

To centralize or not: Control right allocation and auditor incentives

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Abstract

We use the audit industry in China as a laboratory to examine the role of control right allocation on individual auditors' incentives when balancing coordination and local information acquisition. Using proprietary data on internal control right allocations, our tests reveal that local engagement auditors of more centralized audit firms provide more effort than their decentralized peers. Auditors in centralized firms are also more likely to adjust reported earnings downward and produce better-quality audited financial statements than in decentralized firms. These associations attenuate in headquarters where the tension between coordination and local information acquisition is absent. We use Confucian culture and rice farming regions as instrumental variables of preference for centralization and find consistent results. Tests based on changes in centralization due to audit firm mergers also yield similar inferences. Further analyses show that the beneficial effects of centralization are more pronounced when central authority has lower information acquisition costs but are weaker when local clients are complex. Our findings directly inform the classic debate on coordinated versus spontaneous adaptation (Williamson, 1996; Hayek, 1945).

**To centralize or not:
Control right allocation and auditor incentives in China audit firms**

“Some kind of disturbances require coordinated responses, lest the individual parts operate at cross-purposes or otherwise sub-optimize.”

---- Williamson (1996)

1. Introduction

A corporation is a nexus of incomplete contracts that creates a need for control right allocations (Grossman and Hart, 1986; Hart and Moore, 1990; Williamson, 2002).¹ The central authority's efficient location of control rights is a function of the relative importance of local information and coordination (Hayek, 1945; Williamson, 1996, 2002). This study uses the audit industry in China as a laboratory to shed light on to what extent control right allocation within an organization affects individual economic actors' incentives when balancing coordination cost and local information acquisition cost.

The audit industry in China provides a rare setting for researchers to understand the costs and benefits of a centralized/decentralized organization. Coordination and local information acquisition challenges are acute in the audit industry. Effective coordination in profit/cost-sharing and standardized training is crucial for audit firms to ensure high-quality audit services, giving rise to a need for centralization (Huddart and Liang, 2003, 2005; Levin and Tadelis, 2005). Centralized control rights potentially ease the costs of separating the principal, who receives the firm's profits, and the agents who generate the profits and mitigate the shirking problem of auditors because each partner bears the total cost of their effort but reaps only a fraction of the benefit (Kandel and Lazear, 1992; Huddart and Liang, 2005). Yet, audit services rely on localized and sensitive information. Partners at branches have superior knowledge regarding local demand than

¹ Contracts are incomplete due to bounded rationality and the contract is not self-enforcing because of managerial opportunism. Therefore, control rights need to be allocated to the party that can best utilize them to improve productivity (e.g., Grossman and Hart 1986; Hart and Moore, 1990).

headquarters-based managers. This force tilts the comparative advantage towards decentralizing control rights.

Second, strategic control right allocation aims at resolving the problem of “*rapid adaptation to changes.*” (Hayek, 1945). Unlike the accounting markets in developed economies with large market shares by Big4 auditors, the audit market in China is highly dynamic and competitive. Disturbances in the China audit market make it critical that audit firms incorporate local information. They must adapt to changes in their environment and increase the interdependence of decisions, making coordinated adaptation more acute than in stable professional service markets.² Such a highly dynamic audit market would likely lead to a sub-optimal control right allocation of individual audit firms, allowing us to find a statistical association between the degree of control right centralization and auditor incentives.

Unfortunately, within audit-firm-control-right allocation is inherent unobservable to researchers, even though the operational network of the audit firm is public information (Knechel, Niemi, and Zerni, 2013; Lennox and Wu, 2018; Lennox, Wang, and Wu, 2020; Dekeyser, Gaeremynck, Knechel, and Willekens, 2021).³ Similarly, auditors' incentives are seldom observable, leading most researchers to use audit outcomes to infer auditor incentives (e.g., DeFond and Zhang, 2014). We utilize novel datasets in China audit firms to overcome these two substantial empirical obstacles.

We investigate the audit firm's centralization and professional service quality using private data from *The Chinese Institute of Certified Public Accountants* (CICPA). For a brief time, they collected information on auditor-firm-year level measures about various dimensions of control right allocation that directly speak to the degree of centralization. Adopting Greenwood et al. (1990)'s framework of centralization, we focus on (1)

² For example, accounting fraud by one audit office can damage the entire audit firm.

³ Complex operational networks may encourage decentralizing control rights but network feature is also correlated with many other observable/unobservable factors other than control rights.

centralized market-financial control, proxied by centralization of the revenue system and cost system; (2) centralized strategic control, proxied by royalty payments and centralized recruitment and training; and (3) centralized operating control, proxied by centralized corporate governance and quality control (inspection).⁴ We seek to summarize the joint economic force underlying all these dimensions, although each measure may have its distinct effect on auditor incentives. From this perspective, our approach shares the same spirit as Gompers, Ishii, and Metrick (2003). To this end, we further construct centralization scores based on this information set to examine the association between centralization and audit incentives (audit effort and adjustment) and audit outcome (incidence of restatement) and uncover how such association varies with the comparative importance of local information acquisition.⁵

This novel, control-right-allocation information on Chinese audit firms is available from 2010 to 2012. We first show that our centralization scores of audit firms are negatively associated with publicly observable audit firm operation networks. In particular, audit firms with more operational branches are associated with a lower centralization score. These findings help validate our measure as it is fully consistent with Hayek's argument on the importance of decentralization in utilizing dispersed local information. Specifically, when an audit firm's operational network is more dispersed, it should allocate more control rights to the local audit office.

Then, we examine the effect of audit firm centralization on auditor incentives. We find that local engagement auditors of more centralized audit firms are less likely to compromise in the audit. In particular, they exercise more effort when auditing local clients. In addition, they are more likely to adjust the reported earnings of their clients

⁴ 98% of audit firms claim centralized control over client selection and therefore we are not able to evaluate this dimension directly. Instead, we provide additional tests on how these six measures are associated client selection of audit firm.

⁵ One limitation of our data is that we are not able to visit the differences in control rights among different local audit units within the same audit firm.

downward. Third, the incidence of restatement is less likely if a local office of a more centralized audit firm audited the statement. Collectively, our findings support the notion that an audit firm's centralized control helps mitigate the coordination problems among local offices (Balachandran and Ramakrishnan, 1987; Greenwood, Hinings, and Brown, 1990; Williamson, 1996, 2002).

This evidence is based on statistical correlations and could stem from economic factors omitted from the analysis. Nevertheless, the patterns we document are robust across falsification and various instrumental variables (IV) tests. In particular, we leverage a unique aspect of the audit firm: the headquarters functions as a standalone operational unit without the tension between local information collection and coordination in operations. We show that as this tension is missing in headquarters, there is no statistical association between centralization and headquarters' auditor incentives.

As for the IV-based two-stage approach, we first use the number of Confucian temples nearby the audit firm *historic headquarters* as an IV for centralization. The underlying rationale is that Confucian temples are vehicles for educating offspring and achieving order progress toward a society controlled by the central ruler. We specifically focus on historic headquarters to eliminate the potential connection between the current headquarters city and the city where the audit is conducted, contributing to the plausibility of this design satisfying the exclusion restriction. We indeed show a substantive number of Confucian temples cultivate a strong preference for centralization, leading focal audit firms to centralize control rights. The second step of the regression yields a consistent result as our main finding.

Second, we use whether they historically headquartered the audit firm in a rice farming region as an alternative IV for its centralization. Rice farming is labor intensive and involves water sharing, requiring the building of dikes and canals. As a result, rice farmers must work together to develop and maintain infrastructure, increasing the

demand for centralized control. In contrast, wheat farmers depend more on themselves, leading to a more individualistic mindset (Talhelm et al., 2014). Therefore, headquarters in a rice farming region, relative to a wheat region, gives firms a tendency to adopt centralized control. Results based on this alternative IV are also consistent with our main finding.⁶

Third, we rely on audit firm M&As as a unique setting to examine how changes in the degree of organizational centralization reshape auditors' incentives at the local office level. To eliminate the systematic difference between audit firms engaged in M&As and those without M&A activities (He, Kothari, Xiao, and Zuo, 2022), we restrict our samples to clients of audit firms with M&A endeavors. Our findings reveal that an increase in the degree of control right centralization from audit firm M&A activities results in more audit effort, a higher likelihood of downward adjustments in clients' reported earnings, and a lower likelihood of restatement at the local office level.

We next examine how the allocation of control rights and audit incentives/audit outcomes vary with the relative importance of local information acquisition. We hypothesize that a lower information acquisition cost would tilt the comparative advantage towards centralized control systems, whereas a more complex local environment would weaken the beneficial effect of centralization (Hayek, 1945; Acemoglu et al., 2007; Bloom, Garicano, Sadun, and Reenen, 2014; Bloom, Sadun, and Reenen, 2012; Giroud, 2013; Huang et al., 2017). First, we use a high-speed railroad station opening in a focal city to measure information acquisition costs. Our analysis reveals a lower information acquisition cost because introducing high-speed railroad stations strengthens the association between centralization and auditor incentives/audit quality.

Second, information technologies (IT) development facilitates internal information

⁶ In unsaluted results, we use two IVs simmutentisly and show that our IVs pass the validity test (i.e., over-identification tests).

transfers and allows the central authority to control their local operations (Pinsonneault and Kraemer, 1997). More investment in internal IT can increase the central authority's capacity to manage the branches, leading to a stronger association between centralization and auditor incentives/audit quality. We find a consistent result. Third, we follow Huang et al. (2017) to examine how the importance of local information can tilt the comparative advantages toward decentralization. We show that if the client firms are more complex and require local auditors to exercise extensive individual efforts to collect client-specific information, the beneficial outcomes associated with centralization are attenuated.

Last, we conduct multiple tests to substantiate our inferences about other economic consequences of adopting a centralized organizational form. First, we find weak evidence that centralized audit firms may charge slightly higher fees. Second, centralized audit firms do not have riskier clients, nor do their local offices take riskier clients than their non-centralized peers. Finally, we find that the beneficial results of centralization do not exist for international Big 4 firms. One plausible explanation is that local audit firms follow a more dynamic path in terms of growth, leading to a more robust demand for coordinated adaptation. In contrast, international Big4s could already be closer to their steady state.

Our paper makes several contributions to the literature. First, our paper contributes to the nascent literature on the economic implications of audit firm internal control right allocation (Knechel et al., 2013; Huddart, 2013; Aobdia, 2020; Lennox et al., 2020; Dekeyser et al., 2021; He et al., 2022). Focusing on the compensation structure and auditor incentives in Belgium, Dekeyser et al. (2021) show a negative association between auditor fee-based compensation and audit quality. Lennox et al. (2020) show a positive association between the equity ownership of auditors and audit adjustment in China. Aobdia (2020) focuses on audit firm-wide deficiency in audit control and quality, shedding light on the relationship between organizational culture and audit operating unit.

Several studies examine the location and networks of audit firms. For example, Beck, Gunn, and Hallman (2019) show that audit firms in the United States establish a physical presence near their clients, highlighting the importance of local information in the audit industry.⁷ He et al. (2022) focus on the knowledge spillover within audit networks and examine how industry-specific knowledge transfers to audit performance. However, these studies do not visit audit firms' internal control right allocation system.

Unlike prior studies, we focus on centralization versus decentralization of control systems within audit firms. First, we comprehensively investigate different dimensions of control right centralization in audit firms. Note that one dimension examined in our study is related to the revenue-sharing mechanism. This examination directly complements prior studies on compensation structure and auditor incentives. Other centralization measures speak to tools other than compensation (e.g., strategic controls and operational controls) and therefore help expand our understanding of the economic implications of control right allocations within an audit firm.

