** (−4.231)	0.279*** (2.650)
Curr	0.003 (0.354)	0.005 (1.013)	−0.013*** (−10.250)	0.005 (0.976)
Roa	1.957*** (4.573)	−0.499 (−1.638)	−0.227** (−2.497)	−0.264 (−0.850)
Loss	0.065 (0.995)	−0.075 (−1.520)	0.046*** (3.224)	−0.062 (−1.252)
Age	−0.044* (−1.800)	0.092*** (5.007)	0.002 (0.332)	0.081*** (4.383)
Top1	−0.254** (−2.331)	−0.051 (−0.634)	−0.014 (−0.620)	−0.057 (−0.704)
Seo	−0.061 (−1.612)	−0.082*** (−2.971)	0.058*** (7.155)	−0.085*** (−3.049)
Soe	0.073** (1.983)	0.067** (2.502)	−0.163*** (−20.877)	−0.006 (−0.216)
Auditop			−0.131*** (−6.052)	
Sqsub			0.022*** (12.223)	
Constant	−9.256*** (−24.220)	4.554*** (14.888)	6.564*** (69.428)	3.197*** (9.134)
Year	No	No	No	No
Industry	No	Yes	Yes	Yes
N	13,340	13,340	13,340	13,340
Wald Chi ² / F value	1342.79	491.51	341.1	791.53
Pseudo R ² / adjusted R ²	0.158	0.027	0.495	0.044

risk and audit failure penalties, and thus big firms are more likely to discover the disclosure aims and true information content of CSR reports.

6. Robustness tests

To ensure the reliability of the main conclusions, this study carries out several robustness tests.

6.1. Propensity score matching (PSM)

Our sample of firms that voluntarily disclose CSR information may raise the problem of self-selection; that is, companies may decide to disclose a CSR report only when the demand for a high-quality audit is not strong. To mitigate the influence of the self-selection problem on our findings, the PSM method is adopted. First, following [Zhang et al. \(2014\)](#), and [Huang and Zhou \(2017\)](#), we establish Model (4), which includes some factors that are known to affect voluntary CSR disclosure. Second, we use a logit regression to compute tentatiousness scores and then match them 1:1 to get two groups called “enterprises disclosing CSR reports voluntarily” and “enterprises not disclosing CSR reports”. Finally, we regress the matched samples using the previous main models.

$$CSR_{i,t} = \alpha_0 + \alpha_1 Size_{i,t} + \alpha_2 Lev_{i,t} + \alpha_3 Roa_{i,t} + \alpha_4 Top1_{i,t} + \alpha_5 Dual_{i,t} + \alpha_6 Bsize_{i,t} + \alpha_7 Mcgb_{i,t} + \alpha_8 Soe_{i,t} + \alpha_9 Seo_{i,t} + \alpha_{10} HHI_{i,t} + \alpha_{11} CP_{i,t} + \alpha_{12} Listplace_{i,t} + \alpha_{13} Senind_{i,t} + Year + \varepsilon_{i,t} \quad (4)$$

where the definitions of CSR, Size, Lev, Roa, Top1, Seo, and Soe are the same as in [Table 1](#). Dual is a variable indicating whether the chairman and CEO are the same person; if so, it takes 1, and otherwise 0. Bsize, an indicator of the size of the board of directors, equals the number of directors. Mcgb indicates managers' ownership at the end of year. HHI is the product market competition, which is based on the H. Findall index. CP is the customer proximity, such that if the enterprise belongs to the textile, clothing, fur, food, beverage, or pharmaceutical industry, it takes 1, and otherwise 0. Listplace is the dummy variable representing listing location, such that if a company is listed on the Shanghai Stock Exchange, Listplace equals 1, and otherwise 0. Senind is a dummy variable representing the industry's sensitivity to social responsibility issues, such that if the enterprise belongs to mining, manufacturing, power, heat, gas, or water production and supply, it is 1, and otherwise 0.

