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**THE EFFECT OF REGULATORY OVERSIGHT ON AUDITORS:
EVIDENCE FROM CHINA**

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PhD

The Hong Kong Polytechnic University

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**THE HONG KONG POLYTECHNIC UNIVERSITY
SCHOOL OF ACCOUNTING AND FINANCE**

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EVIDENCE FROM CHINA**

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**A thesis submitted in partial fulfilment of the requirements for the degree of
Doctor of Philosophy**

May 2021

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Abstract¹

This study investigates whether client firms replace their external auditors and improve their audit quality after receiving China's National Audit Office (NAO) inspection reports that disclose accounting irregularities. By using a sample covering 1,681 firm-year observations across 2009–2017 in the China A-share market, our difference-in-difference analysis compares the auditor replacement rate and audit quality in the pre-disclosure period with those in the post-disclosure period for both deficient state-owned enterprises (SOEs) (i.e. those that are revealed to have accounting irregularities according to the NAO inspection disclosures) and a control group (matched SOEs determined via a propensity matching method). We document that, compared with the control group, the frequency of auditors being replaced increases for deficient SOEs around the NAO inspection disclosures, and also that the audit quality of these SOEs is improved following the disclosures. We further find that the audit quality improvement is greater when companies change their auditors from small auditors to large, well-known audit firms (which we class as the move-up group). The auditor replacement rate and audit quality improvement are higher when the client firms face highly severe auditing issues. We further document an externality effect from the NAO inspections. That is, client companies sharing

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the same auditors with deficient SOEs tend to change their auditors too; and the audit quality of those clients is also improved. Taken together, our results accentuate the importance and effectiveness of the auditors' reputation and of regulators to provide alternative disciplinary mechanisms to improve the audit market's audit quality.

Keywords: auditor reputation; auditor replacement; audit quality; SOEs.

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Chapter 1 Introduction

Whether regulators should regulate external auditors and how regulators could regulate public audit markets to improve the overall audit quality are long-lasting questions that have aroused much debate and discussion among academics and practitioners (e.g., DeFond, 2010; Lennox and Pittman, 2010; DeFond and Zhang, 2014). Such questions have become much more critical in recent years given that the public accounting profession in the U.S. and many major countries globally have been under direct government regulation since the beginning of this century. The current regulation by the U.S Public Company Accounting Oversight Board (PCAOB) has been somewhat successful in improving the audit quality of foreign auditors and internal control quality (DeFond and Lennox, 2017; Lamoreaux, 2016; Fung et al., 2017), yet audit clients appear to discount information in the PCAOB inspection reports and find little value from these reports (Lennox and Pittman, 2010). An alternative approach is for regulators to allow the audit market to self-regulate effectively by helping auditor clients to better perceive the audit quality they receive and by promoting lower switching costs to allow them to change auditors when they are not satisfied with the service they receive. To help understand whether such an alternative mode can improve audit quality, we examine a setting where the

regulators provide clear audit quality indicators for a small set of companies and where the replacement cost of switching auditors are lower.

Specifically, we investigate how regulatory, routine inspection reports of the financial reporting of a small set of state-owned enterprises (SOEs) can serve as a signal of external auditors' quality and how such reports can affect the choice of auditors and their audit quality among public companies in China, where the competition among external auditors is high so that it would be relatively easy to switch auditors if desired (Chen et al., 2010; Chang et al., 2019). We focus on the regular inspections of centrally listed SOEs by China's National Audit Office (NAO). The NAO in China is a government institute that inspects the financial reports of SOEs. Since 2009, the NAO has selected around 20 out of a total of 96 central SOEs each year to conduct national inspections. If the NAO finds accounting irregularities during the inspections, it discloses these issues in detail together with publicly identifying the SOEs with irregularities. These reports are clear regulatory signals that the SOEs' external auditors have failed to detect related reporting and internal control irregularities in their clients' accounts.

We examine here whether such a signal prompts clients to avoid low-quality auditors and leads to improved audit quality. We progress in two steps. First, we ask whether the external auditors associated with SOEs with accounting irregularities are more likely to be replaced.² The credibility of the financial reporting from the centrally listed SOEs are important for both the SOEs' controlling agent, i.e. the State-owned Assets Supervision and Administration Commission of the State Council (SASAC), to internally assess the performance of these enterprises, and private equity investors to be able to publicly value these companies. This is particularly the case since the Share-Split-Structure Reform in China in 2005, which aimed to align the interests of government with those of public equity investors (Chen et al., 2012; Tan et al., 2020). The low-quality auditing of financial reports can lead to major problems in the market, such as a high cost of capital in the equity market due to the erroneous price discount of equity investors, and it can also compromise the monitoring performance of the governance agent (i.e. SASAC). Thus, deficient SOEs (i.e. those SOEs that are identified to have accounting irregularities) will likely be motivated to replace their external auditors to improve their audit quality and the creditability of their financial reporting. However, deficient SOEs may not have sufficient incentive to change their external auditors because prior studies suggest that central SOEs are likely to have a low demand for high-quality audits (Wang et al., 2008),

² We examine voluntary auditor replacements, which excludes the regulatory rotation of auditors.

although it must be borne in mind that these prior studies were performed with samples before the share-split-structure reform.

To confirm that deficient SOEs' action in changing their auditors is actually aimed at improving their audit quality, we further examine whether deficient SOEs have improved audit quality after the NAO inspection reports. If so, we expect that such an improvement either may come from a switch from the use of low-quality auditors to high-quality auditors or may be related to a greater effort being made by the incumbent auditors, who will be under pressure from clients to address any issues and to perform better.

Second, we examine whether companies that share auditors with deficient SOEs have a greater likelihood to switch their auditors and whether these companies seek to improve their audit quality because of receiving an audit quality indicator from the NAO inspection reports. Since the NAO inspection reports are publicly available, companies that have hired auditors associated with deficient SOEs will take notice and likely seek to change auditors to avoid potential issues with low-quality auditors, which is easy to do in China as the switching costs of auditors are

usually low due to the highly competitive nature of the audit markets (Chen et al., 2011). Indeed, an important feature of China's audit market is its fierce competition. Unlike in many other developed economies, in which the “Big Four” accounting firms audit the majority of listed companies, such concentration in the Chinese audit market for listed companies is rather low (Chen et al., 2010; Chang et al., 2019).

Using a sample of Chinese listed SOEs in A-share markets between 2009 and 2017, we empirically find the following results. There is an about 11% increased possibility that clients will change auditors after the disclosure of NAO inspection reports that signal audit failures of deficient SOEs. This implies that SOEs are indeed motivated to replace incumbent auditors due to the signals raised by the NAO inspections. In addition, audit fees increase by 5.96% on average for SOEs in the years after they have been identified in the inspection reports as providing deficient financial reporting, with the control for other standard audit fee determinants (e.g. client firm size, audit complexity, firm’s business risk). These results are consistent with our conjecture that auditors are motivated to make much more effort to ensure the quality of the reporting after the release of inspection reports from the NAO. Our analysis also reports a 2% decrease in income-decreasing accruals after the NAO’s reports. We further find that the audit quality improves more if the client firm

replaces its auditors and moves from a small audit firm to one that is more domestically well-known. This confirms our hypothesis that the audit quality improvement also comes from switching from low-quality auditors to high-quality auditors. We also find that auditor turnover is more likely when the severity of the accounting irregularities is greater than the average cases inspected. As a possible extension to our analysis, we examine auditor turnover and audit quality indicators (as measured by the audit fee, income-increasing accruals and ERC) for a sample of client firms that hire the same auditors as the inspected SOEs. The improvement of audit quality in related client firms suggest that the NAO's inspections have spillover effects on improving the audit quality for client firms that share the same auditors with the inspected SOEs, i.e. the NAO national inspection programme benefits not only the inspected SOEs but also firms that share the same auditors with the inspected SOEs.

Our study contributes to the growing literature on the regulation of the audit markets. We explore a setting where the regulator thoroughly inspects a small but important set of companies (i.e. central SOEs in China) in the economy and publicly discloses the finding of any accounting irregularities in detail so that the audit market receives a clear signal about the audit quality of a group of external auditors, and we compare our results against a clean control group of companies and auditors as the benchmark.

Our study answers the call for research regarding the role of the audit reputation to discipline and improve the audit market (DeFond and Zhang 2014). Interestingly, some other studies, such as Lennox and Pittman (2010), note that the inspection reports from regulators, such as the US PCAOB, do not motivate clients to move to high-quality auditors. However, the lack of evidence in that instance may be related with the lack of details in the PCAOB disclosures about their audit engagements (Aobdia, 2018) or perhaps the high costs of switching auditors in the U.S. (where the big auditors dominate the audit market). The high competition of the audit market in China, low litigation risk against auditors and the detailed disclosure in the NAO reports provide a unique window to extend our understanding about how auditor reputation regarding their audit quality can help clients avoid low-quality auditors, thus ultimately leading to an improvement in audit quality. Our study also extends the literature on audit-quality contagion by suggesting that audit-reputation effects are not only related to large audit scandals (He et al., 2016; Weber et al., 2008; Swanquist and Whited, 2015) but are also associated with routine audit failure signals from independent regulators. Our study has implications for regulators, such as the US PCAOB, who may be considering making “audit quality indicators” (AQIs) more readily available to the public (PCAOB, 2013). Evidence that the AQIs from the NAO help promote audit quality improvement for the clients of auditing firm

also provides support that such a move by the PCAOB would likely benefit capital market participants in the U.S.

Our study also complements contemporary studies regarding the alternative monitoring and governance mechanism of SOEs (Wong, 2016; Megginson, 2016; Chen et al., 2018). In 2000, China contributes 3.6% of global GDP. In 2019, however, the GDP increased to 17.8% and was expected to grow continuously. There is recent research which shows that China's GDP will be higher than \$12,536, the threshold of a high-income country by 2023 (The Centre for Economics and Business Research, 2020). The economic rise of a China dominated by state-owned enterprises (SOEs) suggests that a competing model of business ownership and organization (i.e. a combination of controlling ownership by the government and the remaining ownership by equity investors) needs to be closely investigated. Prior studies (e.g. Wang et al. 2008; Chen et al. 2011) on auditing issues of China's SOEs do not incorporate the most recent dynamic reforms of corporate governance and monitoring in China and generally use auditor size as a proxy for audit quality, which may have led to outdated conclusions on the influence of the SOEs. We extend these studies and, by using more recent data, provide supporting evidence that central SOEs appear to have a demand for high-quality auditing services when a signal of audit quality is available. Our study is also related to recent studies regarding China's

unique governance of its SOEs (e.g. Chen et al., 2011; Chen et al., 2018; Wong, 2014). Studies such as Chen et al. (2018) suggest that the managerial ranking system of China's SOEs mitigates risk in favour of China's drive for economic growth. We further explore the role of the accompanying monitoring system, as embodied by the NAO, in the governance of SOEs and mitigation of risk by documenting the positive effect of the NAO in improving the audit quality of both SOEs and other public companies that share the same external auditors.

Chapter 2 Institutional Background

The NAO's inspection programme is effectively a government audit in China. NAO audits government budget implementation, revenues and expenditures from central government and submits the audit results to the premier. NAO inspection mainly covers three dimensions: due diligence on major policies, state-owned resources and state assets; party's and government leaders' accountabilities; accountability of sectors including government departments and agencies, public finance, state-owned enterprises, foreign funds and investment, state-owned financial institutions. The national audit institutions help avoid the huge economic losses via reporting and combating corruption and potential risks and misbehaviour, major losses and waste and violations of laws and regulations,

The campaign of state-owned enterprises restructuring has been raised by Chinese regulators in 1978 (when the economic reforms started), with the aim of attracting foreign investment. There is a stream of audit research using Chinese data to investigate the transition of China audit (e.g., Chen et al., 2000, Chen et al., 2010, DeFond et al., 2000, Gul et al., 2009). SASAC introduced two rules aimed at improving the audit quality for central SOEs in 2004. The first rule (SASAC Rule No. 5) terminated management's authority to appoint auditors for central SOEs; instead, SASAC assumed this role itself. SASAC provides a list of qualified auditors for SOEs to choose every year. The second rule from SASAC (SASAC No.173) requires that management has to retain these auditors for at least 2 years and at most 5 years. In September 2004, another rule from SASAC (SASAC No.289) explained how to appoint auditors in detail: it firstly invites for bids from qualified audit firms in public. The "qualified" is explained as these audit firms have matched size of central SOEs so that they are capable to proceed the audit work. In addition, they have to be sanction-free for audit failures in the past three years. All the bids will be rated and discussed by SASAC and winners will be instructed to conduct audit for designated central SOEs. If audit failure happens among appointed auditors (e.g. fail to meet the audit standard or requirements), they will be prohibited from any future related works for central SOEs by SASAC. For the sever case, it is possible that the appointed audit firm will be reported and sanctioned by CSRC.

In the U.S., by comparison, there is a concept instruction concerning on auditor independence and auditor rotation from PCAOB in 2011. It suggests that the policy on mandatory audit firm rotation is helpful in enhancing auditor independence because long tenure may cause overly friendly relationship between auditors and management over time. Following this logic, SASAC No. 5 prevent the possible overly friendly relationship between the two parties with the expectation that this measure would enhance auditor independence, which, therefore, would enhance the audit quality. We examine whether these rules indeed improve audit quality for central SOEs.

The share-split-structure reform in China changed the monitoring situation. The share reform requires all non-tradable shares to be transferred as common shares which are freely tradable in the public market. It is subject to the mutual agreement of price and compensation between shareholders and holders of tradable shares. During the reform, the large, controlling shareholders in the listed firms are required to deliver the non-tradable shares to new shareholders, and the shares, therefore, are converted to publicly tradable at the specific period. By increasing the share of private shareholders, this reform mitigates the conflict of interest between government agents and private shareholders, which leads to a more efficient

allocation of resources to ensure high accounting quality. In addition, partial privatization increases information transparency (Ben-Nasr and Cosset, 2014), which makes it easier to monitor the manager to provide faithful financial information.