Second, our study highlights circumstances under which decentralized audit firms can gain advantages. Robinson and Stocken (2013) rely on currency differences to measure decentralization and examine how the allocation of decision rights affects multinational industrial firm performance. They focus on manufacturing firms, whereas we investigate the audit service industry. The audit industry places substantial emphasis on human capital/knowledge investment. Autonomous adoption is a way to stay ahead of the curve and deliver more value to clients, making control right allocation quite important. Empirically, we construct measures to capture multiple dimensions of control right centralization and use novel proxies of economic agents' inputs to reveal their incentives.

Our paper is also related to the economic literature investigating Hayek's idea of

⁷ The trade off between coordination cost and local information acquisition cost may not explain all location decisions made by audit firms. For example, Francis, Golshan, and Hallman (2022) find that some partners often travel great distances to service clients far from their home locations. Our study does not visit this issue.

the fundamental importance of local information in understanding corporate centralization (Acemoglu et al., 2007; Bloom et al., 2014; Bloom et al., 2012; Giroud, 2013; Bardhan, 2016; Huang et al., 2017). Although the theoretical literature on centralization is extensive, the empirical literature is limited.⁸ Second, we focus on the human-capital-intensive industry rather than manufacturing firms as prior work. Our cross-sectional tests address the importance of local information and coordination in gauging the relative benefits of centralized and decentralized organizations.

The uniqueness of the Chinese audit industry allows us to investigate audit firms' control right allocation choices. Yet, this uniqueness makes it difficult to evaluate how well these findings generalize to other countries. The economic and regulatory forces underlying China audit firms' control right allocation choices are arguably unique. Our documented centralization findings on auditors' incentives at the operating units may hinge critically on these forces (Lennox and Wu, 2022). In addition, although we employ multiple approaches to ease concerns about omitted variables, we caution against a strong, causal interpretation of our findings.

2. Literature review and hypothesis development

2.1. Literature on centralization vis-à-vis decentralization

Theoretical studies postulate that the comparative advantage of centralized production vis-à-vis decentralized production is a function of the importance of local information and the need for coordination (Hayek, 1945; Williamson, 1996, 2002).

In his influential article "*The Use of Knowledge in Society*," Friedrich Hayek argued that knowledge is dispersed among unique members of society. As a result, decisions are best made by those with the best access to local knowledge. The argument made by Hayek

⁸ Huang et al. (2017) provide empirical evidence on the benefits of decentralization in Chinese state-owned enterprises.

(1945) encourages a stream of theoretical studies to examine decision delegation and organization structure in information acquisition (e.g., Aghion and Tirole, 1997; Hart and Moore, 2005; Acemoglu et al., 2007). The general idea of these studies is straightforward: the central authority, such as the CEO, needs to rely on costly local information to make optimal decisions. However, when the organization is complex and comprises multiple horizontally integrated units, the central authority can only devote limited attention to each branch and thus cannot gain or use local information well. She has to leave more real authority/control rights to downstream agents in each unit. When local information becomes more critical, the firm should grant more real authority/control rights to the agents in each unit, resulting in a more decentralized organization.

One crucial missing factor in Hayek's framework is the externalities of the decision made by each unit. When externalities become significant, what matters for organizational performance would go beyond autonomous adaptation to local shocks. In particular, although agents in the local branch can have superior local knowledge, they may only act individually on this information, potentially resulting in significant coordination losses for the entire organization. The discussion on how centralized authority coordinates production dates back to Barnard (1938). Williamson (1996, 2002) formalizes it as a concept of "coordinated adoption." Several theoretical works incorporate this "coordinated adoption" concept and illustrate the comparative advantage of a centralized organization under different circumstances. For example, Alonso, Dessein, and Matouschek (2015) argue that while managers of the local unit may have better information about local shocks and have a knowledge depth advantage, central management has information about other factors and branches - a breadth of knowledge advantage. When the breadth of knowledge becomes more valuable than the depth of knowledge, an organization should adopt a centralized control system.

Although the trade-off between local information acquisition and coordination plays

a central role in the theoretical arguments of control right allocation, only a handful of empirical studies directly examine this trade-off. Acemoglu et al. (2007) use French and British firms to show that firms in more heterogeneous environments and younger firms are more likely to choose decentralization. Huang et al. (2017) show that state-owned enterprises in China are more likely to be decentralized when the distance to the government is further away. Such an association is an increasing function of communication cost and complexity of the firm's business. Using establishment-level information on U.S. firms, Giroud (2013) shows that a reduction in information acquisition cost increases the monitoring capacity of headquarters (more substantial control of central authority) and enhances the investment efficiency of local branches. Our study is similar to Giroud (2013), which views organization control right allocation as predetermined and examines how centralized/decentralized systems affect the incentives of auditors at the local unit. In a later section, we incorporate the dynamic nature of the control right allocation and rely on an instrumental variable approach to ease endogeneity concerns.

2.2. Hypothesis development: Control right allocation and auditor incentives

Audit firms combine ownership, management, and operations in a partnership (Greenwood et al., 1990). An audit partner is not only the owner of the firm but also a key production employee. A typical structure of a large audit firm is that they form multiple committees in the national office (headquarters). These committees take the critical responsibility of controlling the entire organization. All partners share their incomes based on their equity units. But the challenge lies in how the headquarters committees can effectively monitor the local branches and enhance local auditors' incentives to grow the business without jeopardizing audit quality.

On the one hand, the partnership form of ownership makes the incomes of each

partner partially dependent on other partners' revenue-generating capacity (Lennox et al., 2020). One implication is that any productivity-enhancing/reducing decision made by a focal partner would inevitably impose a spillover effect on other partners. For example, audit firms must link partners' compensations to their fee-generation capacity (Trompeter, 1994). However, a fee-based compensation system can cause a multi-tasking problem in that the focal partner disproportionately focuses on fee generation via entertaining her clients. They have incentives to compromise audit quality or under-supply effort, which is difficult to measure (Holmstrom and Milgrom, 1991). A centralized profit-sharing pool helps mitigate this problem by reducing the impact of one particular client on the partner's remuneration (Dekeyser et al., 2021).

A negative downside risk spillover in audit service is perhaps more important than upside potential. For example, individual audit partner negligence can cause audit failure. In such an event, investors and debt holders would recoup the losses made on their investment in the entire audit firm rather than just the individual partner. Therefore, an audit firm's reputation and partner wealth arise from its ability to ensure firm-wide performance quality. Given that local clients could capture local auditors, a centralized monitoring/inspection system is necessary to provide a common high standard and curtail the opportunistic behaviors of individual auditors.

Audit tasks involve applying prototypes learned through basic training and using experiences in different complex situations. Knowledge sharing allows junior auditors to better deal with controversial audit issues and is essential in enhancing audit quality. Although knowledge is distributed throughout the audit firm rather than concentrated in the headquarters (Hayek, 1945), individual partners are too self-interested to consider the public good nature of knowledge. They would not use their expertise to maximize firm welfare. A centralized training system acts as a forcing mechanism and helps coordinate knowledge sharing, standardizing auditor skills, and equipping auditors with sufficient

“weapons” to deal with complex audit situations (Greenwood et al., 1990). These factors collectively give a centralized organization a comparative advantage in shaping auditor incentives and improving audit quality. Based on the above arguments, we propose our first hypothesis:

H1. *A centralized control discourages individual auditors from shirking, leading to better audit quality.*

Most audit partners serve or work at the local office. This audit partner assignment localizes their business focus and engagement. Audit services require auditors to collect significant proprietary information about their clients. Clients prefer audit service providers closer to their business premises to reduce the risk of information leakage. Such a locally-based-client portfolio motivates local partners to accumulate local knowledge and establish lasting and close local connections. This local focus would lead to a feature of geographic attachment, which nicely fits the scenario Hayek (1945) postulated, whereby managers of the local unit have a significant advantage in local knowledge utilization. Consistent with this conjecture, Beck et al. (2019) show that audit firms in the United States have established a physical presence near their clients. In addition, the growth of knowledge is greatest when spontaneous interaction between individual auditors and their clients to solve adaptation problems leads to unforeseen solutions. Hayek (1945) argued that organized coercion of the headquarters could threaten such a growth of knowledge, especially when information processing capacity restricts the central authority. From this perspective, a decentralized control system in audit firms could encourage local partners to use local information and supply unobservable efforts.

H2. *The importance of local information and information acquisition costs tilt the*

comparative advantages of incentivizing individual auditors toward a decentralized control system.

3. Challenges in measurement and CICPA datasets

3.1. Information on within-organization control right allocation

Audit firms' internal control right allocation information is seldom observable as diverse firms may employ distinctive control systems in various markets at different points in time (Knechel et al., 2013; Lennox and Wu, 2018; Lennox et al., 2020; Dekeyser et al., 2021). Therefore, the most significant empirical challenge is to obtain reliable information on audit firms' internal control right allocation. To overcome this challenge, we rely on the proprietary data provided by the China Institute of Certified Public Accountants (CICPA).

From 2010 to 2012, the (CICPA) conducted a yearly collection of information about the control-right allocations between accounting firms' headquarters and their branches. In particular, to strengthen the supervision of audit firms' operations and enhance the management evaluation in accounting firms, CICPA launched the *Audit Industry Management Information System*. This guideline requires all accounting firms registered in mainland China to report their control right allocation annually, including how headquarters manage revenue, clients, staff, governance, and quality control of local branches. Local Institutes of the CICPA must double confirm that audit firms' headquarters and branches provide the required information. The CICPA also performed multiple inspections on the information quality.

As Greenwood et al. (1990) summarize, organizations can manifest centralization in three main dimensions: (1) centralized market-financial control: business units operate based on the financial targets designed by the central authority, linking targets to rewards and punishment. This dimension is in line with Williamson's H-form (1975)

model. (2) centralized strategic control: the business units adopt a competitive strategy within parameters established by the central authority. This dimension is in line with Williamson's M-form (1975) model. (3) centralized operating control: corporate headquarters centralize operating functions such as marketing and daily production.

Based on the framework of Greenwood et al. (1990), we explore the information collected by the CICPA, and identify multiple aspects regarding the central authority of an audit firm. The CICPA data includes how the audit firm manages its branches, conducts corporate governance, appoints principals, undertakes regular employee recruitment /training, handles internal staff transfers, inspects branches, and supervises revenue and expense allocation, royalty payments, and audit quality controls.⁹ We identify six distinct measures along the dimensions of financial, strategic, and operational control to capture the variations in how the headquarters or main office manage its branches:

- | | |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Financial control | <i>1: The main office pools together and controls the revenue of the branches.</i>
<i>2: The main office merges the expenses of the branches.</i> |
| Strategic control | <i>3: The branches pay royalties to the main office.</i>
<i>4: The main office arranges the branches' recruitment/training of ordinary employees.</i> |
| Operational control | <i>5: The main office formulates the governance system of the branches.</i>
<i>6: Every year, the main office inspects the branches.</i> |

The first two indicators directly address who designs the financial targets and links them to rewards and punishments. Therefore, they are closely related to the dimension of centralized financial control. These two indicators are also relevant to the nascent literature examining compensation structure and auditor incentives (Lennox et al., 2020;

⁹ Note that almost all audit firms (i.e., around 98%) employ a centralized internal staff transfer system and claim centralized control over client selection. Therefore, these indicators cannot be used independently.