[Table 9](#) reports the regression results for the matched samples. The regression coefficient of CSR is significantly positive at the 1% level (column (1)), and the interaction term $CSR \times Auditor$ is also significantly positive at the 1% level (column (2)). These results indicate that companies that voluntarily disclose CSR tend to select small accounting firms for audits and pay them higher audit fees than companies that do not disclose their CSR reports. The regression coefficient of the interaction term $CSR \times Hmkt$ is significantly negative at the 1% level (column (3)), which suggests that a good institutional environment can effectively weaken the positive correlation between voluntary CSR disclosure and the tendency to choose “small” accounting firms. The above regression results are consistent with our main findings, which further verifies all three hypotheses.

6.2. Instrumental variable (IV)

To avoid any potential endogeneity problems in the above findings, this study uses an instrumental variable to control. Following [Feng et al. \(2016\)](#), the mean of the voluntary CSR disclosure of enterprises in the same region in the same year (Mean_pro) is taken as the instrumental variable indicating whether enterprises will voluntarily disclose CSR activities in the current period. We argue that the companies in the same region (the same province where a company is registered) share an external environment, so their CSRs are to some extent correlated. However, the disclosure decisions of other companies in the same region should not affect the focal company's independent audit requirements; therefore, the variable Mean_pro satisfies the exogenous principle of an instrumental variable. [Table 10](#) shows the test results of a two stage least square (2SLS) test using the instrumental variable. The regression coefficient of Mean_pro (column (1)) is significantly positive. The regression coefficient of P_CSR, which is represented whether or not enterprises voluntarily disclose their CSR reports, equals the expected value. The P_CSR value is obtained from the first-stage regression. The regression coefficient of the interaction term $P_CSR \times Auditor$ (column (3)) is significantly positive, and the regression coefficient of the interaction term $P_CSR \times Hmkt$ (column (4)) is significantly negative. Overall, the results support the main findings.

Table 11
Regression results of the robustness tests.

Variable	Dependent variables				
	Auditor			Infee	Auditor
	(1)	(2)	(3)	(4)	(5)
CSR	1.254*** (4.459)	0.650*** (8.501)	0.942*** (8.350)	0.040 (1.591)	1.604*** (7.604)
Mkt	−0.048*** (−5.736)				
CSR*Mkt	−0.081*** (−3.086)				
Hmkt		−0.463*** (−11.221)			−0.481*** (−8.477)
CSR*Hmkt		−0.589*** (−5.178)			−1.034*** (−4.025)
Auditor				−0.085*** (−9.244)	
CSR*Auditor				0.075** (2.272)	
Size	−0.155*** (−6.729)	−0.149*** (−6.419)	−0.144*** (−4.807)	0.275*** (46.551)	−0.138*** (−4.586)
Lev	0.076 (0.546)	−0.008 (−0.056)	0.319 (1.608)	−0.076** (−2.259)	0.236 (1.177)
Growth	0.040 (1.315)	0.040 (1.286)	0.058** (1.991)	0.003 (0.614)	0.050* (1.750)
Rev	0.373* (1.733)	0.496** (2.302)	0.519 (1.612)	0.184*** (3.391)	0.794** (2.463)
Inv	0.276 (1.604)	0.249 (1.437)	−0.022 (−0.099)	−0.162*** (−4.748)	0.090 (0.408)
Curr	0.008 (1.041)	0.009 (1.195)	0.024 (1.036)	−0.014*** (−4.194)	0.022 (0.968)
Roa	−1.530*** (−3.081)	−1.405*** (−2.807)	−1.698** (−2.531)	0.037 (0.324)	−1.731** (−2.551)
loss	−0.157* (−1.940)	−0.151* (−1.859)	−0.085 (−0.808)	0.045*** (2.610)	−0.105 (−0.985)
Age	0.219*** (7.079)	0.214*** (6.876)	0.351*** (5.678)	−0.014 (−1.461)	0.285*** (4.544)
Top1	−0.180 (−1.374)	−0.146 (−1.105)	−0.202 (−1.064)	0.013 (0.399)	−0.198 (−1.033)
Seo	−0.023 (−0.486)	−0.029 (−0.618)	0.017 (0.260)	0.014 (1.157)	0.006 (0.083)
Soe	−0.141*** (−3.078)	−0.185*** (−3.994)	−0.089 (−1.565)	−0.136*** (−14.283)	−0.172*** (−2.943)
Auditop				−0.112*** (−4.753)	
Sqsub				0.063*** (18.153)	
Constant	4.503*** (9.193)	4.116*** (8.397)	3.637*** (5.687)	7.457*** (62.564)	3.773*** (5.841)
Year	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes
N	13,340	13,340	6816	6816	6816
Wald Chi ² /F value	963.51	1101.87	597.93	169.7	671.12
Pseudo R ² /adjusted R ²	0.060	0.068	0.073	0.521	0.084