The NAO's official website only discloses the SOEs with accounting issues. To date, the NAO has published 135 audit reports for 92 SOEs on its official website. Among these, the State Development & Investment Corporation, China National Petroleum Corporation, China Huadian Corporation, Air China Group, Shenhua Group Corporation and SINOGRain are the most frequently inspected, being inspected up to three times during the period 2010–2018. Besides, 31 SOEs have been investigated twice and 55 once only. Based on our interview with a national auditor from the resident offices of the NAO, the choice of inspected SOEs can be made based on guidance issued by the Central Economic Work Conference (CEWC). At the end of each year, the State Council of the PRC reviews the country's economic performance in the previous year and prepares the plan for the following year. In 2013, for example, Premier Li emphasized financial stability and energy security in his keynote speech. NAO, consequently, disclosed there were issues with the audit reports of the Agricultural Development Bank of China and Bank of China in 2014

and disclosed the existence of internal management deficiencies in China Power Investment Corporation in 2015.

Chapter 3 Literature Review

Current theory and empirical findings suggest that high-quality auditors are more likely to produce high-quality financial reporting. Famous, high-reputation auditors provide a positive signal about their client's value (Balvers et al., 1988; Datar et al., 1991; Titman and Trueman, 1986). As such, when a corporate board is in charge of the decisions about auditor selection (i.e. audit committees), this board tends to hire a reputable auditor to mitigate information asymmetry and to promote firm value. If any accounting issue arises and is disclosed, the likelihood of replacing the engaged partner following the revelation of a deficiency in the audit quality depends upon whether the incident is publicly disclosed. Partner replacements can be raised by many highly visible incidents, for example, financial restatements. The aftermath of these accounting deficiencies can even affect client firms who share the same auditors with deficient companies (Aobdia and Petacchi, 2017). As such, the disclosure of accounting deficiencies may impair the reputation of the local auditor's office and makes auditors less capable in the local audit market. Our research aims to explore if SOEs and auditors pay attention to the disclosure of NAO inspection

reports (e.g. whether the government audit effectively supervises the audit quality in SOEs and generates a positive externality on non-SOEs firms). Consistent with the prior literature, we expect that SOEs would seek to improve their audit quality by replacing their auditors when a deficiency is revealed. Auditors per se would also make more efforts to mitigate the negative effects of accounting issues disclosed in the NAO inspection report.

Prior studies document that the state ownership and control of listed SOEs has an impact on their choice of auditors (e.g., DeFond et al. 2000; Wang et al. 2008). DeFond et al. (2000) use the event of China's adoption of international auditing standards in 1995 and find that after the adoption, the percentage of modified opinions issued by the auditors increased by nine times in 1995 and 1996 compared to in the previous two years. This suggests that the new standards made Chinese auditors act more stringently than before. They also find that the top 10 auditors, namely the audit firms that had the largest domestic market shares, tended to deliver higher quality as they had a greater propensity to issue modified opinions after controlling for the clients' financial conditions and characteristics. However, the increase in modified opinions was followed by a decline in the market share of these top 10 auditors. This drop was considered a result of Chinese listed firms not having

a strong demand for the top 10 auditors to signal quality. This suggests auditors tended to be hired to fulfil government requirements, and not to meet market demands.

In a follow-up paper to DeFond et al. (2000), Wang et al. (2008) expand the sample period to between 1993 and 2003 and compare the auditor choice between SOEs and non-SOEs. They find that SOEs, which are controlled by local governments, are more likely to choose small (non-top 10) local auditors than non-SOEs in the same province for a variety of reasons, including because it is easier to collude with smaller local auditors, local auditors have local knowledge, and as SOEs raise capital mainly through the equity markets and the state banks, not public investors.

As the common practice of many other countries, China starts its privatization with a partial sale of equity in the stock market. There are two reasons on why privatization encourages the improvement of audit quality: Firstly, it cushions the conflicts of interests between private shareholders and government agents (i.e. managers and the board of directors). Although in theory SOEs are owned by all the people in a country, they are in practice controlled by government agents. One of the primary concerns about state-owned enterprises is that government may over control the company to engage in tunnelling, rent-seeking, and waste on public resources

(Shleifer, 1998). Better interest alignment because of the equality brought by partial privatization, may lead to a better accounting quality as well as the more efficient resources allocation.

Secondly, after privatization, the information flow of the firm becomes more transparent (i.e. more information available from the stock market) (Gupta, 2005; Ben-Nasr and Cosset, 2014). This additional information could be used by shareholders to monitor managers to ensure they are providing financial statements with high quality.

Academic research has extensively studied the impact of auditor reputation on audit quality (e.g. Weber et al., 2008; Skinner and Srinivasan, 2012; Swanquist and Whited, 2015). After the disclosure of audit deficiencies, the audit firm suffers a reputational loss. Previous literature suggests possible changes in audit quality and auditor behaviours can remediate an auditor's reputation. Swanquist and Whited (2015) investigate is there any loss in local market share for incumbent auditors following client restatements. Their results suggest that market forces penalize auditors as a result of audit failures. Auditors, thereby, tend to maintain high-quality

audits to protect their reputational capital. Previous literature suggests that if auditing deficiencies were spotted and disclosed to the public in the previous year, to avoid or ameliorate reputation losses, auditors are expected to put more effort into the auditing process in the follow-up years (Barton, 2005). Besides, auditors tend to increase their efforts when they know their work will be heavily scrutinized by independent agencies or their peers (Lennox et al., 2013). A related study conducted by Chen et al. (2018) developed a model to examine the association between audit quality disclosure and auditors' effort. Under the disclosure regime, an investor observes the realized audit quality in both the qualified and unqualified opinions. If an auditor is identified as failing to catch past accounting misreporting (auditor vulnerability), it increases the auditor's present incentive to exert additional costly unobservable effort. The possible damage compensation that audit firms may have to pay to the investors as compensation exerts more audit efforts. Those related studies make a conclusion that the change in auditor's efforts is associated with audit quality disclosure. Referring to the theory of product differentiation in economics, auditors are encouraged to protect their reputations to retain and attract new business (Klein and Leffler, 1981; Shapiro, 1982).

To avoid penalty from capital market resulted by the disclosure of unreliable financial reports, firms tend to change auditors when their audit quality is questioned (Hennes et al., 2014). However, these benefits must be balanced against the costs of switching auditors. Firstly, client firms bear with the research cost to identify and hire a new auditor. Secondly, the learning curve for the new auditors is steep, which means it costs a lot of time and money to develop firm-specific knowledge and expertise (DeAngelo, 1981). Thirdly, there may be a shortage of supply for the audit firms with numerous experience and good reputation in short run since it is possible that many firms look for new auditors at the same time (Kohlbeck et al., 2008; Ramnath and Weber, 2008).

Prior studies have examined SEC (U.S. Securities and Exchange Commission) /CSRC actions against auditors (Cheng et al., 2020; Wang et al., 2015; Doxey et al., 2020; Chakravarthy et al., 2014). Their findings cover the association between government supervision and corporate financing choice and audit pricing. Cheng et al. (2020) investigate whether a firm is likely to switch its strategy in financing once its auditor partner is perceived to be a low-quality partner, as captured by whether one of the audit partner's other clients is sanctioned by the CSRC for financial misreporting. Differences between the CSRC and the NAO can be seen in both their

financial supports and information channels. According to the annual report disclosed by CSRC in 2012, their expenditure on supervisory affairs was RMB 366.1 million, and CSRC responded to 2,494 listed firms that year. CSRC relies on whistle-blowing with limited resources, which is a relatively inexpensive and easy way to address the misreporting issue (Greenberg et al., 2009). The NAO, by comparison, expended RMB 261.5 million on its inspection program covering 96 SOEs in 2012, and its inspection targets are decided by following guidelines from the CEWC instead of relying on whistle-blowing. By looking into the NAO inspection effects, we provide an alternative angle to observe the effectiveness of government supervision, which aims to decrease information asymmetry between SOEs and investors. Furthermore, the positive spillover effect of the NAO inspection on non-inspected firms provides alternative disciplinary mechanisms, leading to a more efficient market.

Chapter 4 Hypothesis Development

4.1. Auditor turnover hypothesis

The NAO has the authority to audit an SOE's financial statements and to disclose the related accounting issues to the public. Prior studies suggest that a client firm

may choose to dismiss an auditor that receives a negative inspection report from the regulators (Abbott et al., 2013) and is more likely to dismiss its auditor if the auditor has deficiencies in areas important to the client (Acito et al., 2017). After the disclosure of the NAO inspection reports in China, client firms may consider replacing their incumbent auditors to restore financial reporting credibility if their audit reports are found to be of low quality. For example, in 2009, Sinopec Limited replaced RuiHua Certified Public Accountants with PwC Zhong Tian LLP. In an article published on 18 September 2012, *China Economic Times* pointed out that "one of the reasons that Sinopec changed the external auditor is that RuiHua may not be capable of handling the complex international business of Sinopec."

Although Wong (2016) documents how the institutional features and informal governance mechanisms in China cause a low demand for high audit quality because small local auditors are more easily to collude, we believe this finding is subject to the research period studied. The first stage of share-split-structure reform started in 2005. Only few SOEs with medium or small size, located in relatively under-developed provinces gradually reformed as a trial. With the deepening of the share-split-structure reform in 2013, more SOEs operating in industries of infrastructure, communication and national defense proceeded to this share reform. More information on SOEs has now become available to the public

(http://www.gov.cn/jrzg/2013-05/29/content_2414033.htm). Given the possible negative market reaction that may occur, SOEs are encouraged to hire reputable auditors to ensure they provide reliable financial statements³.

We expect auditor turnover to be more likely if the client firm can identify an alternative audit firm with a good reputation in rendering high-quality service in areas relevant to the client. In order to keep contact with capital markets and low-cost financing, managers are supposed to promote and preserve firms' reputation by providing high-quality financial reports. To remediate reputation loss resulting from a negative the NAO audit report, we expect that clients would replace their incumbent auditors. This leads to the following hypothesis:

³ Alternative explanation: SOEs collude with deficient auditors, who do not do due diligence work. As such, auditors are associated with lower audit quality or engaging in accounting fraud. The NAO inspection uncovered the accounting deficiencies and, therefore, the firms are forced to improve their reputation and make remedy corrections by replacing auditors with higher audit quality. The new auditors produce better audit quality with higher audit fee, under the attention of NAO and public scrutiny.

In Wang et al.(2008), they find that in regions with more local government intervention and a less developed credit market, both local SOEs and SOEs under the control of the central government (hereafter, central SOEs) have a stronger tendency than non-state firms to hire small local auditors. However, the tendency of local and central SOEs to hire small local auditors is significantly attenuated when the state is less involved in controlling the economy and as the market and legal institutions develop. As the legal institution develop after 2003, we reasonably believe the possibility of collusion could be weak (Chen et al., 2010). A supplementary test was done to better address this issue (see Table 8). I define the importance of client as: $[(\text{client audit fee})/(\text{auditor's total revenue in that year})]\%$. The more % the client paid, the more important the client is in the mind of auditors. I divided the client firms by their % into two groups: important, less-important. If the results are the same in the sub-group where the SOE clients are less important, the collusion story is unlikely to explain the overall results.

H1: Ceteris paribus, an auditor–client engagement is less likely to continue after the disclosure of the NAO inspection reports showing accounting issues in inspected SOEs.

4.2. Audit quality hypothesis

Even if the client decides to continue working with their current auditor, it is expected that the client will want to see remediation and an improvement by its auditor after any accounting issues are disclosed. There are two channels for a deficient auditor who are identified by NAO inspection to increase the audit efforts and address the accounting deficiencies. First, their efforts will be motivated by pressure from clients. Client firms may consider replacing their incumbent auditors to restore financial reporting credibility if their audit reports continue to be found to be of low quality. Auditors will be expected to make improvements in the audit work onwards to avoid losing clients and market value. Studies have shown (Chaney & Philipich, 2002; Doogar et al., 2003; Krishnamurthy et al., 2006) that the US Big Five accounting firm Arthur Andersen’s clients lost significant market value during the periods of key negative disclosures about Andersen when the Enron scandal broke, which eventually led to the demise of Andersen.

Second, auditors' efforts will be motivated by the desire to avoid the possible negative effects that may arise after the NAO inspection reports are made public. The aftermath of the NAO inspection reports' disclosure may include but is not limited to delivering clues about the violation of laws and disciplines to the prosecuting authority. To avoid severe legal regulatory and reputational penalties, auditors and their client firms are expected to notify the general public of any rectification details. Audit firms, therefore, have a strong incentive to conduct additional control testing and/or substantive testing. Given this, we state Hypothesis 2 as:

H2: Audit quality is improved after the disclosure of the NAO inspection reports for inspected SOEs.

Chapter 5 Methodology

5.1. Data and sample

Our sample was obtained from the audit report issued by the NAO on its official website. The report evaluates SOEs on their financial revenue and expenditure, decision-making and implementation, and business operation. From 2009 to 2017,

the NAO identified 62 SOEs that had deficiencies in their financial reporting in those three dimensions. The initial sample consists of 92 events for the 62 SOEs identified by the NAO. Then, we matched the 62 SOEs with similar SOEs via the 1:1 propensity-score-matching method, to give a total of 124 SOEs. We collected all the audit reports of the listed companies in China from 2009 to 2017, which involved 25,579 audit reports for 3,555 companies, so that the auditor turnover in the whole market could serve as a benchmark.

5.2. Research Model

At the first stage, we constructed a probit model to estimate the likelihood of the NAO selecting specific SOEs to inspect each year. We follow prior studies, such as Chaney et al. (2004), by including factors that would affect the possibility of a site being audited (DISTANCE, which is the physical distance between the NAO regional offices and the SOE's headquarters; ACCESSIBILITY, which is an indicator of whether the SOE's headquarters is close to the national high-speed railway system). Chaney et al. (2004) suggest that the auditee size affects both the fees and audit risk because the client size implies the complexity of the audit work and economic importance of the firm. SOEs with a high economic importance will generate a more negative impact on state-owned resources and assets when

accounting issues occur. We include client firm size (measured by the logarithm of their total assets (LNASSETS), because the NAO will likely select large SOEs by considering their economic and political importance to society. We also include the prior year's discretionary accruals (DA_{t-1}), which we based on Kothari et al.'s (2005) model, to proxy for the financial reporting quality of the SOEs, because the NAO is likely to select SOEs that may be expected to have poor reporting quality. Therefore, abnormally high/low prior discretionary accruals would be regarded as a signal of low audit quality, which would lead to an NAO inspection being more likely in the following year. Firms with greater debts than equity are regarded as highly leveraged and require high standard auditing services through the hiring of high-quality auditing firms (Alkhatib & Marji, 2012). Since the NAO tends to inspect SOEs with low audit quality, client firms with high leverage have a reduced probability of being chosen for inspection.