Dekeyser et al., 2021). Complementing prior studies, we can separate the effect of centralized expense management from centralized revenue management. These two factors may speak to different issues. Centralized cost-sharing allows audit firms to take more risky clients (Huddart and Liang, 2003, 2005). A centralized revenue management system focuses more on the client-capture effect. Centralizing revenue management reduces the impact of one particular client on the partner's remuneration, diminishing concerns about audit partner capture (Dekeyser et al., 2021). Yet, we acknowledge these two indicators are correlated.

The third indicator describes a franchise contract between the center and the operating unit. Mathewson and Winter (1983) articulated that a franchise contract lies between anonymous price-mediated exchange and intra-firm employment. Therefore, franchisees enjoy more control over their strategy development compared with a typical operating unit of a firm. The relationship between franchisees and franchisors in China's audit industry could be relatively flexible (Wang and Xin, 2010). Such a flexible relationship leads to concerns about whether the franchises can provide standardized, high-quality audit and thus attracts extensive regulatory attention (MOF of China, 2022).¹⁰ As such, we view the indicator of paying royalty as an inverse measure of centralized strategic control. We also attribute centralized training and recruiting systems as capturing centralized strategic control. Unlike the case of manufacturing firms, the business expansions of an audit firm highly rely on human capital development. A centralized training and recruiting system essentially places the headquarters in a core position to interpret an audit firm's threats and opportunities regarding its present and future capabilities and competencies (Hill, 1988).

According to Greenwood et al. (1990), centralized operational control is the extent to which a center is involved in essential functions like production and internal control.

¹⁰ http://kjs.mof.gov.cn/zhengcafabu/202205/t20220527_3813598.htm

It also captures the degree of interventions a center makes when the operating unit deviates from its preset targets. From this perspective, the governance system and inspection are mechanisms for the central headquarters to intervene directly in the operations of the local audit office. Therefore, the last two indicators unambiguously speak to centralized operational control.

One challenge of CICPA data on control right allocation is that it only covers a period from 2010 to 2012. This limitation leads to a concern that the sample client firms or the auditor incentives are unique to these three years. This short window concern is a common challenge in control right allocation research. For example, Acemoglu et al. (2007) rely on a single-year survey of French establishments in 1998. Bloom et al. (2012) also use one year of survey data on organization structure. Robinson and Stocken (2013) use BEA survey data covering five years with a single proxy for centralization. Compared with prior studies, our sample spans three consecutive years, uses multiple measures, and has a reasonable sample size. Nevertheless, in Section 3.4, we conduct tests to help ease this concern.

Panel A of Table 1 presents the distribution of these six indicators in our sample from 2010 to 2012, respectively. The panel shows that audit firms' control right allocations are relatively stable. For example, the number of firms employing centralized operational control (governance, inspection, and recruiting/training) is almost time-invariant from 2010 to 2012. We cannot include audit-firm-fixed effects in the regression.

We manually collect and collate all annual audit reports to assess the audits of listed firms, classifying whether a branch office or headquarters controls the audit. Prior literature establishes that the first CPA signature on the audit report is the lead engagement partner (Lennox et al., 2020). We categorize the audit setting by engagement partner location. If the engagement partner registered with the CICPA at a branch office, then we classify it as a branch office audit. Among listed firms, branch offices audit 53.4%

of them.

3.2. Information on auditor effort/incentives

The second empirical challenge lies in measuring auditors' unobservable effort and sheds light on changes in auditor incentives because of different allocations of control rights. The micro-level data provided by CICPA allows us to overcome this obstacle. In particular, CICPA provides granular-level information on audit hours (Caramanis and Lennox, 2008; Gong, Li, Lin, and Wu, 2016) and audit adjustments (Lennox et al., 2020). Audit hours address the audit effort (Caramanis and Lennox, 2008). We note that audit effort can also proxy for efficiency when maintaining consistent audit quality (Gong et al., 2016). Therefore, we include audit incentives or quality measures to pin down these two explanations. We rely on audit adjustment to measure auditors' behaviors and shed light on their motivations. Lennox et al. (2020) postulate that downward audit adjustments capture auditors' incentives to reframe their clients from inflating earnings. We follow their approach in our empirical tests. We further use the incidence of restatement, a clear indicator of audit failure, to proxy for the audit quality (DeFond and Zhang, 2014).

3.3. Other datasets

We collect data on the number of Confucian temples from the *Confucian Culture Database* of Chinese Research Data Services (CNRDS) Platform. We obtain financial data of client firms from the China Stock Market & Accounting Research Database (CSMAR). Our original sample comprises all listed firms between 2010 and 2012. We then exclude the listed firms in the financial industry and those without data on audit hours and adjustments.¹¹ We finally obtain 3,506 observations audited by branches and 3,059

¹¹ Missing audit firm data (234 client-year observations) primarily arise from the resignation of a particular audit partner. Alternative approaches to the missing data problem include multiple imputation of the missing

observations audited by headquarters.

3.4. External validity

In this section, we endeavor to alleviate the concern that the sample client firms or the auditor incentives are unique to 2010, 2011, and 2012. In Figure 1, we first test whether the client firms under examination share similar characteristics with client firms over a longer period from 2002 to 2012. As shown in Panel (a), the size of our sample firms is similar to that of firms in 2002-2012. In Panel (b), we find that these two samples are also comparable in revenue. In Panels (c) and (d), we further examine the clients' growth opportunities proxied by Tobin Q and revenue growth. Again, we find the client firms under examination are similar to client firms over a longer period from 2002-2012.¹²

We further examine the potential differences in the auditor incentives in Figure 1. We specifically focus on the audit hour-to-asset ratio, audit downward adjustment ratio, and audit upward adjustment ratio. In Panels (e), (f), and (g), we demonstrate that the distributions of all three auditor incentive measures are similar across the two samples. These tests allow us to mitigate the concern that sample firms/auditors from 2010 to 2012 are unique.

4. Empirical design

We use OLS or Probit regressions to examine the association between audit firm organizational centralization and audit incentives (audit effort and audit adjustment), and audit quality (incidence of restatement):

$$\begin{aligned}
 Y(\text{LnHour}_{i,t}/\text{Adj_Down}_{i,t}/\text{Restatement}_{i,t}) = & \beta_0 + \beta_1 \text{AGov}_{i,t} + \beta_2 \text{IBig4}_{i,t} + \beta_3 \text{DBig10}_{i,t} \\
 & + \beta_4 \text{LnAuditRev}_{i,t} + \beta_5 \text{LnOfficeRev}_{i,t} + \beta_6 \text{LnTA}_{i,t} + \beta_7 \text{LnSubsidiary}_{i,t} \\
 & + \beta_8 \text{Leverage}_{i,t} + \beta_9 \text{ROA}_{i,t-1} + \beta_{10} \text{Growth}_{i,t} + \beta_{11} \text{RecInv}_{i,t} + \beta_{12} \text{CFO}_{i,t} \\
 & + \beta_{13} \text{Tenure}_{i,t} + \text{Fixed effects} + \varepsilon_{i,t}, \tag{1}
 \end{aligned}$$

data or classifying all work done at a single location (Koh, Reeb, Sojli, Tham, and Wang, 2022). We find consistent results using alternative approaches to the missing data.

¹² We end the sample at 2012 because the audit hour information is not available after 2012.

where i indexes firms, t indexes years, and fixed effects include year fixed effects and industry fixed effects (based on two-digit CSRC industry classification); $LnHour$ is the natural logarithm of audit hours (Caramanis and Lennox, 2008); Adj_Down equals 1 if a client's post-audit earnings are less than pre-audit earnings, and 0 otherwise (Lennox et al., 2020); $Restatement$ equals 1 if clients' annual financial statement is restated before 2019, and 0 otherwise.

$AGov$ indicator variable capturing the different dimensions of centralization. Its definition is based on 6 indicators, respectively: *Centralized revenue system*, equals 1 if headquarters pool together and control the revenues of branches, and 0 otherwise; *Centralized cost system*, equals 1 if headquarters pool together and control the costs of branches, and 0 otherwise; *Royalty fees to HQ*, equals 1 if the branch offices make royalty payments to headquarter, and 0 otherwise; *Centralized recruiting system*, equals 1 if they recruit all employees of the branches by the headquarter, and 0 otherwise; *Centralized Governance policy*, equals 1 if the governance policies of the branches are uniformly planned by the headquarter, and 0 otherwise; *Inspection every year*, equals 1 if the headquarter inspects the branch offices every year.

The six indicators above capture different aspects of control right centralization, including the central authority's control of financial ratios, strategy, and operations of local branches (Greenwood et al., 1990). To better summarize the overall degree of centralization, we calculate the "*Govscore*" as the sum of the 6 centralization indicators. Since paying royalty is an inverse measure of centralization (Mathewson and Winter, 1983), the indicator of royalty fees needs to $\times (-1)$ in the calculation. Note that every audit firm exhibits a certain degree of centralization. To identify the effect of high centralization, we define the " $AGov$ " as 1 if the value of *Govscore* equals or above the sample median, and 0 otherwise.

Following the prior literature (Caramanis and Lennox, 2008; Gong et al., 2016), we include several audit-firm-level control variables. *IBig4* equals 1 if an international Big 4 audit firm audits a firm, and 0 otherwise; *DBig10* equals 1 if a firm is audited by a China domestic top10 audit firm ranked by total audit fees, and 0 otherwise; *LnAuditRev* is the natural logarithm of audit firms' annual revenue; *LnOfficeRev* is the natural logarithm of branch offices' annual revenue.

We further control for client firm-level variables. *LnTA* is the natural logarithm of total assets; *LnSubsidiary* is the natural logarithm of the number of subsidiaries, a proxy for the operational complexity of the audit firm; *Leverage* is the ratio of total liabilities to total assets; *ROA* is the ratio of net income before extraordinary items to total assets; *Growth* is the growth ratio of revenue; *RecInv* is the ratio of the sum of accounts receivables and total inventories to total assets; *CFO* is the ratio of cash flow operation to total assets; *Tenure* is the number of years of an audit client with the current auditor.

We also control for client-industry-fixed effects and year-fixed effects to absorb industry time-invariant heterogeneities and time trends. Note that our sample is a short panel from 2010 to 2012. The insufficient within-firm time-series variations discourage us from including client or audit firm fixed effects. In a later section, we seek to ease further concerns about omitted variable bias, where we provide an instrumental variable-based estimation. We cluster the standard errors at the firm level.

5. Results on the association between centralization and auditor incentives

5.1. Summary statistics

Panel B of Table 1 presents summary statistics for key variables. As for listed clients audited by branches, the mean and median audit hours (*Hour*) are 3946 and 1916, respectively. 35% of the observations are associated with earnings downward adjustments, and 3.2% are associated with financial statement restatements; 7.6% (63%) of the clients

are audited by branches of international Big4s (domestic Big10s), respectively.

We also compare the characteristics of clients audited by branch offices and those audited by headquarters. The results show that these two groups have similar client firm characteristics in terms of total assets ($LnTA$), the number of subsidiaries ($LnSubsidiary$), financial leverage ($Leverage$), profitability (ROA), revenue growth rate ($Growth$), and operational cash flow (CFO). However, we find important differences in our key variables measuring auditor efforts and incentives between these groups. In particular, branch auditors appear to supply less effort in the form of audit hours ($LnHour$, 7.646 vs. 7.744), and have shorter audit tenure ($Tenure$, 6.208 vs. 7.892).