6.3. Additional robustness tests

We also examine how using an alternate measure of institutional environment affects [Hypothesis 3](#). Specifically, we directly use the annual marketization index (Mkt) to measure institutional environment; a higher index number indicates a better institutional environment. We rerun the regression, and the results are listed in column (1) of [Table 11](#). We also create a third measure of institutional environment: we make the marketization index in 2011 and subsequent years directly equal to the previous year's value, and then construct a dummy variable of institutional environment (Hmkt), where if the index is larger than the sample median, Hmkt is equal to 1, and otherwise 0. We rerun the regression using this alternate measurement and the results are reported in column (2) of [Table 11](#).

In another robustness test, we use different regression samples. To further examine the influence of voluntary CSR disclosure on independent audit demand, we limit our sample to enterprises that either voluntarily disclosed their CSR activities in every year of the nine-year sample period or did not disclose their CSR activities in any of the nine years. The regression results are listed in columns (3)–(5) of [Table 11](#). Consistent with the results reported above, we find that enterprises that voluntarily disclose their CSR activities prefer “small” accounting firms for audits and are willing to pay higher audit fees, but a good institutional environment can effectively restrain this preference. These robustness tests further support our hypotheses.

7. Conclusions and implications

In recent years, due to crises that have exposed a lack of food safety, environmental pollution, and safety production accidents, the public has begun to demand that enterprises recognize their social responsibilities. Since China issued policies related to social responsibility, enterprises have gradually realized the importance of social responsibility for business development. Since 2008, the number of enterprises disclosing CSR reports has increased each year, as has the number of voluntary disclosures. CSR reports provide important non-financial information, which can play a supplementary role in audits. This study uses a sample of listed companies from the 2008 to 2016 period to examine the relationship between voluntary CSR disclosure and independent audit demand, and the effects of institutional environment on this relationship. Our conclusions can be summarized as follows. (1) The demand for high-quality auditing is weaker in enterprises that voluntarily disclose their CSR reports; that is, such enterprises are more inclined to employ small accounting firms for auditing services and to pay them higher audit fees. (2) As the regional institutional environment improves, the preference for small accounting firms is effectively restrained. (3) The relationship between voluntary CSR disclosure and independent audit demand is influenced by the disclosure motivations. Specifically, political motivation and managers' self-interest motivation strengthen the preference for “small” firms, but legitimate motivations and economic motivations have no significant impact on the focal relationship. (4) The business performance and information disclosure quality of enterprises also have an impact on the focal relationship. Specifically, the preference for “small” accounting firms is stronger in enterprises with poor performance or low quality of information disclosure. (5) Among enterprises that voluntarily disclose their CSR reports, lower levels of disclosure are associated with stronger preferences for “small” accounting firms. The main conclusions of this study are unchanged by a series of robustness tests.

China currently has a transition economy, and a system for supervising CSR is currently being constructed by the relevant government departments. Therefore, this study's findings make important contributions to the understanding of the economic consequences of voluntary CSR disclosure, its influence on independent audit demand, and how institutional environment affects micro-enterprise decision-making. The study also provides empirical evidence that will help government regulatory authorities to formulate targeted normative policies related to CSR. One aspect of supervision that government regulators should strengthen is the supervision of the performance and disclosure of CSR. In particular, they should severely crack down on pseudo-social responsibility behaviors, improve the information quality of voluntary CSR disclosure, and promote CSR that truly serves stakeholders. In addition, as a good institutional environment can play a positive role in helping enterprises to make audit selection decisions, government departments should actively and steadily improve the external institutional environment and focus on fostering and enhancing an environment that promotes high-quality audits. This study also helps managers to realize the importance of the economic consequences

of social responsibility activities. To fully exploiting the usefulness of CSR information, they need to strengthen the motivation and content of CSR reports and promote the overall improvement of CSR disclosure quality.

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Appendix A. Supplementary material

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.cjar.2019.10.002>.

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