In addition, we added variables to measure SOEs performance according to Du et al, (2012; 2018). EVA stands for economic value added, calculated by SASAC. ROE, EBIT, INVENTORY TURNOVER, RECEIVABLES TURNOVER and ASSEST TURNOVER measure firms' operating performance. GROWTH RATE of OPERATING REVENUE projects firms' future growth. LN(EMPLOYEE)

measures the workforce. I also include one dichotomous variable that capture whether during the fiscal year, SOEs were accused of financial misconduct (Misconduct).

The Opinions on Strengthening Audit Work, specifies that the NAO inspection is supposed to cover entities that implement government's policies and budgets, promote efficient reform and economic re-structuring, ensure measures targeted at desired growth, benefit people's welfare, and maintain the health of public funds, state-owned resources, assets and economic accountability of party and leaders. Since an unusually low profitability indicates poor performance, which impairs the steady growth of the national economy, we include ROA (Net income divided by average total assets) to measure the SOEs' profitability. DISTANCE and ACCESSIBILITY evaluate the cost for national auditors to visit the location of the SOE. As mentioned in "Institutional Background," guidance issued by the Central Economic Work Conference (CEWC) is regarded as an important reference for the NAO to select their inspection targets in the following year.

We first matched the 62 inspected SOEs with another 62 SOEs (one to one matching) with the propensity matching method (PSM) This method matches the inspected SOEs to the non-inspected SOEs based on a propensity score derived from observable firm characteristics. The PSM matching aims at minimizing the differences in the matching characteristics (referred to as "covariate balancing"), so that these differences alone cannot explain both the audit quality and auditor turnover difference. The sample period covers a 9-year window(year t-4 to year t+4) around the inspected year. Specifically, the sample covers four years prior to and four years after the inspected year. For example, China Aerospace Science and Technology Corporation was inspected in 2014, I collected its fundamental data from 2010 to 2018. For the matched SOE, it is assigned a quasi-inspection year, which is the same year with its corresponding inspected central SOE. Totally, there are 1116 observations⁴.

Since the first research question examines the effect of the NAO inspections on the probability of audit turnover, the interaction (TREATED×POST) in the regression indicates the increase or decrease in auditor turnover after an NAO inspection.

⁴ 1116 observations are calculated as: (62 SOEs + 62 matched firms) × 9 years = 1116 observations.

$$\begin{aligned}
& \text{Prob}(\text{TURNOVER} = 1) \\
& = \alpha + \beta_1 \text{TREAT}_i + \beta_2 \text{POST}_i + \beta_3 \text{TREAT} \times \text{POST} \\
& + \sum \beta_k \text{AUDITOR INDIVIDUAL CONTROLS}_k \\
& + \sum \delta_j \text{AUDIT FIRM CONTROLS}_j \\
& + \sum \delta_i \text{CLIENTS CONTROLS}_i + \varepsilon_t \tag{1}
\end{aligned}$$

Where TREATED represents the deficient SOEs, i represents the different identities of the client firms and j represents the audit firm's identity. We also include a number of variables regarding the auditor demographical information for the auditor partner k, including: GENDER, which is coded as 1 if the auditor is female; PARTNERSHIP, which is coded as 1 if the audit firm is organized as a partnership; and EDUCATION, which is coded as 1 if the auditor obtained a bachelor degree or above. Previous literature shows the differences of the result of decision-making tasks between males and females (Gold et al., 2009). Specifically, Niskanen et al. (2011) find that male auditors require less discretion in financial reporting. Miceli et al. (1991) expect that males are less likely to conform to a major opinion than females. Thus, the frequency of questionable or illegal behaviour is higher among males, such as fraudulent financial reporting. However, Gul et al. (2017) indicate

that public disclosure in large firms increases if there is a gender-diverse board. Srinidhi et al. (2011) suggest that board governance can be improved by female directors, which, then, improves the quality of earnings. Given the mixed findings above, we have no evidence to predict a specific direction based on gender.

The majority of audit firms in China are registered as limited liability companies. But, still, a few of them are organized in the form of partnerships. In the paper of Firth et al. (2012), they find that audit firms with partnerships provide higher quality audit services than those with limited liability identity. Thus, we include *PARTNERSHIP* to control for auditors who are partners in the audit firms. Koh et al. (2009) finds that education facilitates an individual's acquisition of knowledge to make audit judgments and to perform audit tasks more efficiently. According to the human capital theory, a higher level of auditor education has a positive relation with audit firm's survival and success (Bröcheler et al., 2004). Prior literature has also documented a positive association between the auditors' career advancement and their education levels (Boyle & Canning, 2005). Moreover, Chu et al. (2018) suggest that employers' talents can be measured by education level. It means that high education levels help auditor acquire knowledge and develop professional skills.

Consequently, auditors with high education level are less likely to be associated with deficient auditing compared to auditors with lower education level.

Following prior research (Chen et al., 2001; Menon and Williams, 2004; Chan et al., 2006; Dechow et al., 2010), we identify if the audit firms belong to the “Big 10”, since being among the Big 10 indicates the audit firm’s independence, quality and reputation. Directors who hold multiple directorships may have more to lose from opportunistic financial reporting behaviour by management. For instance, Gilson (1990) suggests that directors who are from firms that privately restructure debt or resign from bankrupt firms will hold approximately one-third fewer directorships three years after their departure. Therefore, we inject that boards where multiple directorships (DIRECTORSHIPS) are common to be favourable of audit quality.

Similar to the conclusion made by Beasley (1996), we view the board as being more independent when the percentage of outside (that is, non-management) directors (PCTOUTSIDE) on the board is greater. Managers purchase high-quality audit service to reduce the opportunistic reporting and the fraudulent reporting. It can be regarded as outside directors are more concerned about audit quality than the

managers are, since the latter face greater conflicts of interest. Given the incentives that outside directors have to ensuring reliable financial reporting, more independent boards may support a higher audit quality.

A board that demonstrates greater diligence when it is discharging its responsibilities, as e.g. measured by the number of board meetings (NUMBODMTG), may seek an strict supervision of the financial reporting process. As such, we expect that higher audit quality may come from diligent boards. As suggested by Lennox et al. (2012), it is advisable to include all the independent variables from the first-stage model in the second-stage model. We thus include LEVERAGE and ROA in Model (1) as well. Detailed definitions of the variables are reported in the Appendix. A to this paper.

The following model examines the impact of NAO inspections on audit quality. We apply three measures, namely audit fee, income-increasing discretionary accruals and ERC (Chaney et al., 2004; Manry et al., 2008; Teoh & Wong, 1993), as proxies for the audit quality. Imhoff and Lobo (1992) find that firms with high consensus in the analysts' forecasts of earnings tend to have a high ERC. So long as some auditors

are perceived to follow policies that cause reported earnings to be more informative about value than other auditors, valuation theory predicts that the ERC will be different for different auditors. An auditor's "quality" can then be defined as the characteristic leading to greater informativeness of reported earnings (Teoh & Wong, 1993).

$$\begin{aligned}
 AQ_t = & \alpha + \gamma_1 \text{TREATED}_i + \gamma_2 \text{POST}_i + \gamma_3 \text{TREATED} \times \text{POST} \\
 & + \sum \beta_i \text{AUDITOR INDIVIDUAL CONTROLS}_k \\
 & + \sum \partial_i \text{AUDIT FIRM CONTROLS}_j \\
 & + \sum \delta_i \text{CLIENTS CONTROLS}_i + \varepsilon_t \quad (2)
 \end{aligned}$$

The coefficient of TREATED X POST (please refer to the Appendix. for the definition) captures the change of audit quality from the pre- to post-national audit period for the treatment sample compared to the change over the same period for the control group. A positive sign associated with the interaction term in the accrual models suggests that auditors treat clients more seriously after the NAO inspections.

Chapter 6 Empirical Results

6.1. Results of testing H1 and H2

Table 1, Panel A summarizes the descriptive statistics, including the raw values of the main variables that are used in Models (1) and (2). The average firm size for all the SOEs is RMB 83.5 billion, which is bigger than the average size (RMB 76.9 billion) for all the listed firms (9,761 firm-year observations). The mean discretionary accruals as a percentage of totals assets are 3.37%. The distance between the SOEs and NAO ranges from less than 10 kilometres to more than 1,800 kilometres. Among the SOEs, their employment of the Big 10 auditors is slightly higher than the non-Big 10. The average audit fee was around RMB 3.5 million (the median fee was RMB 1 million). Most of the continuous control variables have an approximately symmetric distribution.

As stated at the beginning of Section 6, in Panel B, we compare the statistics between the treated samples and the matched samples via 1:1 PSM matching. For all seven variables included in the selection model (TOTAL ASSETS, DISCRETIONARY ACCRUALS, DISTANCE, LEVERAGE, ROA, RECINT, INVINT, please refer to the Appendix for the construct of the variables), the differences between the two

groups are not significant (propensity score, 0.0839, 0.0852, p-value=0.72). Meanwhile, if we compare the treated sample with general SOEs, there are statistically significant differences in terms of size (TOTAL ASSETS), DISTANCE, LEVERAGE, RECINT, and INVINT.

Panel C reports the auditor turnover rate in the pre- and post-inspection periods for the deficient and matched samples. The results show that in the pre-inspection period, auditor turnover contributed 25.15% to all of the 248 firm-year observations in the deficient sample. After the inspections, auditor turnover increases to 36.14% of the observations, which represents a statistically significant increase (diff.=10.99%, $p < 0.01$). Respectively, the matched group has a similar turnover rate in the pre- (30.24%) and post-inspection (31.45%) periods (diff.=1.21%, $p > 0.10$).

Table 2, Panel A presents the selection model for deciding which SOEs would be inspected by the NAO. We find that firm size, last-year discretionary accruals, accessibility, CEWC conference and number of employees significantly contribute to deciding whether companies are inspected by the NAO. Specifically, accessibility describes the introduction of high-speed rail in different provinces and measures the transportation convenience for the NAO to conduct an inspection.

In Table 2, Panel B, the dependent variable is a dummy variable indicating audit firm turnover. The results show a significantly positive relation between auditor turnover and the interaction term TREATED×POST (coef.=0.1699, t-stat=6.1896). This supports our H1, which states that an auditor–client engagement is less likely to continue after disclosure of the NAO inspection report, which indicates that the client is involved in deficient auditing. The finding suggests that deficient SOEs are more likely to replace incumbent external auditors. This is consistent with Chen et al. (2017), who state that high-ranking politicians are more cautious of a firm’s performance (e.g. accounting credibility) and place emphasis on the NAO inspections.

In Table 2, Panel C, we compute the incremental probability of auditor turnover when there is an NAO inspection by setting all the control variables to their mean values and by using the coefficients for Column (1) in Panel B. Since the treated sample shows a significant increase in auditor turnover (diff.=9.75%, p-value<0.01) after SOE inspections, whereas the turnover rate of the matched sample remains relatively stable (diff.=1.43%, p-value <0.10), the difference between the two samples (treated, matched) is statistically significant (diff.=8.32%, p-value<0.01).

Panel A of Table 3 uses LNFEED as the dependent variable and regresses it on TREATED×POST. It is seen to report a positive coefficient on TREATED×POST. This indicates a significantly positive relationship between the NAO inspection and the audit quality variable (LNFEED, coef.=0.3269, t-stat=6.0375) and a significantly negative relationship between the inspection and IDA (coef.=-0.0525, t-stat=-3.6075). ERC, as a measure of audit quality, increases (coef.=0.0630, t-stat=2.7806) after NAO inspection. This is consistent with our expectation that auditors will make more effort after the NAO inspection and the audit quality will hence be improved after the disclosure of any accounting issues.

In Panel B, we compare the change in audit quality from changing the audit firm (firm level) to the change in audit quality from changing the audit partner only (individual level). Two of the auditor-related variables (GENDER, BIG10) are significant in explaining the audit quality, all in a direction that suggests that employing female auditors and audit firms classified as the Big 10 improves audit quality in the post-inspection period. The percentage of non-management board members and the number of board meetings are positively associated with LNFEED. LNASSETS is positive and significant, which is consistent with the evidence in prior studies that a larger firm size tends to incur higher audit fees. As a variable of

interest, we document a statistically significant positive relationship between the three interaction term (TREATED X POST X FTURN) and the audit quality measured by the audit fee (coef.=0.4108, t-stat=7.3457) and a significant negative relationship between the three interaction term and IDA (coef.=-0.0678, t-stat=-5.6424). This suggests that changing the audit firm (rather than changing individual auditors) magnifies the positive relationship between the NAO inspection and the audit quality.

Table 4, Panel A displays the results of a probit regression, where the dependent variable is equal to 1 if there is a move-up auditor turnover (e.g. clients replace a non-Big 10 auditor with a Big 10 auditor), and is equal to 0 otherwise. We focus our discussion on the direction of auditor replacement. The coefficient on the interaction term (TREATED X POST) is positive and significant (coef.=0.5074, z-stat=3.4266). This result is consistent with Acito et al. (2017), who state, “*client firms tend to hire an auditor with better reputation after deficiencies disclosed.*” This highlights the way that deficient SOEs seek to improve their audit quality by switching from small auditors to domestic well-known ones.

The results in Panel B, Table 4 imply that moving to Big 10 auditors has a positive effect on audit quality. At the same time, the audit fees show an increase of over 12% points, which is associated with the clients switching to the more expensive Big 10 audit firms after NAO inspections. ERC increases for move-up group, which indicates greater informativeness of accounting information. As a sensitivity test, in Panel C, Table 4, we partition the auditing firm turnover into move-up (e.g. from non-Big 10 to Big 10) and non-move-up (e.g. change to an auditor at the same level, no change, change from Big 10 to non-Big 10). Given that the Big 10 firms seem to "charge higher fees", which might reflect the higher quality of the audit services supplied by that firm (Palmrose, 1986), we may obtain additional insights by examining how the direction of the auditor change affects the audit quality. From the results, we can hardly observe any significant improvement in audit quality in the non-move-up group but see a significant improvement in the audit quality in the move-up group.