5.2. Validation test: Centralization and audit firm operation networks

Before examining the impacts of audit firms' internal control right allocation on individual auditors' incentives, we first examine whether our measure of centralization is correlated with the auditor's operating network complexity, proxied by the number of audit firms' branches. This analysis provides a validation test of our centralization measure. Audit firms with more complex operations should allocate more control rights to local audit offices and therefore have a lower centralization score. We employ the following Probit Model:

$$Govscore = \beta_0 + \beta_1 BranchNum + \beta_2 IBig4 + \beta_3 DBig10 + \varepsilon. \quad (2)$$

where $BranchNum$ is the number of audit firms' branches. The definitions of other variables are consistent with the estimation model (1).

Table 2 presents the results on the association between the auditor's operating network and centralization using the sample of audit firm-year observations. In Column (1), the coefficient on $BranchNum$ is negative and significant (-0.040, $t = -2.03$), suggesting that audit firms with more operational branches are associated with a lower centralization score, consistent with our prediction. Similarly, Columns (2)-(8), where $AGov$, $Centralized rev system$, $Centralized cost system$, $Paying royalty fees to headquarters$,

Centralized recruiting system, *Centralized governance policy*, and *Inspection every year* are used as a proxy for audit centralization, we find consistent results. These findings help validate our measure as it is consistent with Hayek’s argument on the importance of decentralization in utilizing dispersed local information.

5.3. Centralization and audit effort of auditors at branches

To understand the incentive problem of local auditors because of different control right allocations, we focus on samples of local branches where the trade-off between coordination cost and local information acquisition cost manifests. Our approach is similar to Giroud (2013), which focuses on local establishments to examine coordination efficiency. In the later section, we further explore the samples of headquarters to strengthen the inferential loop.

Table 3 presents the results on the association between audit hours and centralization using the sample of local branches. In Column (1), where *Centralized rev system* is used to capture centralization, the coefficient on *AGov* is positive and significant (0.152, $t = 3.56$), suggesting that a centralized revenue system encourages local auditors to exercise more effort. Such an effect is economically significant, representing a 15.2% increase in audit effort when a more centralized revenue control system is used. Similarly, In Columns (2)-(6), where *Centralized cost system*, *Paying royalty fees to headquarters*, *Centralized recruiting system*, *Centralized governance policy*, and *Inspection every year* are used as a proxy for organizational centralization, we find consistent results. The coefficients on these proxies consistently indicate centralized control systems are associated with an effort-enhancing effect on local auditors.

We note that these six indicators capture different aspects of organizational centralization. To provide a summary, we combined all six indicators to construct the indicator of a more centralized control system. The coefficient on *AGov* is consistent with

our hypothesis. The magnitude of the coefficient in Column (7) suggests that local auditors of more centralized audit firms are associated with a 17.4 % (i.e., 330 audit hours) increase in audit effort, compared with local auditors of more decentralized audit firms.¹³

As for control variables, we find that auditors of *IBig4s* and *DBig10s* are more likely to exercise efforts. Complex firms such as those with larger *LnTA*, *LnSubsidiary*, *Leverage*, or *Growth* require auditors to exert more effort. In contrast, profitable firms with higher *ROA* and auditors with larger revenue scales (*LnAuditRev* and *LnOfficeRev*) and longer *Tenure* can reduce the demand for audit efforts. These findings are consistent with prior literature (Caramanis and Lennox, 2008), suggesting a similar data structure for this sample and studies in other countries.

5.4. Centralization and audit adjustment

We note that an increase in audit hours could stem from improving auditors' incentives to closely scrutinize their clients (Caramanis and Lennox, 2008) or reducing audit efficiency (Gong et al., 2016). To differentiate between these two explanations, we further utilize the audit adjustment information (Lennox et al., 2020). We expect greater auditor earnings-downward adjustments if the increase in her audit efforts is a manifestation of strengthened auditor monitoring incentives.

Table 4 presents the association between organizational centralization and audit adjustments based on the samples of local branches. In Columns (1)-(6) the variables *Centralized revenue system*, *Centralized cost system*, *Paying loyalty fees to headquarters*, *Centralized recruiting system*, *Centralized governance policy*, and *Inspection every year* are used to proxy for organizational centralization. The coefficients on *AGov* consistently show that administrative centralization increases the downward audit adjustment. In Column (7), we also combined the six indicators to construct the indicator of

¹³ The median per client-year audit hours of the branches in our sample is 1,916.

organizational centralization. The coefficient remains positive and significant. The coefficient in Column (7) indicates that auditors of more centralized audit firms are 9.22% more likely to adjust the clients' earnings downward, compared to those of more decentralized audit firms. These findings suggest that the increase in audit hours presented in Table 3 indicates closer scrutiny of clients (Caramanis and Lennox, 2008).

5.5. Centralization and incidence of restatement

To strengthen the monitor-enhancing argument, we further utilize the incidence of restatement as a measure of audit quality (DeFond and Zhang, 2014). Suppose the increase in audit hours stemming from a more centralized control system reflects mitigation on auditor shirking. In that case, we should expect to find an improvement in audit quality and a lower likelihood of restatement.

In Columns (1)-(6) of Table 5, we use the six indicators to proxy for a centralized control system; the results consistently show that financial statements audited by centralized audit firms are less likely to be restated. In column (7), where we rely on *Gouscores* to construct the proxy for centralization, the conclusion remains qualitatively similar to the first set of tests. The magnitude of the coefficient in Column (7) indicates that financial statements audited by a more centralized audit firm are 0.97% less likely to be restated than those audited by a more decentralized audit firm. Given that incidences of restatement are rare (i.e., only 3.2% for the full sample), such a beneficial effect of organizational centralization on audit quality is economically meaningful.

Collectively, the findings in Tables 3 to 5 support our central hypothesis that a centralized control system encourages individual auditors to exercise effort and mitigates shirking problems, resulting in better audit quality.

5.6. Alleviate omitted variable problem

The above evidence is based on statistical correlations, leading to concerns the results are driven by omitted economic factors that simultaneously induce centralization and auditor incentives/audit quality. We first leverage the unique feature of the audit firm that headquarters acts as an important operational unit to provide audit services. However, headquarters does not face the tension between local information collection/utilization and coordination, thereby eliminating the need for control right allocations. This would allow us to conduct a cute falsification test to demonstrate that without the need for control right allocation, the statistical association between centralization and auditors' incentives would disappear. Second, we rely on two instrumental variables (IV) to provide additional evidence on this concern. Third, we utilize audit firm M&As to explore how changes in the degree of centralization from audit firms M&A affect the auditors' incentives in local offices. Although multiple empirical approaches are employed to alleviate omitted variable bias concerns, this analysis does not establish a causal effect of centralization on audit incentives.

5.6.1 Falsification test based on headquarters

Theoretically, the beneficial effect of organizational centralization comes from the problem that multiple horizontally integrated units cannot effectively coordinate with each other without a powerful central authority (Williamson, 1996, 2002). A unique feature of an audit firm is that the headquarters also acts as an operational unit. Since the central authority (i.e., various committees) directly controls the headquarters' operations, we should expect that the degree of centralization should not matter to the headquarters. Therefore, the changes in audit effort and audit quality in headquarters due to various degrees of centralization allow us to conduct a falsification test, strengthening the inferential loop.

Table 6 presents the results of estimating model (1) using the samples of headquarters only. In Panel A, where the dependent variable is audit effort ($LnHour$), we

find that the coefficients on *AGov* in Columns (1)-(7) are all insignificant. In Panel B, where the dependent variable is audit adjustment (*Adj_Down*), we find the audit quality of headquarters is not positively associated with the degree of organizational centralization. There is an insignificant effect in all columns in Panel C where the dependent variable is *Restatement*. Table 6 suggests that local auditors' distorted incentives drive auditor effort and quality variations due to inefficient coordination.

5.6.2. IV approach

We first use the number of Confucian temples nearby the audit firm headquarters (within a 200 km radius) as an IV for the degree of centralization. In China, Confucian temples are vehicles for educating offspring and achieving order progress toward a society controlled by the central authority. The number of Confucian temples could be positively related to the preference for centralization, justifying the relevant condition.

However, another empirical challenge is that headquarters locations are endogenously determined. This problem may become more acute for audit firms in China as they have changed headquarter locations multiple times in the past decade. Omitted factors that affect the selection of current headquarters could correlate with the number of Confucian temples and audit quality. To ease this exclusion condition issue, we construct the IV based on the number of Confucian temples near a focal audit firm's *historic headquarters* (when it first time provided audit services for listed clients in China).

We posit that the number of Confucian temples near the *historic headquarters* should not be correlated with the auditor incentives/audit quality during a more current period. As shown in Figure 2, we argue that the local culture of the historic headquarters city x many years ago is unlikely correlated with auditors' behaviors at different local operating cities j to k many years later. However, the preference for centralization is more persistent and correlates with today's control right allocation decisions.

The centralization indicators used in all the IV regressions are based on the total

centralization degree score (*Govscore*) that summarizes all six aspects of centralization. Column (1) of Table 7, Panel A presents the relationship between the number of Confucian temples near the *historic headquarters* and the degree of organizational centralization of an audit firm. We find that the coefficient on *LConTemple* is positive and significant (0.630, $t = 20.86$), suggesting that the greater the number of Confucian temples near the *historic headquarters*, the higher the probability of a centralized control system in the audit firm. Columns (2)-(4) of Table 7, Panel A presents the second step results. The coefficients on *AGov* are all consistent with our main findings in Tables 3 – 5 (0.152, $t = 2.29$ in Column (2); 0.243, $t = 3.82$ in Column (3); -0.053, $t = -2.51$ in Column (4)).¹⁴

Second, we construct another IV based on whether they headquartered the audit firm in a rice farming region when they first provided audit services for listed clients in China. Rice farming is labor intensive and involves extensive coordination among farmers. As a result, this region is more likely to foster an interdependent culture. In contrast, wheat farmers depend more on themselves, leading to a more individualistic mindset (Talhelm et al., 2014). Therefore, headquarters in a rice farming region, relative to a wheat region, gives firms a tendency to adopt centralized organizational forms. Column (5) of Table 7 presents the relationship between rice farming and organizational centralization. Consistent with our prediction, the coefficient on *Rice* is positive and significant (0.988, $t = 22.29$), suggesting that rice farming cultivates an interdependent culture and leads to a more centralized control system of audit firms. Columns (6)-(8) of Table 7, Panel A presents the second step results. All coefficients are consistent with our main findings in Tables 3 – 5 (0.151, $t = 2.43$ in Column (6); 0.152, $t = 3.27$ in Column (7); -0.024, $t = -1.67$ in Column (8)). In an untabulated test, we simultaneously use two IVs to

¹⁴ The importance of founding and maintaining Confucian Temples fluctuated across different dynasties and political regimes in China. One particular concern is that Temple survival varies with central authority influence. We obtain similar results when further controlling the geographic distance between the headquarters and Beijing in the 2SLS estimation.

estimate the association between the degree of centralization and auditor incentives. Our estimates show that two IVs pass the IV validity test (i.e., the over-identification test) and generate consistent results.

5.6.3. A setting based on audit firm M&As

We rely on variations in the degree of centralization generated by auditor M&As to examine whether centralization is associated with individual auditors' incentives. Consolidation between two audit firms will encourage the smaller audit firm to adopt the control system of the larger counterparty in the M&A, thereby involuntarily resulting in a change in the degree of centralization.