We then consider how the severity of the involved cases affects the probability of auditor replacement. Corporate boards and investors do take audit firm reputation into consideration when they evaluate firms' audit quality, since neither corporate boards nor investors can assess the quality of a given audit by casual observation.

Given the auditors have a specific responsibility to evaluate the appropriate application of accounting standards, the firms may suffer from accounting deficiencies and the performance measures from other observable auditor, it is likely that the disclosure of accounting deficiencies will make a firm proceed to replace the incumbent auditor. Prior studies suggest that the magnitude of accounting deficiencies is positively related to the probability of auditor replacement and hence auditor turnover (Hennes et al., 2014), implying that firms will make efforts to avoid greater punishments raised by increasing accounting deficiencies. We thus expect auditors to be more likely to be replaced after more severe accounting deficiencies are disclosed. In Table 5, we divide the sample into two groups in terms of the severity of the auditing issues to examine if severity plays a role in determining auditor turnover. In Table 5, Column (1), we explore the difference between high and low-severity groups via a diff-in-diff regression. The three-way interaction term (coef.=2.8949, z-stat=4.9223) implies that deficient SOEs with more money involved are more likely to change auditors.

Furthermore, we analyse the role of severity in the audit quality in Column (2) of Table 5. When we use the natural logarithm of audit fees as a proxy for audit quality, the results indicate that groups with high-severity issues will be charged a higher

price (coef.=0.1597, t-stat=3.4879). This finding is consistent with previous literature arguing that, “as the imposition of expected auditor losses from legal liability increases, *ceteris paribus*, audit fees will increase because auditors exert more effort to reduce the audit firm’s litigation risk, charge a pure premium for bearing increased exposure to litigation risk, or both” (Badertscher et al., 2014). In Column (3), the high-severity group experience lower discretionary accruals after the NAO inspections. However, high-severity group receives lower ERC, which conflicts with our expectation on the audit quality.

6.2. Spillover effects on other client firms of the auditor

The NAO audit disclosures also send a signal to other clients about the quality of the auditors, thereby likely having an external impact on those companies that share the same auditors with SOEs disclosed in the NAO reports. In the U.S., Krishnan et al. (2013) report a positive externality, like the reporting of lower accruals, less income smoothing, and more value relevant earnings among clients whose auditors were inspected by an independent oversight board. Indeed, DeFond (2010) suggests that the regulatory inspection of auditors (in a way of setting strict standards and imposing heavy penalties) motivate auditor efforts – similar to the intimidating effects generated by litigation and loss of reputation – to improve audit quality. If the

inspections are successful in improving central SOE's overall quality controls, internal controls, the improvements may also be expected to spill over to the client firms that hire the same auditors as the inspected SOEs. Thus, we investigate whether the NAO inspection programme generates spillover effects on client firms sharing the same auditors as the inspected SOEs. We expect a positive externality because the quality control improvements following an NAO inspection may spill over to the other firms (who may or may not be an intended beneficiary of the NAO inspection).

This investigation is intriguing because the questions as to whether such quality-improvement spillover effects exist and are observable may be of potential help to regulators in assessing the effectiveness of the NAO inspections for improving the audit quality of public firms, given that substantial resources have been and continue to be devoted to the programme (e.g. RMB 120.7M or 85.8% of the NAO's total budget in 2014). It seems that the expense of the NAO inspections is lower than the audit expense of PCAOB as proved by the SEC (approximately US\$258.4M in 2014, Donovan et al., 2014), but the number of inspected targets is far more in the U.S. than for the entities in China. According to 2018 PCAOB annual report, there were 1,862 registered firms as of 31 December 2018. Overall, 153 inspection reports were

issued, whereas only 92 SOEs were under the supervision of NAO and among those, 30 inspection reports were issued in 2018. This is particularly important when the client firms audited by the same auditors represent a non-trivial market capitalization in China's stock market, suggesting the benefits of monitoring the audit quality of a small group of SOEs may improve the overall audit quality of the wider capital market.

$$\begin{aligned}
 & \text{Prob}(\text{TURNOVER} = 1) \\
 &= \alpha + \beta_1 \text{SPILL}_{FIRM_i} + \beta_2 \text{POST}_i + \beta_3 \text{SPILL}_{FIRM} \times \text{POST} \\
 &+ \sum \beta_i \text{AUDITOR INDIVIDUAL CONTROLS}_k \\
 &+ \sum \partial_i \text{AUDIT FIRM CONTROLS}_j \\
 &+ \sum \delta_i \text{CLIENTS CONTROLS}_i + \varepsilon_t \tag{3}
 \end{aligned}$$

$$\begin{aligned}
 & AQ_t = \alpha + \gamma_1 \text{SPILL_FIRM}_i + \gamma_2 \text{POST}_i + \gamma_3 \text{SPILL_FIRM} \times \text{POST} \\
 &+ \sum \beta_i \text{AUDITOR INDIVIDUAL CONTROLS}_k \\
 &+ \sum \partial_i \text{AUDIT FIRM CONTROLS}_j \\
 &+ \sum \delta_i \text{CLIENTS CONTROLS}_i + \varepsilon_t \tag{4}
 \end{aligned}$$

Similar to Model (1), Model (3) is a probit model for estimating the probability of changing the auditors for the given interaction terms. Model (4) investigates the change of audit quality after the inspection. We utilize three audit quality proxies that have been widely used in the prior literature: audit fee, income-increasing discretionary accruals (IDA) and earnings response coefficient (ERC). SPILL_FIRM is an indicator variable, which is equals to one if the client firm hires the same auditor as the deficient SOE. The variable of interest in Models (3) and (4) is SPILL_FIRM X POST, which presents the changes in auditor turnover and audit quality after the NAO inspections among firms sharing the same auditor with the inspected SOEs. The definitions of all the other variables are the same as mentioned in Model (1).

Table 6 presents the results from testing the spillover effects of firms sharing the same auditor as the inspected SOEs. Column (1) uses the indicator variable for whether a client's auditor is changed or not as the dependent variable. The column shows that the coefficient on SPILL_FIRM×POST is significantly positive (coef.=2.1474, z-stat=5.22), which suggests that the possibility of changing the auditor is significantly higher subsequent to the NAO inspections among firms hiring the same auditors. Column (2) uses audit fees as the dependent variable. The

coefficient of the interaction term in Column (2) ($SPILL_FIRM \times POST$, $coef.=0.1212$, $t-stat=1.85$) suggests that the audit fees will be higher in the post-inspection period. In Column (3), the dependent variable is the income-increasing discretionary accruals. The results for the interaction term indicate there is a 2.9% decrease in income-increasing discretionary accruals among firms hiring the same auditors as the inspected SOEs after the NAO inspections. The results of Columns (2) and (3) suggest that the audit quality of listed firms sharing the same auditor with deficient SOEs is improved after the NAO inspections. Although the coefficient of $SPILL_FIRM \times POST$ ($coef.=0.0249$, $t-stat=0.6658$) is not significant when audit quality is measured by ERC, it is positive. At least, we could conclude that NAO inspection has no negative impact on audit quality of spilled firms. The results for the control variables included in the estimations are also consistent with those documented in the prior literature. For example, consistent with Basioudis and Francis (2007), we find that the national big auditors (i.e. the Big 10) charge higher audit fees, and that previous poor performance (*LOSS*) is positively associated with the audit fees.

Chapter 7 The Split-share structure reform in China

In Chapter 7, I further examine areas where the Split-share structure reform can provide insight into the central SOEs inspected by NAO. I examine how the auditor turnover and audit quality are associated with NAO inspection after deepening the Split-share structure reform in 2013.

7.1. Background of split-share structure reform

In 1978, China started transformation of economy, from centrally planned mode to market-oriented. In 1990s, the stock market was established in China. For some firms, there were two kinds of shares: restricted ones and tradable ones. Restricted shares are either owned by state or a legal person. Shareholders connected with central or local government can largely hold them through government bureaucratic agencies or state-owned enterprises (SOEs). The transfer of such shares can only be delivered with the approval from authorities at a price close to the firm's book value or auctioned at a heavily discounted value (e.g., Huang & Xu, 2009) relative to the freely tradable shares in the same firm. No matter the shares belong to affiliation or a legal person, the shares are still restricted to trade. With the development of capital market, this approach has been abolished by Chinese government. The split-share

structure reform intends to convert restricted shares into free-trading ones, starting from small SOEs to all listed firms. Small SOEs located in less developed cities (e.g., Jizhong Energy Group Company Limited, Sany Heavy Industry Co., Ltd., SGIS Songshan Co., Ltd. Etc.) were selected for a pilot. There is a gradual process, negotiating a compensation payout plan with the existing freely tradable shareholders once a firm is selected as reform subject (e.g., Cumming & Hou, in press; Firth et al., 2010). The restricted shares were sold as part of the compensation to this latter group of shareholders and became immediately tradable. The portion of tradable shares will be increasing over the next 36 months. All restricted shares become fully tradable in the stock market 36 months after the compensation payout plan was fully implemented.

The split-share structure was a legacy of China's initial share issue privatization (SIP), in which state-owned enterprises (SOEs) went public to issue minority tradable shares to institutional and individual investors. The majority of restricted shares of listed SOEs were held by Chinese government. Although the share-split reform played a positive role in facilitating the SIP, it jeopardized China's continuing privatization efforts by restricting the tradability of state-owned shares in the secondary market.

It caused serious corporate governance problems, encouraged speculation in the stock market, and blocked mergers and acquisitions. In 2013, the Split-share structure reform was extended to large SOEs located in economically advanced cities (http://www.gov.cn/jrzq/2013-05/29/content_2414033.htm). This reform changes the Chinese SOEs' ownership structure and their incentives to push companies towards better information transparency (Cheung et al., 2010). Shareholders in the firms take care more of the firms' reputation and image. If the NAO inspection report discloses, I expect the auditor change and audit quality improvement to maintain the much-acclaimed image in the market.

7.2. Literature review

Empirical studies (e.g., Bushman & Smith, 2001) confirm that a better corporate information environment, in turn, improves the ability of outside investors to discipline insiders through share price or efficient contracting. The positive association between governance and corporate transparency is largely agreed in studies of China. Ding et al. (2007) suggest that Chinese SOEs have greater earnings management than other listed firms in China. They interpret this as evidence of greater entrenchment effect than incentive alignment effect from SOEs' large shareholders. Gul et al. (2010) document less share price informativeness among

Chinese firms with a higher degree of ownership concentration. This is similar to the conclusion made by (Shleifer & Vishny, 1994), which states that government ownership leads to poor protection for minority shareholders and opaque financial disclosures. The paper finds that the international Big 4 auditors are associated with lower price synchronicity. In another word, the high-quality auditor helps facilitate the flow of more credible, firm-specific information to the market.

7.3. Hypothesis development

The Split Share Structure Reform induces an exogenous alignment of state and private shareholders' incentives in Chinese listed firms. It break the shield of state shareholders and connects their interest with share performance, as is the case for private shareholders. This reform reduces the conflict of interests between the two shareholder groups, which is expected to strengthen their joint effort to ensure managers maximize the market value of the firm. The board members are thinking of strengthening corporate governance and reducing managers' opportunities to expropriate wealth from the firm outside investors' expense. This, in turn, makes it unnecessary for managers and controlling owners to withhold and/or manipulate price-sensitive information. The effect should be more pronounced among firms with a higher proportion of state ownership or restricted shares.

The objective of this chapter is to examine whether NAO inspection generates a more significant effect after the Split Share Structure Reform. Because the firms become more transparent, more company-specific information is disclosed (lower price synchronicity), the interest alignment between managers and shareholders makes managers pay more attention to the public image of the company. Managers will take actions (e.g., replace auditor) in response to the disclosure of the NAO inspection report. This allows us to provide a complete picture of the NAO inspection during China's split structure reform. We thus test the following hypothesis:

H3: After the Split Share Structure Reform, there is more auditor turnover after the disclosure of the NAO inspection reports showing accounting issues in inspected SOEs.

H4: After the Split Share Structure Reform, audit quality is improved more after the disclosure of the NAO inspection reports for inspected SOEs.

7.4. Research Model

We estimate the following two regressions with firm-year observations to test the NAO inspection's impact on both auditor turnover and SOEs' audit quality after the Split Share Structure Reform. We first model the auditor turnover as the probit model below:

$$\begin{aligned} & \text{Prob}(FTURN = 1) \\ &= \alpha + \beta_1 REFORMED_i + \beta_2 POST_i + \beta_3 REFORM \times POST \\ &+ \sum \beta_i \text{AUDITOR INDIVIDUAL CONTROLS}_k \\ &+ \sum \delta_i \text{AUDIT FIRM CONTROLS}_j \\ &+ \sum \delta_i \text{CLIENTS CONTROLS}_i + \varepsilon_t \end{aligned} \quad (3)$$

Where the dependent variable FTURN is the audit firm turnover. REFORMED is equal to 1 if SOEs undertook the Split Share Structure Reform after 2013, 0 otherwise. Our main focus is on the intersection term, REFORM X POST. If it is significantly positive, it suggests that the Split Share Structure Reform enhances the positive effects of NAO inspection on auditor turnover. More SOEs tend to replace auditors after NAO inspection.

Our next question is, "Does the auditor replacement improve audit quality?" Therefore, we test the change of audit fee and income-increasing discretionary accruals (IDA) by the following regression:

$$\begin{aligned}
 AQ_t = & \alpha + \gamma_1 REFORMED_i + \gamma_2 POST_i + \gamma_3 REFORM \times POST \\
 & + \sum \beta_i AUDITOR\ INDIVIDUAL\ CONTROLS_k \\
 & + \sum \partial_i AUDIT\ FIRM\ CONTROLS_j \\
 & + \sum \delta_i CLIENTS\ CONTROLS_i + \varepsilon_t \quad (4)
 \end{aligned}$$

Where AQ is equal to either the logarithm of audit fee (LNFEET) or IDA, as two proxies for audit quality. REFORM×POST is the interaction variable, which captures the increase or decrease of audit fee/IDA. If the audit fee increases (IDA decreases), it suggests an improvement of audit quality.

7.5. Results

In Table 7 Panel A Column 1, the dependent variable is a dummy variable indicating audit firm turnover. The results show a significantly positive relation between

auditor turnover and the interaction term REFORMED×POST (coef.=0.8522, t-stat=2.06). This supports our H1, which states that more auditor turnover happens among inspected SOEs after the Split Share Structure Reform. The finding suggests that deficient SOEs are more likely to replace incumbent external auditors after the Split Share Structure Reform to maintain a good public image. Table 7 Panel A Columns 2 & 3 presents the results on whether audit quality is improved. The results show that the audit fee increased significantly in group reformed after 2013. However, we do not see a significant difference in terms of IDA.

Table 7 Panel B reports the univariate comparison of firm turnover around share-split reform (year -3 to year +3). There are two groups: the control group is central SOEs which conducted share-split reform in 2005. There are 36 SOEs belong to the control group. The observations exclude the year 2005 (event year); the treatment group was reformed in 2013 when National Development and Reform Commission decided to extend the objects of share-split reform to large SOEs located in economically advanced cities. Totally 26 central SOEs belong to the treatment group. The columns in Panel B partition the sample by the pre-and post-inspection from NAO, and the rows partition the sample by before- and after- share-split

reform. The individual cells and the row differences and column differences are the audit-firm turnover rate from the raw data.

Comparing the two columns in the control group shows that after share-split reform, audit-firm turnover experiences a significant increase after the NAO inspection (11.11% versus 14.81%, $t\text{-stat}=1.97$). On the other hand, for observations before share-split reform, their audit-firm turnover changed significantly after the NAO inspection (7.41% versus 10.19%, $t\text{-stat}=1.66$). More importantly, the change in audit-firm turnover after share-split reform is similar to the change of turnover rate before the reform (3.70% versus 4.62%, $t\text{-stat}=0.73$). Comparing the two rows in control shows that inspected firms have a higher turnover after share-split reform than those before share-split reform (7.41% versus 11.11%, $t\text{-stat}=1.97$). These cross-sectional differences between before- and after- share-split reform became more significant after the NAO inspection (10.19% versus 14.81%, $t\text{-stat}=3.53$). To sum up, in the control group, there is no significant change of auditor turnover after the disclosure of the NAO inspection reports showing accounting issues in inspected SOEs around 2005.

The treatment group aggregates the observations of audit turnover of SOEs reformed in 2013. The results show that before the NAO inspection, the auditor turnover is similar before and after the reform (7.69% versus 8.97%, t-stat=1.61). There is a higher difference in auditor turnover after NAO inspection (10.26% versus 14.10%, t-stat=2.37). After share-split reform, the change in auditor turnover is stronger than a difference in audit fee before share-split reform (5.13% versus 2.57%, t-stat=2.03). Since the difference of change of auditor turnover is significant in 2013, not in the control group (2005). The results in Table 7 Panel B are consistent with our hypothesis 3, which states that after the Split Share Structure Reform, there is more auditor turnover after the disclosure of the NAO inspection reports showing accounting issues in inspected SOEs.

Table 7 Panel C presents the change of audit fee for both the treatment group and control group. There is no significant change of audit fee in the control group around the reform and inspection except the difference in the post-inspection period (13.14 versus 14.23, t-stat=1.82). In the treatment group, the results show that before NAO inspection, there is a significant increase in audit fees (14.29 versus 15.23, t-stat=2.41). There is a higher difference after NAO inspection (15.87 versus 17.21, t-stat=3.09). More importantly, the difference in audit fee change is significantly

positive (diff.=0.4, t-stat=1.88). Since we apply audit fee as a measure of audit quality, the result in the treatment group is consistent with Hypothesis 4, stating that after the Split Share Structure Reform, audit quality is improved more after the disclosure of the NAO inspection reports for inspected SOEs.

Table 7 Panel D reports the univariate comparison of IDA and the significance levels for both the control group and treatment group. The columns partition the sample by NAO inspection, and the rows partition the sample by before and after-share-split reform. The individual cells and the row differences and column differences are constructed using the raw data. In the control group, comparing two columns in Panel D shows that IDA significantly decreases after NAO inspection in both before and after share-split reform periods (diff.= -0.0055, t-stat= -1.87; diff.= -0.0094, t-stat= -2.22). But the difference of changes of IDA is not significant. If we consider IDA as a proxy for audit quality, it is hard to conclude that share-split reform improves the audit quality in the control group. In the treatment group, there is no significant differences when comparing the rows (diff. = -0.0013, t-stat= 0.62; diff. = -0.0008, t-stat = -0.43). The IDA slightly decreases after NAO inspection in both before and after share-split reform periods (diff. = -0.0062, t-stat = -1.95; diff. = -

0.0057, t-stat = -1.92). The difference in changes of IDA does not lead to the conclusion that share-split reform improves audit quality either.

Chapter 8 Discussion on Appendix

Appendix 1 Panel A reports the share price reactions to NAO inspection report disclosure. I report the seven-day raw return for both inspected SOEs and the market; I also show the significance of the difference between the inspected SOEs' raw return and the one for the whole market. The raw return is significantly not equal to 0 in day -3, -1, +1, +2 and +3. The raw returns three days after the announcement are negative (-0.0074, -0.0064, -0.0106), which means the market enforces punishment to those found to have audit deficiencies.

Panel B presents the CARs around the disclosure of the NAO inspection report of the event window (-5, +5), (-3, +3), (-1, +1). Daily abnormal stock return is equal to daily raw stock return minus the return from the market index on the same day. Several points about these results are noteworthy. All these three event windows report significantly negative CAR. The 10-day CAR around the event is -0.0173 and -0.0169 for the (-3,+3) window, -0.0177 for the (-1, +1) window. This provides

evidence that the disclosure of the NAO inspection report affects the stock performance of involved central SOEs.

Appendix 2 Panel A describes the direction of auditor turnover around the NAO inspection. Twenty-six of the treated sample choose to replace their auditors from non-Big 10 to Big 10. Only 3 of the treated sample replace their auditors from Big 10 to non-Big 10. Fifty-eight of them stayed at the original level. There is not much change in terms of auditor turnover brought by NAO inspection for the matched sample. For cases of "Move up" and "Move down," there is a slight increase in the turnover rate after the NAO inspection (18 versus 21; 4 versus 9).

Appendix 2 Panel B presents the different categories of turnover: partner turnover (PT): client firms change audit partners but maintain the employment with the original audit firm; firm turnover (FT): client firms switch to another audit firm after NAO inspection. There is a decrease in PT (71 versus 60) for the treated sample and an increase in FT (75 versus 87) after NAO inspection. For the matched sample, both PT and FT experience a slight increase (77 versus 80; 89 versus 91).

Appendix 3 presents the 2nd stage regression of auditor turnover attached to the 1st stage of the Probit model in Table 2. Table 2 Panel B presents the 2nd stage turnover of the audit firm, for Appendix 3, whereas it presents the 2nd stage turnover of the audit partner. The coefficient of “POST” is significant for both full-period regression and period excluding event year (0.3084 versus 0.3497). However, our focus, the interaction (TREAT×POST), is insignificantly positive, which makes it unfavorable for the conclusion that after NAO inspection, the partner turnover increases. Besides, the control variables: ROA, PCTINDPT (percentage of independent board members), and NUMBODMTG (number of a board meeting) generate a favorable effect on partner turnover.

Appendix 4 supplements the presentation of Table 3 Panel A. In Table 3 Panel A, all the regressions are established based on the full-period data. The regressions in Appendix 4, however, exclude the inspection year (e.g., event year). The coefficient of the interaction term, TREATXPOST, is consistent with the conclusion that the audit quality is improved after the NAO inspection. When the dependent variable is LNFEED, the coefficient of TREATXPOST is 0.1582 (t-stat=2.7408). The audit fee increases after inspection. When the dependent variable is IDA, the coefficient is -

0.0222 (t-stat= -5.1342). The IDA is significantly decreasing, which means audit quality is improved.

Chapter 9 Conclusion

In this study, we investigate whether client firms replace their external auditors and show improved audit quality after a National Audit Office (NAO) inspection in China. We use difference-in-difference analysis to compare the auditor turnover rate and audit quality in the pre- and post-disclosure periods for both deficient SOEs and for a control group (SOEs matched via the propensity matching method). We document that, compared with the control group, the frequency of auditor replacement increases around the NAO inspection disclosure and firms' audit quality is improved in the post-disclosure period. We find that the audit quality improvement is greater when firms change their auditors from small audit firms to large, well-known audit firms (the move-up group). We further looked into under which situations auditor turnover and audit quality improvement would be more significant. The results show that those two effects become stronger when the client firms are involved in cases with a high severity of auditing issues. By looking into the audit quality among listed firms hiring the same auditors as the deficient SOEs,

we document the positive externality (e.g. improvement of audit quality) brought about by the NAO inspections on non-regulated listed firms.

The findings have implications for policy-makers, regulators and practitioners in China and other jurisdictions that have implemented or seriously considered the model of using regulatory inspections on a set of economically-important companies (Liu et al., 2011; Peng et al., 2013). First, prior studies (e.g. Wang et al., 2008; Chen et al., 2011) on auditing issues among China's SOEs rarely incorporate a consideration of the share-split-structure reform in China as well as the dynamic reform of corporate governance and monitoring in China. This may have led to outdated conclusions on the influence of SOEs. We extend these studies and document our finding of a positive effect of the NAO inspection in improving the audit quality of both SOEs and other public companies that share the same external auditors.

Second, previous studies have questioned the necessity of third-party supervision of the audit market. We highlight the positive effects on audit quality brought about by government intervention. The NAO inspection disclosures improve SOEs' financial

reporting quality, bringing in extra information value to the market. By reporting that the NAO inspection programme benefits the inspected SOEs and other listed firms hiring the same auditors as the inspected targets, our study has potential interest to policy-makers and regulators considering alternative mechanisms to improve audit quality at low cost (regulators may focus on reviewing a sample of centrally connected, economically important firms to improve the overall audit quality of the market).

Third, our findings are useful to international investors. As China's economy rises, it is critical for foreign investors and international regulators to understand China's unique governance of its SOEs, such as the NAO inspection programme. Further, many Chinese state-owned firms are also listed in foreign countries. A good understanding of their governance mechanism benefits international investors

Table 1 Descriptive Statistics**Panel A: Descriptive statistics for all SOEs (n=1,681)**

Variable	Mean	Standard Deviation	p10	Median	p90
	(1)	(2)	(3)	(4)	(5)
TOTAL ASSETS (in million)	83,500.00	376,000.00	1,360.00	7,240.00	165,000.00
DISCRETIONARY ACCRUALS	0.0337	0.1256	0.0090	0.0368	0.0584
DISTANCE	797.2075	666.2735	5.8299	892.3788	1882.46
GENDER	0.2613	0.4395	0.0000	0.0000	1.0000
PARTNERSHIP	0.7502	0.4331	0.0000	1.0000	1.0000
EDUCATION	0.7378	0.4400	0.0000	1.0000	1.0000
BIG10	0.5259	0.4995	0.0000	1.0000	1.0000
LEVERAGE	0.5386	0.2167	0.2248	0.5516	0.8006
ROA	0.0281	0.0606	-0.0070	0.0265	0.0848
DIRECTORSHIP	0.5491	0.1766	0.3333	0.5263	0.8056
PCTOUTSIDE	0.1830	0.0445	0.1333	0.1765	0.2400
NUMBODMTG	9.4581	4.5603	5.0000	9.0000	14.0000
LOSS	0.1089	0.3116	0.0000	0.0000	1.0000
RECINT	0.1105	0.1030	0.0086	0.0845	0.2552
INVINT	0.1602	0.1391	0.0130	0.1311	0.3502
AUDIT FEE (in million)	3.4827	8.2532	0.4000	1.0000	7.8000

Table 1 Panel B: Comparison of the matched samples

	TREATED	MATCHED	Diff. (1)-(2)	p Value	SOEs	Diff. (1)-(5)	p Value
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
TOTAL ASSETS (in million)	295,000.00	229,000.00	66,000.00	0.1675	83,500.00	211,500.00***	<0.0001
DISCRETIONARY ACCRUALS	0.0372	0.0247	0.0124524	0.2377	0.0337	0.0035	0.8703
DISTANCE	763.1942	783.0450	(-19.8508)	0.5432	797.2075	(-34.00)***	0.0074
LEVERAGE	0.6006	0.6079	(-0.0073)	0.6911	0.5386	0.0620***	<0.0001
ROA	0.0299	0.0285	0.0014	0.5119	0.0281	0.0018	0.2937
RECINT	0.0878	0.0887	(-0.0009)	0.8356	0.1105	(-0.0227)***	<0.0001
INVINT	0.1285	0.1364	(-0.0479)	0.1477	0.1602	(-0.0318)***	<0.0001
<i>Propensity score</i>	0.0839	0.0852	(-0.0013)	0.7151			
<i>Observations</i>	558	558					

*, **, *** Denotes significance at the 0.10, 0.05, and 0.01 levels, respectively, all two-tailed. Difference is the mean difference between two samples.

All the variables are defined in the Appendix A.

Table 1 Panel C: Two-by-two analysis of the role of the national audit in explaining auditor turnover

	PRE- INSPECTION	POST- INSPECTION	Diff.
TREATED	25.15% n=248	36.14% n=310	10.99%***
MATCHED	30.24% n=248	31.45% n=310	1.21%
Diff.	-5.09%**	4.69%	9.78%***

*, **, *** Denotes significance at the 0.10, 0.05, and 0.01 levels, respectively, all two-tailed. Difference is the mean difference between two samples.

Panel C reports the 2×2 analysis of audit firm turnover for the treated group versus the matched group by period for the full sample, counted from the corresponding group. Difference is the mean difference between two samples.

All the variables are defined in the Appendix A.