We identify four audit firm M&As occurring between 2011 and 2012 in China. These include Lixin's acquisition of Guangzhou Yangcheng and Nanjing Yonghua in 2011, Crowe Horwath's acquisition of Shenzhen Pengcheng, and Jingdu Tianhua's acquisition of Tianjian Zhengxin in 2012. Among these M&As, the acquirers such as Lixin and Jingdu Tianhua are larger and have a higher degree of centralization. In contrast, the target audit firms, Guangzhou Yangcheng, Nanjing Yonghua, and Tianjian Zhengxin, are smaller and forced to adopt their counterparties' control systems after the M&As. Therefore, these target audit firms involuntarily experience an increase in the degree of centralization after the M&As. In contrast, the acquirers' degree of centralization remains the same after the M&As. As for Crowe Horwath's acquisition of Shenzhen Pengcheng, since they have the same degree of centralization, and therefore the acquisition does not change their control right allocation systems. A direct inference of these acquisitions is that smaller audit firms involuntarily adopt the control right allocation system of the larger counterparty in the M&A. Therefore, the change in the degree of centralization of smaller audit firms after the M&As would be pre-determined by the relative degree of

centralization of their bidders before the M&A.¹⁵

Since audit firms engaged in M&As can be systematically different from other audit firms (He et al., 2022), we thus restrict our sample to clients of audit firms having M&As only to eliminate this systematic difference. We construct a variable *AGov_MA* to measure the change in centralization score (*AGov*) due to auditor M&As. If the centralization score after the M&A is higher than before the acquisitions, the *AGov_MA*=1, and 0 otherwise. None of the M&As leads to a decline in the centralization score. If the observations are in the year or after the acquisitions, then *Post*=1, and 0 otherwise.

Table 7 Panel B presents the results. All coefficients are consistent with our main findings in Tables 3 – 5 (0.239, $t = 2.61$ in Column (1); 0.240, $t = 1.69$ in Column (2); -0.877, $t = -5.26$ in Column (3)). Collectively, the results in Table 7 suggest that our main findings on the relationship between organizational centralization and audit incentives/audit quality are unlikely to be driven by omitted variables.

6. When Hayek (1945) dominates: Coordination, local information, and control right allocation

This section examines how centralization and audit incentives/audit outcomes vary with the trade-off between coordination and local information acquisition. A lower central authority information acquisition cost would increase coordination efficiency. In contrast, a more complex local environment would weaken the beneficial effect of centralization (Hayek, 1945; Acemoglu et al., 2007; Bloom et al., 2014; Bloom et al., 2012; Huang et al., 2017).

First, we use the opening of a high-speed railroad station in a focal city where the audit is engaged to measure the information acquisition cost of the central authority. The

¹⁵ We acknowledge that audit firm M&As are not exogenous. The bottom line here is that we can provide robust inferences based on different settings.

underlying rationale is that opening a high-speed railroad station would make it easier for the central management to visit local branches, enhancing the central authority's coordination capacity (Giroud, 2013). Panel A of Table 8 reports the results. We find that the coefficients on $HST \times AGov$ in Column (7) are positive and significant when the outcome variables are audit efforts ($LnHour$) and audit adjustment (Adj_Down), and is negative and significant when the dependent variable is the incidence of restatement ($Restatement$).

We further use an audit firm's information technology (IT) expenditure to measure the central authority's information acquisition cost. Panel B of Table 8 reports the results. The coefficients on $HIT \times AGov$ in Column (7) are significantly positive when the dependent variables are $LnHour$ and Adj_Down . The coefficient is significantly negative when the dependent variable is $Restatement$. The findings in Panels A and B of Table 8 collectively support the notion that a lower central authority's information acquisition cost increases its coordination capacity, leading to a stronger association between organizational centralization and auditor incentives/audit quality.

Next, we follow Huang et al. (2017) to examine how the importance of local information would tilt the comparative advantages toward decentralization. We use the number of subsidiaries to measure client complexity and argue that auditors at the local branches demand more real authority when their clients have more subsidiaries. Therefore, local information attenuates the beneficial effects of organizational centralization on auditor incentives/audit quality.

Panel C reports the results. We find that the coefficients on $Complex \times AGov$ are significantly positive when the dependent variables are $LnHour$ and Adj_Down . It is significantly negative when the dependent variable is $Restatement$. Our findings suggest that the local auditors must exercise extensive individual efforts to collect client-specific information and better utilize this local information when the clients are more complex,

tilting the comparative advantages towards decentralization.

7. Additional Tests

7.1. Audit firm internal control right allocation and audit fees

The previous section shows that centralization will increase branch offices' audit efforts and improve audit quality. In this section, we examine whether centralization would affect audit fees. We employ the following regression to explore the impact of centralization on audit fees:

$$\begin{aligned} LnAF_{i,t} = & \beta_0 + \beta_1 AGov_{i,t} + \beta_2 LnHour_{i,t} + \beta_3 IBig4_{i,t} + \beta_4 DBig10_{i,t} + \beta_5 LnAuditRev_{i,t} \\ & + \beta_6 LnOfficeRev_{i,t} + \beta_7 LnTA_{i,t} + \beta_8 LnSubsidiary_{i,t} + \beta_9 Leverage_{i,t} \\ & + \beta_{10} ROA_{i,t-1} + \beta_{11} Growth_{i,t} + \beta_{12} RecInv_{i,t} + \beta_{13} CFO_{i,t} + \beta_{14} Tenure_{i,t} \\ & + Fixed\ effects + \varepsilon_{i,t}, \end{aligned} \quad (3)$$

where $LnAF$ is the natural logarithm of audit fees. The definitions of other variables are consistent with the estimation model (1).

Table 9 reports the regression results. The coefficients on $AGov$ are insignificant in Columns (1), (5), and (6) and are significant in Columns (2), (3), (4), and (7). This finding suggests that the effect of organizational centralization on audit fees is inclusive. Since the centralization indicator used in Column (7) provides a better summary of all six aspects of administrative centralization, we interpret the finding based on the result in Column (7). Audit firms passing through the increased cost of audit effort to the clients or charging the reputation premiums of improved audit quality could explain the weak increase in audit fees in Columns (7).¹⁶ As for samples of headquarters, we do not find conclusive evidence on the association between organizational centralization on audit fees.

7.2. Audit firm internal control right allocation and risk-taking

Huddart and Liang (2003, 2005) suggest that centralization could allow audit firms

¹⁶ In terms of the economic magnitude, the coefficient in Column (7) suggests the branches of a centralized audit firm charge CNY 15,456 higher audit fees, compared with those of a decentralized audit firm.

to take higher risks via an internal risk-sharing mechanism. In this section, we test this possibility. Since the most significant threat in audit services is fraudulent client accounting, we use earnings management and stock return volatility to measure the clients' litigation or uncertainty risk (Heninger, 2001; Pan, Wang, and Weisbach, 2015). The following model is used to test our conjecture:

$$\begin{aligned}
Accrual_{i,t}/RetVol_{i,t} = & \beta_0 + \beta_1 AGov_{i,t} + \beta_2 IBig4_{i,t} + \beta_3 DBig10_{i,t} + \beta_4 LnAuditRev_{i,t} \\
& + \beta_5 LnOfficeRev_{i,t} + \beta_6 LnTA_{i,t} + \beta_7 LnSubsidiary_{i,t} + \beta_8 Leverage_{i,t} \\
& + \beta_9 ROA_{i,t-1} + \beta_{10} Growth_{i,t} + \beta_{11} RecInv_{i,t} + \beta_{12} CFO_{i,t} + \beta_{13} Tenure_{i,t} \\
& + Fixed\ effects + \varepsilon_{i,t},
\end{aligned} \tag{4}$$

where *Accrual* is the discretionary accruals based on the performance-matched model, which is used to capture the earnings management with a minimum of 10 observations in an industry (Kothari, Leone, and Wasley, 2005); *RetVol* is the standard deviation of daily stock returns to measure the stock return volatility with a minimum of 100 observations (Pan et al., 2015). We measure *RetVol* using daily returns from January 1 to December 31 of the focal year. The definitions of other variables are consistent with the estimation model (1). Table 10 reports the regression results. Inconsistent with our conjecture, we find that the coefficients on *AGov* are all insignificant, suggesting that centralized audit firms do not associate with more risky clients.

7.3. Audit firm control right allocation and client picking at the branch level.

One way to improve audit efficiency and outcomes is to take advantage of local information. Therefore, centralized audit firms may allow local operation units to take risky clients compared with headquarters. We use earnings management and stock return volatility to test this possibility to measure the clients' litigation or uncertainty risk (Heninger, 2001; Pan et al., 2015). To identify the allocation effect, we follow Huang et al. (2017) and Lennox and Li (2012) to estimate the following:

$$Pro(Branch_{i,t}) = \beta_0 + \beta_1 Accrual_{i,t-1} + \beta_2 RetVol_{i,t-1} + \beta_3 AGov_{i,t} + \beta_4 Accrual_{i,t-1} \times AGov_{i,t}$$

$$\begin{aligned}
& + \beta_5 RetVol_{i,t-1} \times AGov_{i,t} + \beta_6 IBig4_{i,t} + \beta_7 DBig10_{i,t} + \beta_8 LnAuditRev_{i,t} \\
& + \beta_9 LnOfficeRev_{i,t} + \beta_{10} LnTA_{i,t} + \beta_{11} LnSubsidiary_{i,t} + \beta_{12} Leverage_{i,t} \\
& + \beta_{13} ROA_{i,t-1} + \beta_{14} Growth_{i,t} + \beta_{15} RecInv_{i,t} + \beta_{16} CFO_{i,t} + \beta_{17} Distance_{i,t} \\
& + Fixed\ effects + \varepsilon_{i,t},
\end{aligned} \tag{5}$$

where *Branch* is the indicator that equals 1 if branch offices audit the client, and 0 otherwise. *Distance* is the natural logarithm of the geographic distance between the audit firms' headquarters and client firms. The definitions of other variables are consistent with the estimation model (1) and (4).

Table 11 reports the regression results. Inconsistent with our prediction, we find that the coefficients on *Accrual*×*AGov* and *RetVol*×*AGov* are all insignificant, suggesting that local branches of centralized audit firms do not take more risky clients relative to headquarters does.

7.4. International Big4s versus Chinese local audit firms

This last section examines whether the beneficial effects of centralization in international Big4s differ from that in local Chinese audit firms. We find that the coefficients on *AGov* in Panel A of Table OA1, where samples comprise clients of international Big4 branches, are all insignificant. This finding also echoes the first step result of IV estimation that international Big4s are less likely to centralize control in China. In contrast, the coefficients in Panel B of OA1, where samples comprise clients of Chinese local audit firm branches, consistently show significant beneficial effects of organizational centralization on audit incentives/audit quality. One plausible explanation is that local audit firms follow a more dynamic path in terms of growth, leading to a more robust demand for coordinated adaptation. Another statistical reason is that local Chinese audit firms audit most clients. Therefore, the testing power is larger.

8. Conclusion

Relying on proprietary data of internal control right allocation information of Chinese audit firms from 2010 to 2012, we examine the beneficial effects of centralized/decentralized control on local engagement auditors' incentives and audit quality. We find that centralization encourages local engagement auditors to exercise more effort when auditing clients. In addition, centralization leads to a greater likelihood of a downward adjustment in clients' earnings and reduces the incidence of a restatement. These findings collectively support the notion that an audit firm's centralized control helps mitigate the coordination problems among local offices (Balachandran and Ramakrishnan, 1987; Greenwood et al., 1990; Williamson, 1996, 2002).