Table 2 1:1 PSM Matching: 2-Stage Regression

Panel A: 1st Stage of probit model

Dependent var.=TREATED

LNASSETS	0.2217** (3.0818)
DA_{t-1}	0.6144* (2.2096)
DISTANCE	-0.0001 (-1.1544)
ACCESSIBILITY	0.0354* (1.9925)
CEWC_IND	0.7674*** (4.9836)
LEVERAGE	0.0193 (1.0448)
ROA	-0.6417 (-0.4561)
EVA	-0.0009 (-0.5797)
ROE	0.0224 (0.1287)
EBIT	0.0002 (1.8899)
INVENTORY TURNOVER	-0.0003 (-0.7025)
RECEIVABLES TURNOVER	-0.0003 (-0.2267)

ASSET TURNOVER	-0.1492 (-1.3830)
GROWTH RATE of OPERATING REVENUE	-0.0296 (-0.3077)
LN(EMPLOYEE)	0.1746* (2.4430)
MISCONDUCT	0.2526 (0.3468)
Industry FE	Yes
Year FE	Yes
Pseudo R-sq	27.33%

*, **, *** Denotes significance at the 0.10, 0.05, and 0.01 levels, respectively, all two-tailed.

PSM 1:1 Matching samples are based on TOTAL ASSETS, DISCRETIONARY ACCRUALS, DISTANCE, LEVERAGE, ROA, RECINT, and INVINT. Difference is the mean difference between two samples. Discretionary accruals are based on Kothari et al.'s (2005) model. See Appendix for variable definitions. All the variables are defined in the Appendix A.

Table 2 Panel B: 2nd Stage

Dependent var.=FTURN	Full Period	Excluding Event Year
TREAT	0.2246*** (8.2719)	0.2316*** (7.9027)
POST	0.0156 (0.5610)	0.0382 (1.2559)
TREATXPOST	0.1699*** (6.1896)	0.1674*** (5.6544)
GENDER	-0.0499 (-1.7918)	-0.0530 (-1.7723)
PARTNERSHIP	0.0529 (1.9610)	0.0621* (2.1388)
EDUCATION	-0.0285** (-2.8998)	-0.0225* (-2.1590)
BIG10	-0.0309 (-1.1343)	-0.0239 (-0.8069)
LEVERAGE	0.0008 (0.6700)	0.0009 (0.7157)
ROA	0.3248 (1.2336)	0.2361 (0.8694)
DIRECTORSHIPS	-0.0188* (-1.9933)	-0.0205* (-2.0437)
PCTINDPT	0.0602* (2.3299)	0.0630* (2.3059)
NUMBODMTG	0.0121*** (4.5424)	0.0116*** (4.1246)
LOSS	-0.0329 (-1.0165)	-0.0509 (-1.4778)
RECINT	0.3066* (2.2974)	0.2590 (1.7961)
INVINT	-0.1319 (-1.4225)	-0.1499 (-1.5178)
LNASSETS	0.0386*** (4.4723)	0.0328*** (3.5711)
ROA_{t-1}	0.1636 (0.5355)	0.1050 (0.3243)
Industry FE	Yes	Yes
Year FE	Yes	Yes
N	1116	1038
Pseudo R-sq	22.38%	22.33%

*, **, *** Denotes significance at the 0.10, 0.05, and 0.01 levels, respectively, all two-tailed. Full period refers to the inspected year plus/minus four years, totally 9 years. Excluding event year covers from four years before the inspected year to four years after the inspected year, the inspected year is excluded, totally 8 years. Please refer to Appendix 2 for 2nd stage regression on for individual turnover.

Table 2 Panel C: Two-by-two analysis of the role of the national audit in explaining firm-level auditor turnover

	PRE-INSPECTION	POST-INSPECTION	Diff.
TREATED	23.23%	32.98%	9.75%***
	n=248	n=310	
MATCHED	28.12%	29.55%	1.43%
	n=248	n=310	
Diff.	-4.89%	3.43%	8.32%***

*, **, *** Denotes significance at the 0.10, 0.05, and 0.01 levels, respectively, all two-tailed.

Panel C reports the 2×2 analysis of audit firm turnover for the treated group versus the matched group by period for the full sample, constructed using the coefficients in Table 2 Panel B. All the variables are defined in the Appendix A.

Table 3 Regression analysis of the national audit effects on audit quality

Panel A: Primary analysis of the improvement of audit quality after the national audit

	Dependent var.=LNFEE	Dependent var.=IDA	Dependent var. =ERC
	(1)	(2)	(3)
TREAT	0.0199 (0.4199)	-0.0149 (-1.1742)	0.0248 (1.1368)
POST	-0.0415 (-0.8768)	0.0530* (2.2394)	-0.0159 (-0.7349)
TREATXPOST	0.3269*** (6.0375)	-0.0525*** (-3.6075)	0.0630** (2.7806)
PTURN	-0.0143 (-0.4536)	-0.0037 (-0.4266)	-0.0360* (-2.4697)
FTURN	-0.0381 (-0.6641)	-0.0215 (-1.3152)	-0.0595* (-2.2675)
GENDER	-0.1436** (-3.0159)	0.0074 (0.5353)	0.0041 (0.1850)
PARTNERSHIP	-0.0181 (-0.3884)	0.0184 (1.3410)	-0.0276 (-1.2938)
EDUCATION	0.0152 (0.9236)	0.0000 (0.0060)	-0.0224** (-2.9295)
BIG10	0.1603*** (3.4270)	-0.0196 (-1.1867)	0.0443* (2.0406)
LEVERAGE	-0.0000 (-0.0251)	-0.0006 (-0.1000)	-0.0004 (-0.4917)
ROA	0.3303 (0.7746)	0.0678 (0.2960)	0.0266 (0.1339)
DIRECTORSHIPS	-0.0750*** (-4.6176)	0.0053 (1.1895)	0.0066 (0.8925)
PCTINDPT	0.1983*** (4.3927)	0.0014 (0.1243)	0.0070 (0.3464)
NUMBODMTG	0.0118** (2.6170)	0.0035* (2.0128)	-0.0038 (-1.8103)
LOSS	0.2221*** (4.0369)	0.0421 (1.9167)	0.0029 (0.1160)
RECINT	0.4234 (1.8653)	0.0558 (0.8522)	-0.2323* (-2.1965)
INVINT	-0.1610 (-1.0304)	0.1430*** (3.5332)	-0.0030 (-0.0412)
LNASSETS	0.5235*** (33.2837)	0.0045 (0.7612)	-0.0095 (-1.3452)
ROA_{t-1}	0.1307	0.2707	0.3739

	(0.2551)	(1.0717)	(1.5762)
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
N	1116	1116	1116
Adj. R-sq	76.86%	13.53%	2.98%

*, **, *** Denotes significance at the 0.10, 0.05, and 0.01 levels, respectively, all two-tailed.

Table 3 Panel B: Diff-in-diff analysis of the audit quality by firm-level turnover vs. within-firm turnover

	Dependent var.=LNFE	Dependent var.=IDA	Dependent var.=ERC
TREAT	0.0246 (0.5326)	-0.0062 (-0.5151)	-0.0257 (-1.2738)
POST	-0.0298 (-0.6499)	0.0174 (0.7794)	-0.0848*** (-4.1922)
TREATXPOSTXFT	0.4108*** (7.3457)	-0.0678*** (-5.6424)	0.1497*** (3.6918)
TREATXPOST	0.1620*** (3.3259)	0.0048 (0.3656)	0.2155*** (4.6032)
PT	-0.0126 (-0.4065)	0.0012 (0.1384)	-0.0155 (-1.1663)
FT	-0.0119 (-0.2140)	0.0044 (0.2760)	-0.0934*** (-3.9246)
GENDER	-0.1154* (-2.4670)	-0.0075 (-0.5698)	-0.0091 (-0.4555)
PARTNERSHIP	-0.0299 (-0.6583)	0.0244 (1.8947)	-0.0236 (-1.2222)
EDUCATION	0.0126 (0.7849)	-0.0001 (-0.0245)	-0.0123 (-1.7738)
BIG10	0.1665*** (3.6364)	-0.0170 (-1.1015)	0.0231 (1.1665)
LEVERAGE	0.0005 (0.2889)	-0.0022 (-0.3923)	-0.0005 (-0.6523)
ROA	0.5008 (1.1996)	0.2726 (1.2581)	-0.1095 (-0.6068)
DIRECTORSHIPS	-0.0667*** (-4.1892)	0.0028 (0.6909)	0.0124 (1.8615)
PCTINDPT	0.1831*** (4.1418)	0.0038 (0.3557)	-0.0023 (-0.1278)
NUMBODMTG	0.0097* (2.1954)	0.0020 (1.2441)	-0.0034 (-1.8047)
LOSS	0.2064***	0.0581**	0.0121

	(3.8307)	(2.8532)	(0.5313)
RECINT	0.5164*	0.0696	-0.2224*
	(2.3268)	(1.1345)	(-2.3134)
INVINT	-0.2060	0.1452***	0.0186
	(-1.3452)	(3.8456)	(0.2828)
LNASSETS	0.4967***	-0.0016	-0.0133*
	(31.1176)	(-0.2982)	(-2.1324)
ROA_{t-1}	0.1686	-0.0134	0.5126*
	(0.3359)	(-0.0562)	(2.3775)
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
N	1116	1116	1116
Adj. R-sq	77.84%	28.78%	20.40%

*, **, *** Denotes significance at the 0.10, 0.05, and 0.01 levels, respectively, all two-tailed.

Table 4 Regression analysis of the direction of auditor change in explaining audit quality.

Panel A: Probit Regression on the Likelihood of Move Up	
Dependent var.=MOVE UP	Full Period
TREAT	0.2288 (1.7903)
POST	0.7621*** (5.0513)
TREATXPOST	0.5074*** (3.4266)
GENDER	0.2680* (1.9879)
PARTNERSHIP	-0.2042 (-1.5589)
EDUCATION	-0.1403** (-3.1699)
BIG10	2.3242*** (6.4740)
LEVERAGE	-0.0011 (-0.1610)
ROA	0.0795 (0.0592)
DIRECTORSHIPS	-0.1100* (-2.5589)
PCTINDPT	0.1127 (0.9550)
NUMBODMTG	0.0043 (0.3688)
LOSS	-0.2378 (-1.4806)
RECINT	1.5659* (2.5579)
INVINT	1.6807*** (3.6386)
LNASSETS	-0.1188** (-2.9649)
ROA_{t-1}	-1.9315 (-1.1986)
Industry FE	Yes
Year FE	Yes
N	1116
Pseudo R-sq	35.01%

*, **, *** Denotes significance at the 0.10, 0.05, and 0.01 levels, respectively, all two-tailed.

Table 4 Panel B: Diff.-in-diff. analysis of the move-up effects on the audit quality

	Dependent var.=LNFEED	Dependent var.=IDA	Dependent var.=ERC
	(1)	(2)	(3)
TREAT	0.0339 (0.7370)	-0.0147 (-1.1285)	0.0131 (0.6194)
POST	0.0154 (0.3251)	0.0452 (1.8845)	-0.0184 (-0.8463)
MOVE UP	-0.2206*** (-3.5639)	-0.0098 (-0.3828)	-0.0232 (-0.7912)
TREATXPOSTXMOVE UP	0.4107*** (4.3948)	-0.0415* (-1.9910)	0.1831*** (4.3786)
TREATXPOST	0.1561** (3.2253)	-0.0505** (-3.3697)	0.0108 (0.4763)
FTURN	-0.0194 (-0.6296)	-0.0038 (-0.4291)	-0.0268 (-1.8988)
PTURN	-0.0212 (-0.3827)	-0.0185 (-1.0905)	-0.0607* (-2.4014)
GENDER	-0.1031* (-2.2127)	0.0182 (1.2552)	0.0066 (0.3106)
PARTNERSHIP	-0.0424 (-0.9357)	0.0136 (0.9628)	-0.0215 (-1.0439)
EDUCATION	0.0069 (0.4283)	-0.0004 (-0.0955)	-0.0175* (-2.3660)
BIG10	0.3075*** (5.1017)	-0.0049 (-0.2018)	0.0342 (1.2473)
LEVERAGE	0.0004 (0.2182)	-0.0002 (-0.0361)	-0.0004 (-0.4601)
ROA	0.4647 (1.1204)	0.0500 (0.2137)	-0.0890 (-0.4635)
DIRECTORSHIPS	-0.0721*** (-4.5411)	0.0063 (1.3748)	0.0104 (1.4584)

PCTINDPT	0.1917*** (4.3609)	0.0036 (0.3091)	0.0081 (0.4207)
NUMBODMTG	0.0098* (2.2340)	0.0032 (1.8426)	-0.0039 (-1.9381)
LOSS	0.1933*** (3.6039)	0.0400 (1.8030)	0.0061 (0.2506)
RECINT	0.5949** (2.6857)	0.0556 (0.8054)	-0.2742** (-2.6799)
INVINT	-0.1372 (-0.8952)	0.1415*** (3.4693)	0.0125 (0.1775)
LNASSETS	0.4923*** (3.9642)	-0.0004 (-0.0581)	-0.0173* (-2.5067)
ROA_{t-1}	0.0737 (0.1476)	0.3381 (1.2696)	0.5600* (2.4406)
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
N	1116	1116	1116
Adj. R-sq	72.15%	16.77%	10.15%

*, **, *** Denotes significance at the 0.10, 0.05, and 0.01 levels, respectively, all two-tailed.

Table 4 Panel C: Analysis of the effects of firm-level turnover between move-up and non-move-up on audit quality

	Dependent var.=LNFEED	Dependent var.=IDA
	(1)	(2)
TREATED	-0.0175 (-0.1361)	0.0063 (0.2698)
POST	0.1923*** (6.6680)	-0.0026 (-0.4561)
MOVE UP	-0.0695 (-1.5803)	0.0257*** (3.0587)
NONUP	0.0125 (0.3145)	0.0089 (1.1839)
TREATED X POST X MOVE UP	0.0703** (2.4137)	-0.0115** (-2.0734)
TREATED X POST X NONUP	-0.0007 (-0.0166)	-0.0098 (-1.2386)
TREATED X POST X PTURN	-0.0151 (-0.2685)	0.0166 (1.5788)
TREATED X POST	0.0707** (2.1220)	-0.0177*** (-2.8038)
PTURN	0.0034 (0.0656)	-0.0119 (-1.2242)
GENDER	-0.0021 (-0.0654)	-0.0015 (-0.2546)
PARTNERSHIP	0.0724* (1.8885)	-0.0043 (-0.5864)
EDUCATION	-0.0451 (-1.3422)	0.0021 (0.3290)
BIG10	0.0812** (2.0303)	-0.0018 (-0.2349)
LEVERAGE	0.1394**	0.0052

	(2.0365)	(0.2077)
ROA	-0.0144	0.0150
	(-0.0621)	(0.3204)
DIRECTORSHIPS	-0.1653*	0.0086
	(-1.9147)	(0.5251)
PCTINDPT	0.0850	-0.0991*
	(0.2643)	(-1.6820)
NUMBODMTG	0.0004	-0.0011
	(0.0994)	(-1.5022)
LOSS	0.1059***	-0.0057
	(2.5982)	(-0.7038)
RECINT	0.3792	-0.0014
	(1.4109)	(-0.0241)
INVINT	-0.3936**	0.0399
	(-2.2178)	(0.9061)
LNASSETS	0.3240***	0.0082*
	(17.7313)	(1.7879)
ROAt-1	-0.1680	-0.0413
	(-1.2099)	(-0.8315)
Industry FE	Yes	Yes
Year FE	Yes	Yes
N	1116	1116
Adj. R-Squared	64.70%	19.25%

*, **, *** Denotes significance at the 0.10, 0.05, and 0.01 levels, respectively, all two-tailed.

All the variables are defined in the Appendix A.

Table 5 Cross-sectional analysis on the high/low severity

	Dependent var.= FTURN	Dependent var.=LNFEED	Dependent var.=IDA	Dependent var.=ERC
	(1)	(2)	(3)	(4)
TREAT	0.5072** (3.2249)	0.0286 (0.6049)	-0.0061 (-0.5096)	-0.0242 (-1.1974)
POST	0.1546 (0.7880)	0.0062 (0.1299)	0.0178 (0.7932)	-0.0847** (-2.5857)
HSEV	0.0517 (0.3228)	-0.1903*** (-3.5545)	0.0025 (0.2155)	0.0187 (1.0325)
TREATXPOSTXHSEV	2.8949*** (4.9223)	0.1597*** (3.4879)	-0.0676*** (-3.5825)	0.1494*** (3.6731)
TREATXPOST	0.0253 (0.1331)	-0.0636 (-1.3559)	0.0048 (0.3660)	0.2154*** (10.6014)
PTURN	-0.2998*** (-3.3491)	-0.0227 (-0.7336)	0.0009 (0.1068)	-0.0154 (-1.1572)
FTURN		0.0164 (0.2939)	0.0041 (0.2586)	-0.0933*** (-3.9228)
GENDER	0.2347 (1.2685)	-0.1215** (-2.5864)	-0.0068 (-0.4986)	-0.0066 (-0.3288)
PARTNERSHIP	-0.1284 (-0.7196)	-0.0235 (-0.5160)	0.0240 (1.8391)	-0.0245 (-1.2662)
EDUCATION	-0.0314 (-0.5861)	0.0105 (0.6515)	-0.0000 (-0.0124)	-0.0125 (-1.7968)
BIG10	0.1936 (1.1232)	0.1573*** (3.4329)	-0.0169 (-1.0861)	0.0246 (1.2363)
LEVERAGE	0.0070 (0.3403)	-0.0002 (-0.0859)	-0.0021 (-0.3726)	-0.0005 (-0.5916)
ROA	0.2388 (0.1243)	0.4322 (1.0357)	0.2753 (1.2624)	-0.1000 (-0.5535)

DIRECTORSHIPS	-0.0755 (-1.3547)	-0.0644*** (-4.0380)	0.0028 (0.6822)	0.0122 (1.8297)
PCTINDPT	0.1739 (1.1042)	0.1883*** (4.2629)	0.0036 (0.3313)	-0.0023 (-0.1242)
NUMBODMTG	0.0066 (0.4795)	0.0099* (2.2427)	0.0020 (1.2231)	-0.0035 (-1.8510)
LOSS	-0.0900 (-0.4361)	0.2062*** (3.8321)	0.0578** (2.8255)	0.0121 (0.5294)
RECINT	0.0733 (0.0828)	0.4634* (2.0838)	0.0713 (1.1476)	-0.2158* (-2.2401)
INVINT	-1.2877 (-1.8784)	-0.1585 (-1.0354)	0.1441*** (3.7589)	0.0135 (0.2047)
LNASSETS	0.0843 (1.5921)	0.4964*** (31.2058)	-0.0016 (-0.2936)	-0.0140* (-2.2281)
ROA_{t-1}	-0.2472 (-0.1260)	0.2993 (0.5977)	-0.0087 (-0.0362)	0.5130* (2.3798)
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	1116	1116	1116	1116
Adj. R-sq	67.43%	27.90%	28.12%	20.41%

*, **, *** Denotes significance at the 0.10, 0.05, and 0.01 levels, respectively, all two-tailed.

Firms categorized with high-severity are those whose amount of money involved is higher than the median of all the firms inspected and vice versa.

Table 6 Regression analysis of the spillover effects on auditor rotation and audit quality

	Dependent var.=FTURN	Dependent var.=LNFEET	Dependent var.=IDA	Dependent var.=ERC
	(1)	(2)	(3)	(4)
SPILL_FIRM	-2.5679*** (-9.2902)	-0.0285 (-0.4611)	0.0076 (0.7358)	-0.007 (-0.2492)
POST	-0.2095 (-0.5423)	-0.0460 (-0.4591)	0.0159 (0.8278)	-0.021 (-0.8008)
SPILL_FIRM×POST	2.1474*** (5.2193)	0.1212* (1.8502)	-0.0292** (-2.4584)	0.0249 (0.6658)
PTURN	-0.8066*** (-6.4858)	-0.0291 (-0.7524)	0.0041 (0.6115)	-0.0383** (-2.8521)
FTURN		0.1137 (1.2880)	-0.0029 (-0.1925)	-0.0198 (-0.7394)
GENDER	-0.2357 (-1.1487)	-0.1375** (-2.5381)	0.0108 (1.1374)	0.014 (0.6837)
PARTNERSHIP	-0.0311 (-0.1518)	0.0269 (0.5048)	0.0050 (0.5455)	-0.0175 (-0.8801)
EDUCATION	-0.1867** (-2.4883)	0.0491** (2.4457)	-0.0048 (-1.4423)	-0.0186* (-2.5772)
BIG10	0.3116 (1.3880)	0.2276*** (4.1294)	0.0087 (0.8658)	0.0375 (1.862)
LEVERAGE	0.0190 (0.3859)	-0.0303* (-1.9191)	0.0004 (0.0897)	-0.0005 (-0.5743)
ROA	3.3462 (1.2058)	0.1360 (0.1980)	0.1674 (1.1804)	0.0144 (0.0745)
DIRECTORSHIPS	-0.0049 (-0.0708)	-0.0452** (-2.4596)	0.0008 (0.2672)	0.0064 (0.9154)
PCTINDPT	0.1695	0.1167**	0.0023	0.0003

	(0.9158)	(2.2061)	(0.2717)	(-0.0023)
NUMBODMTG	0.0769***	0.0161***	0.0005	-0.0033
	(3.0755)	(2.7692)	(0.4005)	(-1.6476)
LOSS	0.0270	0.2786***	0.0212	0.0277
	(0.1114)	(4.3580)	(1.5771)	(1.1665)
RECINT	3.7690***	0.6248**	0.0596	-0.1758
	(3.9443)	(2.4041)	(1.3692)	(-1.7927)
INVINT	-0.0402	-0.2058	0.1121***	0.0176
	(-0.0573)	(-1.2037)	(3.9021)	(0.2582)
LNASSETS	0.1181*	0.5936***	-0.0032	0.002
	(1.7057)	(30.6039)	(-0.7974)	(0.3125)
ROA_{t-1}	0.8192	-1.1333*	0.0661	0.3885
	(0.2975)	(-1.6689)	(0.5071)	(1.7324)
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	3942	3942	3942	3942
Pseudo R-sq	65.02%	75.40%	6.60%	1.38%

*, **, *** Denotes significance at the 0.10, 0.05, and 0.01 levels, respectively, all two-tailed.

Table 7 Panel A Within sample analysis: for treated firms which conducted share-split reform after 2013, is there any differences in auditor turnover and audit quality, comparing with treated firms reformed earlier than 2013?

Dependent var.	FTURN	LNFEET	IDA	ERC
REFORMED	-0.1402 (-0.4984)	0.2617*** (3.3477)	-0.0168 (-0.8955)	-0.0323 (-1.6813)
POST	1.1583*** (4.8200)	-0.1355* (-2.1515)	-0.0007 (-0.0388)	-0.0777*** (-4.0769)
REFORMEDXPOST	0.8522* (2.0615)	0.3927*** (3.8458)	0.0159 (0.6407)	0.2353*** (4.2222)
PTURN		-0.0256 (-0.7909)	0.0136 (1.5432)	-0.0227 (-1.8019)
FTURN		-0.0618 (-0.9662)	0.0182 (1.1295)	-0.0691** (-3.0291)
GENDER	-0.3746 (-1.6283)	-0.0150 (-0.2541)	0.0212 (1.3921)	0.0029 (0.1539)
PARTNERSHIP	0.8082*** (3.4335)	0.0683 (1.1725)	0.0052 (0.3358)	-0.0241 (-1.3022)
EDUCATION	-0.4833*** (-4.1990)	0.0079 (0.3776)	-0.0029 (-0.5634)	-0.0137* (-2.0267)
BIG10	-0.0169 (-0.0730)	0.2712*** (4.7095)	0.0231 (1.2478)	0.0401* (2.1447)
LEVERAGE	0.0073 (0.3072)	0.0037 (1.2160)	-0.0040 (-0.5972)	-0.0006 (-0.7672)
ROA	0.1535 (0.0632)	1.3679* (2.1111)	0.3517 (1.3577)	-0.0261 (-0.1447)
DIRECTORSHIPS	-0.0850 (-1.0484)	-0.0931*** (-4.9049)	0.0040 (0.8392)	0.0095 (1.4705)
PCTINDPT	0.6699** (2.8661)	0.2590*** (4.8984)	-0.0029 (-0.1979)	-0.0103 (-0.5772)

NUMBODMTG	0.0913*** (3.5492)	0.0170*** (3.5381)	0.0002 (0.0878)	-0.003 (-1.6078)
LOSS	-0.3366 (-1.2643)	0.3065*** (4.3894)	0.0044 (0.1338)	0.0283 (1.2765)
RECINT	3.3575** (2.7932)	-0.4622 (-1.5279)	0.0389 (0.5316)	-0.1378 (-1.5033)
INVINT	0.1631 (0.1826)	0.3260 (1.4180)	0.1433* (2.6357)	0.0493 (0.7748)
LNASSETS	0.0437 (0.5762)	0.5231*** (27.6869)	-0.0043 (-0.6405)	0.0011 (0.1884)
ROA_{t-1}	2.3857 (0.9633)	0.6702 (1.0055)	-0.4735* (-2.0540)	0.3556 (1.6999)
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	558	558	558	558
Pseudo R-sq	19.20%	22.04%	13.33%	15.77%

*, **, *** Denotes significance at the 0.10, 0.05, and 0.01 levels, respectively, all two-tailed.

Table 7 Panel B 2X2 analysis: univariate comparison of firm turnover around share-split reform

firm-year observation [-3,+3] years

Control group: reformed in 2005			
	Inspected		
Reformed	PRE-INSPECTION	POST-INSPECTION	Diff.
Before	7.41%	10.19%	2.78%*
36 firms	n=108	n=108	
After	11.11%	14.81%	3.70%**
36 firms	n=108	n=108	
Diff.	3.70%**	4.62%***	0.92%
Treatment group: reformed in 2013			
	Inspected		
Reformed	PRE-INSPECTION	POST-INSPECTION	Diff.
Before	7.69%	10.26%	2.57%**
26 firms	n=78	n=78	
After	8.97%	14.10%	5.13%***
26 firms	n=78	n=78	
Diff.	1.28%	3.84%**	2.56%**

*, **, *** Denotes significance at the 0.10, 0.05, and 0.01 levels, respectively, all two-tailed.

Table 7 Panel C 2X2 analysis: univariate comparison of audit quality around share-split reform measured

by LNFEF

firm-year observation [-3,+3] years

Control group: reformed in 2005		Inspected	
Reformed	PRE-INSPECTION	POST-INSPECTION	Diff.
Before	12.43	13.14	0.71
36 firms	n=108	n=108	
After	13.33	14.23	0.9
36 firms	n=108	n=108	
Diff.	0.9	1.09*	0.19
Treatment group: reformed in 2013		Inspected	
Reformed	PRE-INSPECTION	POST-INSPECTION	Diff.
Before	14.29	15.87	1.58***
26 firms	n=78	n=78	
After	15.23	17.21	1.98***
26 firms	n=78	n=78	
Diff.	0.94**	1.34***	0.4*

*, **, *** Denotes significance at the 0.10, 0.05, and 0.01 levels, respectively, all two-tailed.

Table 7 Panel D 2X2 analysis: univariate comparison of audit quality around share-split reform measured by IDA

firm-year observation [-3,+3] years

Control group: reformed in 2005		Inspected		
Reformed	PRE-INSPECTION	POST-INSPECTION	Diff.	
Before	0.0598	0.0543	-0.0055*	
36 firms	n=108	n=108		
After	0.0612	0.0518	-0.0094**	
36 firms	n=108	n=108		
Diff.	0.0014	-0.0025	-0.0039	
Treatment group: reformed in 2013		Inspected		
Reformed	PRE-INSPECTION	POST-INSPECTION	Diff.	
Before	0.0624	0.0562	-0.0062*	
26 firms	n=78	n=78		
After	0.0611	0.0554	-0.0057*	
26 firms	n=78	n=78		
Diff.	-0.0013	-0.0008	0.0005	

*, **, *** Denotes significance at the 0.10, 0.05, and 0.01 levels, respectively, all two-tailed.