We conduct multiple cross-sectional tests to determine how audit firms balance coordination and local information acquisition costs. Our results reveal that a lower information acquisition cost because of high-speed railroad station opening or information technologies (IT) development strengthens the comparative advantage of centralized control. In contrast, more complex local clients would weaken the beneficial effects of centralization since local auditors face a more significant challenge in acquiring and using local information in this case (Hayek, 1945; Acemoglu et al., 2007; Bloom et al., 2014; Bloom et al., 2012; Huang et al., 2017).

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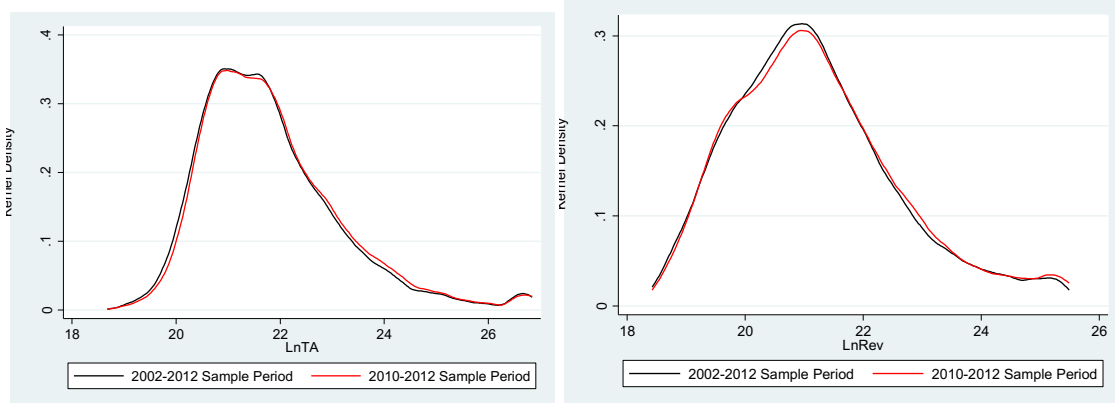
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Appendix A. Variable definitions.

Variable Name	Definition
<i>LnHour</i>	The natural logarithm of audit hours.
<i>Adj_Down</i>	Indicator that equals 1 if a client's post-audit earnings are less than pre-audit earnings, and 0 otherwise.
<i>Restatement</i>	Indicator that equals 1 if clients' annual financial statement is restated before 2019, and 0 otherwise.
<i>Centralized revenue system</i>	Indicator that equals 1 if headquarters pool together and control the revenues of branches, and 0 otherwise.
<i>Centralized cost system</i>	Indicator that equals 1 if headquarters pool together and control the costs of branches, and 0 otherwise.
<i>Royalty fees to HQ</i>	Indicator that equals 1 if the branch offices make royalty payments to headquarter, and 0 otherwise.
<i>Centralized recruiting system</i>	Indicator that equals 1 if they recruit all employees of the branches by the headquarter, and 0 otherwise.
<i>Centralized Governance policy</i>	Indicator that equals 1 if the governance policies of the branches are uniformly planned by the headquarter, and 0 otherwise.
<i>Inspection every year</i>	Indicator that equals 1 if the headquarter inspects the branch offices every year.
<i>Govscore</i>	The sum of 6 separate indicators of auditor centralization (the indicator of royalty fees needs to time -1).
<i>AGov</i>	Indicator that equals 1 if the value of <i>Govscore</i> equals or above the median (6), and 0 otherwise.
<i>IBig4</i>	Indicator that equals 1 if an international Big 4 audit firm audits a firm, and 0 otherwise.
<i>DBig10</i>	Indicator that equals 1 if a firm is audited by a domestic top10 audit firm ranked by total audit fees, and 0 otherwise.
<i>BranchNum</i>	The number of audit firms' branches.
<i>LnAuditRev</i>	The natural logarithm of audit firms' annual revenue.
<i>LnOfficeRev</i>	The natural logarithm of branch offices' annual revenue.
<i>LnTA</i>	The natural logarithm of total assets.
<i>LnSubsidiary</i>	The natural logarithm of the number of subsidiaries.
<i>Leverage</i>	The ratio of total liabilities to total assets.
<i>ROA</i>	The ratio of net income before extraordinary items to total assets.
<i>Growth</i>	The growth ratio of revenue.
<i>RecInv</i>	The ratio of the sum of accounts receivables and total inventories to total assets.
<i>CFO</i>	The ratio of cash flow operation to total assets.
<i>Tenure</i>	Number of years of an audit client with the current auditor.
<i>LConTemple</i>	The natural logarithm number of Confucian temples near audit firm's historic headquarter.
<i>Rice</i>	Indicator that equals 1 if the audit firm's historic headquarters is in a rice farming region, and 0 otherwise.
<i>AGov_MA</i>	Indicator that equals 1 if the centralization score after the acquisitions is higher than before, and 0 otherwise.
<i>Post</i>	Indicator that equals 1 if the observations are in the year or after the acquisitions, and 0 otherwise.
<i>HST</i>	Indicator that equals 1 if the city of audit engagement has opened a high-speed railroad station, and 0 otherwise.
<i>HIT</i>	Indicator that equals 1 if the audit firms' ratio of information technology expenditure to total revenue is greater than the median, and 0 otherwise.

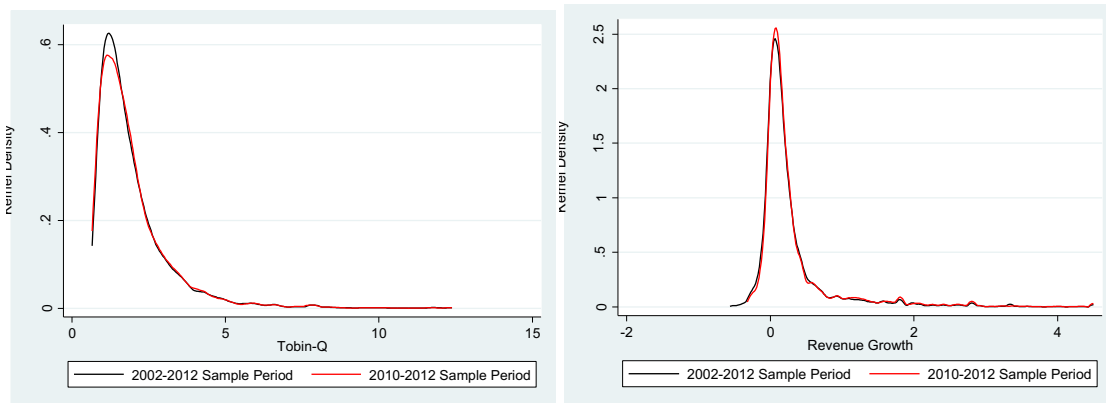
<i>Complex</i>	Indicator that equals 1 if the number of subsidiaries is greater than the sample median, and 0 otherwise.
<i>LAF</i>	The natural logarithm of audit fees.
<i>Branch</i>	Indicator that equals 1 if branch offices audit the client, and 0 otherwise.
<i>Accrual</i>	The abnormal accruals estimated using the modified Jones (1991) model (Kothari et al., 2005).
<i>RetVol</i>	The standard deviation of daily stock returns within a year.
<i>Distance</i>	The natural logarithm of the geographic distance between the audit firms' headquarter and its client firm.
<i>Distance_BJ</i>	The natural logarithm of the geographic distance between the audit firms' headquarters and Beijing.
<i>HuaiHe</i>	Indicator that equals 1 if the headquarters of audit firms are located in the Huaihe River basin, and 0 otherwise.

Fig. 1. Comparisons between the sample under examination and a larger sample from 2002 to 2012.



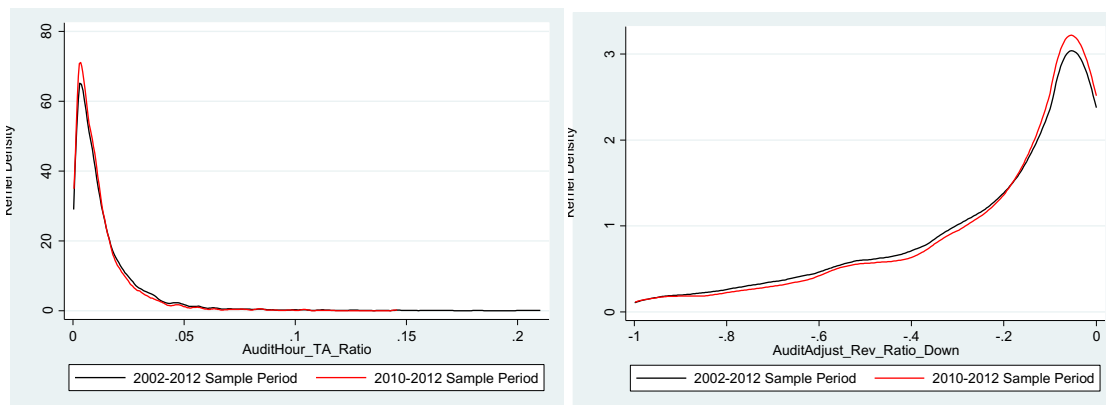
(a) Total Assets

(b) Revenue



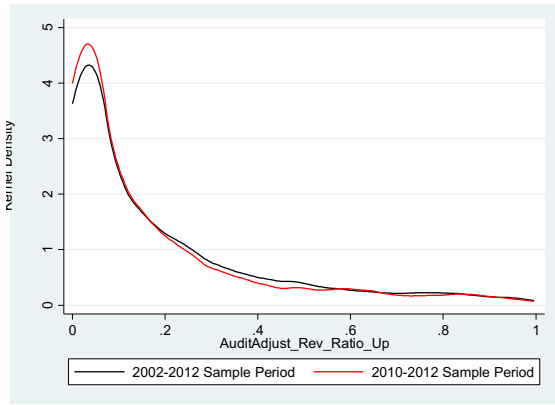
(c) Tobin Q

(d) Revenue Growth



(e) Audit Hour

(f) Audit Adjust_Down



(g) Audit Adjust_Up

Fig 2: Exclusive condition of IVs

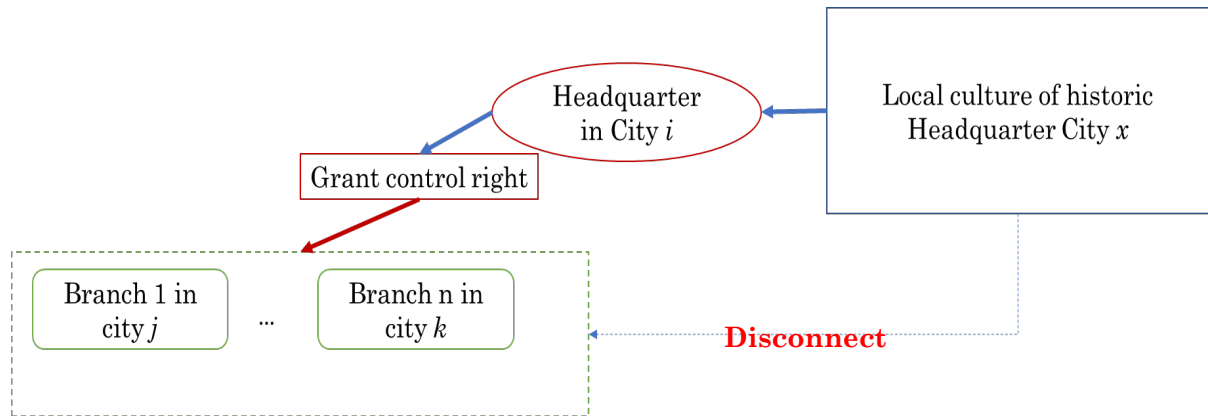


Table 1: Summary statistics**Panel A: The distribution of centralization indicators**

2010

	<i>Centralized rev system</i>		<i>Centralized cost system</i>		<i>Loyalty fees to HQ</i>	
	Yes	No	Yes	No	Yes	No
Number of audit firms	30	22	28	24	18	34
Number of client firms	1315	661	1275	701	588	1388
	<i>Centralized recruiting system</i>		<i>Centralized governance policy</i>		<i>Inspection every year</i>	
	Yes	Yes	No	No	Yes	No
Number of audit firms	26	32	20	26	36	16
Number of client firms	1189	1303	673	787	1611	365

2011

	<i>Centralized rev system</i>		<i>Centralized cost system</i>		<i>Loyalty fees to HQ</i>	
	Yes	No	Yes	No	Yes	No
Number of audit firms	35	15	34	16	12	38
Number of client firms	1896	328	1860	364	282	1942
	<i>Centralized recruiting system</i>		<i>Centralized governance policy</i>		<i>Inspection every year</i>	
	Yes	Yes	No	No	Yes	No
Number of audit firms	29	35	15	21	37	23
Number of client firms	1677	1751	473	547	1888	336

2012

	<i>Centralized rev system</i>		<i>Centralized cost system</i>		<i>Loyalty fees to HQ</i>	
	Yes	No	Yes	No	Yes	No
Number of audit firms	36	11	35	12	9	38
Number of client firms	2209	156	2166	199	146	2219
	<i>Centralized recruiting system</i>		<i>Centralized governance policy</i>		<i>Inspection every year</i>	
	Yes	Yes	No	No	Yes	No
Number of audit firms	30	39	8	17	35	12
Number of client firms	1992	2148	217	373	2027	338

Panel B: Characteristics of the clients of branch offices and headquarter

<i>Variable</i>	<i>Branch offices</i>			<i>Headquarter</i>		
	N	Mean	SD	N	Mean	SD
<i>LnHour</i>	3506	7.645	0.949	3059	7.744	0.989
<i>Adj_Down</i>	3506	0.349	0.477	3059	0.352	0.478
<i>Restatement</i>	3506	0.032	0.177	3059	0.031	0.174
<i>LnAF</i>	3506	13.348	0.693	3059	13.361	0.673
<i>AGov</i>	3506	0.613	0.487	3059	0.537	0.499
<i>IBig4</i>	3506	0.076	0.264	3059	0.032	0.176
<i>DBig10</i>	3506	0.629	0.483	3059	0.481	0.500
<i>LnAuditRev</i>	3506	11.060	0.891	3059	10.601	1.053
<i>LnOfficeRev</i>	3506	8.307	1.234	3059	10.601	1.053
<i>LnTA</i>	3506	21.796	1.304	3059	21.768	1.231
<i>LnSubsidiary</i>	3506	2.060	1.020	3059	2.076	0.980
<i>Leverage</i>	3506	0.444	0.240	3059	0.432	0.243
<i>ROA</i>	3506	0.042	0.047	3059	0.042	0.045
<i>Growth</i>	3506	0.203	0.318	3059	0.195	0.328
<i>RecInv</i>	3506	0.299	0.176	3059	0.291	0.172
<i>CFO</i>	3506	0.036	0.077	3059	0.035	0.080
<i>Tenure</i>	3506	6.208	4.669	3059	7.892	5.097

Notes: Panel A of this table reports the sample distribution of centralization indicators. Panel B presents descriptive statistics for the main variables used throughout the paper. The sample of each panel includes all clients of either *audit firm headquarters* or *audit branches* from 2010 to 2012. Appendix A provides variable definitions.

Table 2: Centralization measures and audit firm operation network

<i>Dependent Variable</i>	<i>Govscore</i>	<i>AGov</i>	<i>Centralized rev system</i>	<i>Centralized cost system</i>	<i>Royalty fees to HQ</i>	<i>Centralized recruiting system</i>	<i>Centralized governance policy</i>	<i>Inspection every year</i>
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>BranchNum</i>	-0.040** (-2.03)	-0.044* (-1.76)	-0.066** (-2.39)	-0.038* (-1.69)	0.078*** (3.14)	-0.060** (-2.24)	0.024 (0.98)	-0.022 (-0.87)
<i>IBig4</i>	-0.453 (-1.27)	-1.261** (-2.36)	-1.314** (-2.45)	-0.820 (-1.56)	- -	-0.041 (-0.08)	-0.181 (-0.37)	-0.061 (-0.10)
<i>DBig10</i>	-0.302 (-0.73)	-0.041 (-0.09)	-0.183 (-0.32)	-0.821 (-1.62)	-0.002 (-0.00)	-0.583 (-1.19)	-0.073 (-0.14)	-0.854* (-1.65)
<i>Constant</i>	-	1.040** (1.98)	2.302*** (4.23)	1.435*** (2.75)	-1.642*** (-3.96)	0.633 (1.32)	0.107 (0.24)	1.345*** (2.85)
<i>N</i>	145	145	145	145	145	145	145	145
<i>Pseudo R2</i>	0.091	0.199	0.231	0.188	0.140	0.140	0.050	0.182

Notes: The sample of this table includes audit firms with qualifications with audit-listed firms from 2010 to 2012. We employ the following Probit Model: $Govscore = \beta_0 + \beta_1 BranchNum + \beta_2 X + \varepsilon$. The dependent variable *Govscore* is the sum of 6 separate indicators of auditor centralization (the indicator of royalty fees needs to time -1). *BranchNum* is the number of audit firms' branches; Details for the other variables are provided in Appendix A. Standard errors are robust. ***, **, and * indicate two-tailed t-statistics with statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 3: Centralization and audit effort: Local branches

<i>Dependent Variable</i>	<i>LnHour</i>						<i>GovScore</i>
	<i>Financial Control</i>		<i>Strategic Control</i>		<i>Operational Control</i>		
	<i>Centralized rev system</i>	<i>Centralized cost system</i>	<i>Royalty fees to HQ</i>	<i>Centralized recruiting system</i>	<i>Centralized governance policy</i>	<i>Inspection every year</i>	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>AGov</i>	0.152*** (3.56)	0.143*** (3.53)	-0.119*** (-2.78)	0.187*** (5.35)	0.086* (1.94)	0.084* (1.75)	0.174*** (4.71)
<i>IBig4</i>	0.928*** (6.97)	0.915*** (6.94)	0.870*** (6.68)	0.910*** (7.12)	0.872*** (6.50)	0.863*** (6.65)	0.988*** (7.44)
<i>DBig10</i>	0.148*** (2.59)	0.140** (2.49)	0.133** (2.35)	0.122** (2.19)	0.101* (1.80)	0.122** (2.19)	0.106* (1.90)
<i>LnAuditRev</i>	-0.079** (-2.09)	-0.074** (-2.00)	-0.069* (-1.85)	-0.072** (-2.00)	-0.040 (-1.12)	-0.052 (-1.46)	-0.077** (-2.08)
<i>LnOfficeRev</i>	-0.019 (-1.28)	-0.020 (-1.36)	-0.016 (-1.10)	-0.025* (-1.65)	-0.020 (-1.32)	-0.019 (-1.28)	-0.024* (-1.65)
<i>LnTA</i>	0.277*** (13.33)	0.276*** (13.30)	0.277*** (13.32)	0.273*** (13.33)	0.276*** (13.23)	0.277*** (13.28)	0.276*** (13.30)
<i>LnSubsidy</i>	0.286*** (13.71)	0.287*** (13.76)	0.287*** (13.74)	0.288*** (13.93)	0.285*** (13.68)	0.285*** (13.66)	0.284*** (13.67)
<i>Leverage</i>	0.143* (1.73)	0.144* (1.74)	0.147* (1.77)	0.147* (1.77)	0.144* (1.74)	0.141* (1.69)	0.143* (1.73)
<i>ROA</i>	-0.872** (-2.35)	-0.873** (-2.35)	-0.877** (-2.36)	-0.907** (-2.45)	-0.940** (-2.54)	-0.919** (-2.47)	-0.917** (-2.47)
<i>Growth</i>	0.118*** (2.58)	0.118*** (2.59)	0.120*** (2.64)	0.114** (2.49)	0.121*** (2.67)	0.123*** (2.69)	0.115** (2.52)
<i>RecInv</i>	0.360** (2.11)	0.356** (2.09)	0.356** (2.09)	0.356** (2.12)	0.346** (2.03)	0.352** (2.07)	0.363** (2.15)
<i>CFO</i>	0.681*** (3.47)	0.684*** (3.50)	0.670*** (3.40)	0.658*** (3.39)	0.667*** (3.37)	0.675*** (3.44)	0.657*** (3.35)
<i>Tenure</i>	-0.015*** (-4.09)	-0.015*** (-4.07)	-0.014*** (-3.93)	-0.014*** (-3.79)	-0.015*** (-4.02)	-0.015*** (-4.05)	-0.014*** (-3.89)

<i>Constant</i>	1.770*** (3.16)	1.753*** (3.15)	1.793*** (3.19)	1.842*** (3.38)	1.460*** (2.63)	1.535*** (2.80)	1.868*** (3.34)
<i>Year FE</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Industry FE</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	3506	3506	3506	3506	3506	3506	3506
<i>Adj-R²</i>	0.479	0.479	0.478	0.483	0.477	0.477	0.482

Notes: This table's sample includes all audit branches' clients from 2010 to 2012. We employ the following OLS Model: $LnHour = \beta_0 + \beta_1 AGov + \beta_2 X + \varepsilon$. The dependent variable *LnHour* is the natural logarithm of audit hours. *AGov* is an indicator variable capturing the centralized organization based on revenue collection, cost allocations, royalties, recruiting system, and centralized inspection in columns (1) to (6). In column (7), *Agov* is defined based on the total centralization degree score. Details of other variables are in Appendix A. Standard errors are clustered at the firm level. ***, **, and * indicate two-tailed t-statistics with statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 4: Centralization and audit adjustment: Local audit branches