Table 8 Regression Analysis on the National Audit Effects on Audit Quality (subsample under less-important group)

	Dependent var.=LNFEET	Dependent var.=IDA	Dependent var.=ERC
TREAT	0.0967 (1.5243)	-0.0130 (-0.8336)	0.0350 (1.1305)
POST	0.0580 (0.9338)	0.0496 (1.5199)	-0.0596 (-1.7167)
TREATXPOST	0.2405*** (3.8825)	-0.0345* (-2.2089)	0.1229** (2.9804)
PTURN	-0.0126 (-0.2967)	-0.0146 (-1.4607)	-0.0408 (-1.9588)
FTURN	-0.0868 (-1.1055)	-0.0408 (-1.8878)	-0.0533 (-1.3944)
GENDER	-0.1349* (-2.1895)	0.0202 (1.1999)	0.0148 (0.4895)
PARTNERSHIP	0.0529 (0.8499)	0.0221 (1.3170)	-0.0096 (-0.3139)
EDUCATION	0.0139 (0.6653)	-0.0010 (-0.2248)	-0.0223* (-2.1731)
BIG10	0.1434* (2.3903)	-0.0034 (-0.1757)	0.0638* (2.1656)
LEVERAGE	0.0014 (0.7167)	-0.0188** (-2.8986)	-0.0001 (-0.1211)
ROA	0.6633 (1.2804)	-0.0719 (-0.2543)	0.0525 (0.2064)
DIRECTORSHIPS	-0.0774*** (-3.5763)	0.0032 (0.5807)	0.0037 (0.3487)

PCTINDPT	0.1553** (2.6923)	0.0002 (0.0123)	0.0325 (1.1466)
NUMBODMTG	0.0203** (3.1379)	0.0014 (0.7072)	-0.0067* (-2.1252)
LOSS	0.1670* (2.4575)	0.1443*** (5.6140)	0.0173 (0.5207)
RECINT	-0.0247 (-0.0874)	0.1900** (2.9995)	-0.0786 (-0.5684)
INVINT	0.0818 (0.3764)	0.1385* (2.4316)	-0.0458 (-0.4299)
LNASSETS	0.4637*** (22.7476)	0.0058 (0.8679)	-0.0065 (-0.6727)
ROA_{t-1}	-0.1591 (-0.2498)	0.4348 (1.5438)	0.4944 (1.5835)
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
N	558	558	558
Adj. R-sq	70.64%	52.29%	3.74%

*, **, *** Denotes significance at the 0.10, 0.05, and 0.01 levels, respectively, all two-tailed.

Appendix 1 CAR around NAO report disclosure

Panel A 7-day raw return

Day	Raw return		t-stat
	Treatment	Market	H0: Treatment raw return=0
-3	0.0054	0.0014	1.7729**
-2	-0.0007	-0.0013	-0.5335
-1	-0.027	-0.0174	-5.9062***
0	0.0006	-0.0006	0.3466
1	-0.0074	0.0005	-2.8489***
2	-0.0064	-0.0065	-1.5853*
3	-0.0106	-0.0064	-2.5068***

Panel B CAR around national report announcement

Event_window	CAR	t-stat	P_value
(-5,+5)	-0.0173	-5.0911***	0
(-3,+3)	-0.0169	-5.7644***	0
(-1,+1)	-0.0177	-6.5518***	0

Appendix 2: Auditor Turnover by Category

Panel A Turnover direction

	MOVE UP		MOVE DOWN		PARALLEL	
	PRE-INSPECTION	POST-INSPECTION	PRE-INSPECTION	POST-INSPECTION	PRE-INSPECTION	POST-INSPECTION
TREATED	5	26	6	3	64	58
MATCHED	18	21	4	9	67	61

Panel B Individual vs. Audit firm turnover

	PTURN		FTURN	
	PRE-INSPECTION	POST-INSPECTION	PRE-INSPECTION	POST-INSPECTION
TREATED	71	60	75	87
MATCHED	77	80	89	91

Appendix 3: 2nd stage regression of auditor turnover (within firm)

Dependent var.=PTURN	Full period	Excluding Event Year
TREAT	0.0647 (0.5541)	0.0903 (0.7530)
POST	0.3084*** (2.6242)	0.3497*** (2.8869)
TREATXPOST	0.0520 (0.4118)	0.0407 (0.3118)
GENDER	-0.0941 (-0.7740)	-0.0827 (-0.6591)
PARTNERSHIP	0.1521 (1.0872)	0.1980 (1.3458)
EDUCATION	0.0554 (0.4042)	0.0602 (0.4276)
BIG10	-0.1342 (-1.0438)	-0.1732 (-1.2895)
LEVERAGE	0.0844 (0.2512)	0.1413 (0.4155)
ROA	3.3396** (2.2788)	3.2979** (2.1957)
DIRECTORSHIPS	-0.2477 (-0.8594)	-0.2477 (-0.8264)
PCTINDPT	3.0960** (2.4028)	3.0611** (2.3054)
NUMBODMTG	0.0187** (1.9695)	0.0206** (2.1379)
LOSS	0.4110* (1.9011)	0.3109 (1.3672)
RECINT	-0.0374 (-0.0628)	-0.1770 (-0.2836)
INVINT	-0.5640 (-1.4136)	-0.6239 (-1.5414)
LNASSETS	0.0003 (0.0092)	-0.0004 (-0.0114)
ROA_{t-1}	-1.1364 (-1.4469)	-1.0402 (-1.3464)
N	1116	1038
Psedo R-sq	3.80%	4.29%

*, **, *** Denotes significance at the 0.10, 0.05, and 0.01 levels, respectively, all two-tailed.

Appendix 4 Regression Analysis on the National Audit Effects on Audit Quality (excluding event year)

	Dependent var.=LNFE	Dependent var.=IDA
TREAT	0.0690 (1.2347)	0.0010 (0.2507)
POST	-0.0964* (-1.6587)	0.0020 (0.4838)
TREATXPOST	0.1582*** (2.7408)	-0.0222*** (-5.1342)
PT	-0.0544 (-0.9014)	0.0012 (0.2883)
FT	-0.1019* (-1.6745)	0.0066 (1.5488)
GENDER	0.1233** (2.0683)	-0.0061 (-1.4718)
PARTNERSHIP	-0.0174 (-0.2478)	-0.0003 (-0.0610)
EDUCATION	0.0867 (1.2966)	0.0045 (0.9568)
BIG10	0.2424*** (3.8291)	0.0076* (1.7133)
LEVERAGE	0.0266 (0.2087)	0.0019 (0.1553)
ROA	-0.3038 (-0.6145)	0.0238 (0.6054)
DIRECTORSHIPS	-0.5835*** (-4.0884)	-0.0014 (-0.1458)
PCTINDPT	1.7845*** (2.7301)	-0.0727 (-1.6459)
NUMBODMTG	0.0114** (2.4370)	-0.0003 (-0.9823)
LOSS	0.0342 (0.3450)	-0.0038 (-0.5136)
RECINT	0.3473 (1.1960)	0.0149 (0.7066)
INVINT	-0.1793 (-0.9581)	0.0733*** (5.5344)
LNASSETS	0.5137***	0.0026*

	(30.4782)	(1.8474)
ROA_{t-1}	-0.1508	0.0102
	(-0.5233)	(0.2794)
N	1038	1038
Adj. R-sq	78.69%	15.25%

*, **, *** Denotes significance at the 0.10, 0.05, and 0.01 levels, respectively, all two-tailed.

All the regressions are progressed without event year.

Appendix A. Variable Definitions

TOTAL ASSETS (in million)	The final amount of all gross investments, cash and equivalents, receivables, and other assets as they are presented on the balance sheet.
DISCRETIONARY ACCRUALS	Discretionary accruals are based on Kothari et al.'s (2005) model.
DISTANCE	The geographical distance between the SOE and the NAO (Beijing).
ACCESSIBILITY	Indicator variable, equal to 1 if high-speed rail is introduced in the SOE location
CEWC	Central Economic Work Conference, where Chinese leaders charter a course for the economy, is held annually.
CEWC_IND	Indicator variable, equal to 1 if the industry is mentioned in the CEWC of the year.
TREATED	Indicator variable, equal to 1 if the SOE is inspected by the NAO.
POST	Indicator variable, equal to 1 in the period after inspection by the NAO.
PTURN	Indicator variable, equal to 1 if the client firm changes engagement partner.
FTURN	Indicator variable, equal to 1 if the client firm changes the auditing firm.

MOVE UP	Indicator variable, equal to 1 if the client changes auditor from the non-big 10 to the big 10 auditor firms.
HSEV	Indicator variable, equal to 1 if the amount of money involved in the audit deficiency of the SOE in the year is higher than the average.
SPILL_FIRM	Indicator variable, equal to 1 if the firm hires the same auditor as the inspected SOE.
GENDER	Indicator variable, equal to 1 when the engagement auditor is female.
PARTNERSHIP	Indicator variable, equal to 1 when the engagement auditor is a partner in the auditing firm.
EDUCATION	Indicator variable, equal to 1 when the engagement auditor has a master's degree or above.
BIG10	Indicator variable, equal to 1 if the auditing firm is among the big 10 auditor firms (measured by revenue) in China.
LEVERAGE	Financial leverage ratio, computed as total liabilities divided by total assets at the end of the year.
ROA	Net income divided by the average total assets.
DIRECTORSHIP	Average number of outside directorships in other firms held by outside directors.
PCTOUTSIDE	Percentage of non-management board members.

NUMBODMTG	Number of board of director meetings.
LOSS	Indicator variable, equal to 1 if the firm had a loss from continuing operations during the past three years.
RECINT	Accounts receivable/total assets.
INVINT	Inventory/total assets.
AUDIT FEE (in million)	Audit fee in millions of CNY.
ERC	Earnings response coefficient. I regress annual return on earnings (level). The coefficient of earnings (β) is recognized as ERC.
EVA (in 10 million)	Economic value added, calculated by SASAC.
ROE	Net income scaled by average book value of equity.
EBIT	Earnings before interests, taxes and extraordinary items.
INVENTORY TURNOVER	Cost of goods sold divided by average inventory.
RECEIVABLES TURNOVER	Operating revenue divided by average accounts receivable.
ASSET TURNOVER	Total sales divided by total assets.
GROWTH RATE of OPERATING REVENUE	$(\text{Total Operating Revenue in Current Period} - \text{Total Operating Revenue in the Same Period of Previous Year}) / (\text{Total Operating Revenue in the Same Period of Previous Year})$.
LN(EMPLOYEE)	Logarithmic transformation of total employees.
MISCONDUCT	Equals 1 when an SOE is accused in the focal year of financial misconduct, and

0 otherwise. Accusations of financial misconduct pertain to financial disclosure

that are made with the purpose to mislead capital markets, including accounting manipulation, delayed disclosures, and misleading management

forecasts. I obtain these data from CSMAR.

Appendix B List of Central SOEs (<http://www.sasac.gov.cn/n2588035/n2641579/n2641645/>)

序号	企业(集团)名称	序号	企业(集团)名称
1	中国核工业集团有限公司	49	华润(集团)有限公司
2	中国航天科技集团有限公司	50	中国旅游集团有限公司[香港中旅(集团)有限公司]
3	中国航天科工集团有限公司	51	中国商用飞机有限责任公司
4	中国航空工业集团有限公司	52	中国节能环保集团有限公司
5	中国船舶集团有限公司	53	中国国际工程咨询有限公司
6	中国兵器工业集团有限公司	54	中国诚通控股集团有限公司
7	中国兵器装备集团有限公司	55	中国中煤能源集团有限公司
8	中国电子科技集团有限公司	56	中国煤炭科工集团有限公司
9	中国航空发动机集团有限公司	57	机械科学研究总院集团有限公司
10	中国融通资产管理集团有限公司	58	中国中钢集团有限公司
11	中国石油天然气集团有限公司	59	中国钢研科技集团有限公司
12	中国石油化工集团有限公司	60	中国化学工程集团有限公司
13	中国海洋石油集团有限公司	61	中国盐业集团有限公司
14	国家石油天然气管网集团有限公司	62	中国建材集团有限公司
15	国家电网有限公司	63	中国有色矿业集团有限公司
16	中国南方电网有限责任公司	64	有研科技集团有限公司
17	中国华能集团有限公司	65	矿冶科技集团有限公司
18	中国大唐集团有限公司	66	中国国际技术智力合作集团有限公司
19	中国华电集团有限公司	67	中国建筑科学研究院有限公司
20	国家电力投资集团有限公司	68	中国中车集团有限公司
21	中国长江三峡集团有限公司	69	中国铁路通信信号集团有限公司
22	国家能源投资集团有限责任公司	70	中国铁路工程集团有限公司
23	中国电信集团有限公司	71	中国铁道建筑集团有限公司
24	中国联合网络通信集团有限公司	72	中国交通建设集团有限公司
25	中国移动通信集团有限公司	73	中国信息通信科技集团有限公司
26	中国卫星网络集团有限公司	74	中国农业发展集团有限公司
27	中国电子信息产业集团有限公司	75	中国林业集团有限公司
28	中国第一汽车集团有限公司	76	中国医药集团有限公司
29	东风汽车集团有限公司	77	中国保利集团有限公司
30	中国一重集团有限公司	78	中国建设科技有限公司
31	中国机械工业集团有限公司	79	中国冶金地质总局
32	哈尔滨电气集团有限公司	80	中国煤炭地质总局
33	中国东方电气集团有限公司	81	新兴际华集团有限公司
34	鞍钢集团有限公司	82	中国民航信息集团有限公司
35	中国宝武钢铁集团有限公司	83	中国航空油料集团有限公司
36	中国铝业集团有限公司	84	中国航空器材集团有限公司
37	中国远洋海运集团有限公司	85	中国电力建设集团有限公司
38	中国航空集团有限公司	86	中国能源建设集团有限公司
39	中国东方航空集团有限公司	87	中国安能建设集团有限公司
40	中国南方航空集团有限公司	88	中国黄金集团有限公司
41	中国中化控股有限责任公司	89	中国广核集团有限公司
42	中粮集团有限公司	90	中国华录集团有限公司
43	中国五矿集团有限公司	91	华侨城集团有限公司
44	中国通用技术(集团)控股有限责任公司	92	南光(集团)有限公司[中国南光集团有限公司]
45	中国建筑集团有限公司	93	中国西电集团有限公司
46	中国储备粮管理集团有限公司	94	中国铁路物资集团有限公司
47	国家开发投资集团有限公司	95	中国国新控股有限责任公司
48	招商局集团有限公司	96	中国检验认证(集团)有限公司

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