<i>Dependent Variable</i>	<i>Adj_Down</i>						<i>GovScore</i>
	<i>Financial Control</i>		<i>Strategic Control</i>		<i>Operational Control</i>		
	<i>Centralized rev system</i>	<i>Centralized cost system</i>	<i>Royalty fees to HQ</i>	<i>Centralized recruiting system</i>	<i>Centralized governance policy</i>	<i>Inspection every year</i>	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>AGov</i>	0.038 (1.05)	0.052* (1.74)	-0.247*** (-3.41)	0.206*** (3.22)	0.213*** (2.88)	0.177* (1.82)	0.255*** (3.90)
<i>LnHour</i>	0.070*** (2.70)	0.070* (1.79)	0.065* (1.67)	0.059 (1.50)	0.067* (1.73)	0.069* (1.78)	0.059 (1.51)
<i>IBig4</i>	-0.855*** (-7.39)	-0.851*** (-3.65)	-0.820*** (-3.56)	-0.794*** (-3.43)	-0.800*** (-3.49)	-0.824*** (-3.58)	-0.656*** (-2.80)
<i>DBig10</i>	-0.172*** (-2.77)	-0.171 (-1.60)	-0.142 (-1.33)	-0.175 (-1.64)	-0.208* (-1.94)	-0.160 (-1.50)	-0.193* (-1.80)
<i>LnAuditRev</i>	0.100* (1.84)	0.098 (1.40)	0.052 (0.74)	0.078 (1.13)	0.107 (1.56)	0.082 (1.20)	0.056 (0.80)
<i>LnOfficeRev</i>	-0.000 (-0.01)	-0.001 (-0.04)	0.002 (0.07)	-0.009 (-0.31)	-0.007 (-0.27)	-0.005 (-0.18)	-0.011 (-0.40)
<i>LnTA</i>	-0.098*** (-3.68)	-0.098*** (-2.86)	-0.094*** (-2.77)	-0.098*** (-2.86)	-0.097*** (-2.85)	-0.096*** (-2.80)	-0.095*** (-2.79)
<i>LnSubsidy</i>	0.110** (2.17)	0.110*** (2.95)	0.113*** (3.02)	0.116*** (3.09)	0.109*** (2.91)	0.109*** (2.93)	0.111*** (2.98)
<i>Leverage</i>	-0.162* (-1.77)	-0.161 (-1.09)	-0.152 (-1.03)	-0.155 (-1.05)	-0.157 (-1.06)	-0.166 (-1.12)	-0.159 (-1.08)
<i>ROA</i>	-0.909 (-1.05)	-0.906 (-1.28)	-0.863 (-1.22)	-0.933 (-1.32)	-1.008 (-1.42)	-0.947 (-1.34)	-0.947 (-1.34)
<i>Growth</i>	0.116*** (3.40)	0.116 (1.56)	0.114 (1.54)	0.110 (1.48)	0.117 (1.57)	0.119 (1.59)	0.111 (1.48)
<i>RecInv</i>	0.006 (0.03)	0.006 (0.02)	0.015 (0.05)	0.013 (0.04)	-0.011 (-0.04)	0.004 (0.01)	0.024 (0.08)
<i>CFO</i>	-0.931*** (-6.20)	-0.929*** (-2.64)	-0.950*** (-2.71)	-0.948*** (-2.69)	-0.968*** (-2.75)	-0.944*** (-2.67)	-0.963*** (-2.74)

<i>Tenure</i>	0.011** (2.54)	0.011* (1.72)	0.011* (1.80)	0.012* (1.88)	0.011* (1.72)	0.011* (1.68)	0.012* (1.84)
<i>Constant</i>	0.293 (0.62)	0.318 (0.34)	0.821 (0.86)	0.608 (0.64)	0.190 (0.20)	0.351 (0.37)	0.806 (0.85)
<i>Year FE</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Industry FE</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	3506	3506	3506	3506	3506	3506	3506
<i>Pseudo-R²</i>	0.036	0.036	0.039	0.039	0.039	0.037	0.041

Notes: This table's sample includes all audit branches' clients from 2010 to 2012. We employ the following Probit Model: $Adj_Down = \beta_0 + \beta_1 AGov + \beta_2 X + \varepsilon$. The dependent variable *Adj_Down* is an indicator that equals 1 if a client's post-audit earnings are less than pre-audit earnings, and 0 otherwise. *AGov* is an indicator variable capturing the centralized organization based on revenue collection, cost allocations, royalties, recruiting system, and centralized inspection in columns (1) to (6). In column (7), *Agov* is defined based on the total centralization degree score. Details of other variables are in Appendix A. Standard errors are clustered at the firm level. ***, **, and * indicate two-tailed t-statistics with statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 5: Centralization and restatement: Local audit branches

<i>Dependent Variable</i>	<i>Restatement</i>						<i>GovScore</i>
	<i>Financial Control</i>		<i>Strategic Control</i>		<i>Operational Control</i>		
	<i>Centralized rev system</i>	<i>Centralized cost system</i>	<i>Royalty fees to HQ</i>	<i>Centralized recruiting system</i>	<i>Centralized governance policy</i>	<i>Inspection every year</i>	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>AGov</i>	-0.254** (-2.07)	-0.325*** (-3.84)	0.166*** (2.69)	-0.170** (-2.37)	0.026 (0.30)	-0.256*** (-2.70)	-0.143* (-1.65)
<i>LnHour</i>	-0.035 (-0.59)	-0.030 (-0.51)	-0.043 (-0.78)	-0.037 (-0.65)	-0.051 (-0.95)	-0.043 (-0.76)	-0.042 (-0.76)
<i>IBig4</i>	-0.328* (-1.76)	-0.347* (-1.67)	-0.190 (-0.81)	-0.209 (-0.93)	-0.132 (-0.51)	-0.238 (-0.96)	-0.262 (-1.11)
<i>DBig10</i>	-0.140 (-1.61)	-0.137 (-1.34)	-0.096 (-0.84)	-0.068 (-0.64)	-0.070 (-0.67)	-0.104 (-0.88)	-0.058 (-0.53)
<i>LnAuditRev</i>	0.010 (0.17)	0.021 (0.27)	-0.026 (-0.27)	-0.043 (-0.46)	-0.070 (-0.72)	-0.021 (-0.20)	-0.039 (-0.40)
<i>LnOfficeRev</i>	-0.007 (-0.27)	-0.004 (-0.15)	-0.013 (-0.56)	-0.004 (-0.19)	-0.013 (-0.61)	-0.005 (-0.25)	-0.007 (-0.30)
<i>LnTA</i>	0.029 (0.66)	0.031 (0.69)	0.034 (0.76)	0.038 (0.88)	0.037 (0.83)	0.031 (0.68)	0.035 (0.79)
<i>LnSubsidy</i>	-0.025 (-0.61)	-0.031 (-0.74)	-0.025 (-0.61)	-0.030 (-0.74)	-0.021 (-0.51)	-0.021 (-0.50)	-0.024 (-0.58)
<i>Leverage</i>	0.210 (1.53)	0.196 (1.47)	0.204 (1.64)	0.206 (1.63)	0.223* (1.78)	0.221* (1.77)	0.215* (1.70)
<i>ROA</i>	-2.462*** (-4.69)	-2.503*** (-4.77)	-2.436*** (-4.54)	-2.372*** (-4.19)	-2.357*** (-4.24)	-2.330*** (-4.08)	-2.353*** (-4.20)
<i>Growth</i>	-0.154 (-1.34)	-0.145 (-1.29)	-0.160 (-1.47)	-0.153 (-1.49)	-0.166 (-1.55)	-0.158 (-1.54)	-0.154 (-1.50)
<i>RecInv</i>	-0.774*** (-4.93)	-0.759*** (-4.46)	-0.762*** (-5.13)	-0.761*** (-5.01)	-0.762*** (-5.33)	-0.736*** (-5.26)	-0.760*** (-5.20)
<i>CFO</i>	-0.458 (-0.66)	-0.476 (-0.68)	-0.425 (-0.62)	-0.428 (-0.63)	-0.459 (-0.69)	-0.449 (-0.66)	-0.438 (-0.65)

<i>Tenure</i>	-0.001 (-0.19)	-0.001 (-0.14)	-0.002 (-0.32)	-0.003 (-0.34)	-0.002 (-0.21)	-0.001 (-0.08)	-0.002 (-0.30)
<i>Constant</i>	-1.096 (-1.07)	-1.279 (-1.23)	-0.952 (-0.93)	-0.877 (-0.86)	-0.502 (-0.47)	-0.767 (-0.73)	-0.829 (-0.80)
<i>Year FE</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Industry FE</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	3268	3268	3268	3268	3268	3268	3268
<i>Pseudo-R²</i>	0.060	0.063	0.057	0.058	0.055	0.060	0.057

Notes: This table's sample includes all audit branches' clients from 2010 to 2012. We employ the following Probit Model: $Restatement = \beta_0 + \beta_1 AGov + \beta_2 X + \varepsilon$. The dependent variable *Restatement* is an indicator that equals 1 if clients' annual financial statement is restated before 2019, and 0 otherwise. *AGov* is an indicator variable capturing the centralized organization based on revenue collection, cost allocations, royalties, recruiting system, and centralized inspection in columns (1) to (6). In column (7), *Agov* is defined based on the total centralization degree score. Details for the other variables are provided in Appendix A. Standard errors are clustered at the firm level. ***, **, and * indicate two-tailed t-statistics with statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 6: Audit firm internal control right allocation and headquarter auditor incentives/audit quality

	<i>Financial Control</i>		<i>Strategic Control</i>		<i>Operational Control</i>		
	<i>Centralized rev system</i>	<i>Centralized cost system</i>	<i>Royalty fees to HQ</i>	<i>Centralized recruiting system</i>	<i>Centralized governance policy</i>	<i>Inspection every year</i>	<i>GovScore</i>
<i>Panel A: Dependent Variable=LnHour</i>							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>AGov</i>	0.025 (0.55)	-0.049 (-1.08)	-0.054 (-0.92)	-0.009 (-0.19)	-0.052 (-1.19)	0.033 (0.67)	0.013 (0.30)
<i>Panel B: Dependent Variable=Adj_Down</i>							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>AGov</i>	0.002 (0.02)	-0.055 (-0.69)	-0.184** (-2.04)	0.109 (1.43)	0.093 (1.30)	0.086 (1.04)	0.081 (1.10)
<i>Panel C: Dependent Variable=Restatement</i>							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>AGov</i>	0.009 (0.08)	-0.061 (-0.51)	0.090 (0.68)	-0.076 (-0.68)	-0.014 (-0.12)	0.078 (0.64)	0.075 (0.55)

Notes: The dependent variable in Panel A is audit effort. We employ the same specification as that in Table 3. The dependent variable in Panel B is the audit downward adjustment indicator. We use the same specification as that in Table 4. The dependent variable in Panel C is the restatement indicator. We employ the same specification as that in Table 5. The sample of each panel consists of clients of *audit firm headquarters* from 2010 to 2012. *AGov* is an indicator variable capturing the centralized organization based on revenue collection, cost allocation, royalties, recruiting system, and centralized inspection in columns (1) to (6). In column (7), *Agov* is defined based on the total centralization degree score. Details for the other variables are given in Appendix A. Standard errors are clustered at the firm level. ***, **, and * indicate two-tailed t-statistics with statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 7: Endogeneity test

Panel A: IV regression								
<i>Dependent Variable</i>	<i>AGov (based on Govscore)</i>	<i>LnHour</i>	<i>Adj_Down</i>	<i>Restateme nt</i>	<i>AGov (based on Govscore)</i>	<i>LnHour</i>	<i>Adj_Down</i>	<i>Restatemen t</i>
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Fitted AGov</i>		0.152**	0.243***	-0.053**		0.152**	0.152***	-0.024*
		(2.29)	(3.82)	(-2.51)		(2.43)	(3.27)	(-1.67)
<i>LConTemple</i>	1.178***							
	(14.29)							
<i>Rice</i>					1.719***			
					(17.56)			
<i>Distance_BJ</i>	-0.165***	-0.005	-0.003	-0.002	-0.152***	-0.005	-0.007**	-0.001
	(-11.97)	(-1.12)	(-1.19)	(-1.53)	(-12.52)	(-1.08)	(-2.30)	(-1.26)
<i>HuaiHe</i>					-0.829***	-0.003	-0.067**	-0.005
					(-7.52)	(-0.09)	(-2.46)	(-0.51)
Auditor level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Client level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Year FE</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Industry FE</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	3505	3505	3505	3500	3505	3505	3505	3500
<i>Pseudo-R²/Wald Chi²</i>	0.388	2658.20	215.29	106.92	0.439	2667.80	237.31	120.01

Panel B: A setting based on audit firm M&As

<i>Dependent Variable</i>	<i>LnHour</i>	<i>Adj_Down</i>	<i>Restatement</i>
	(1)	(2)	(3)
<i>AGov_MA×Post</i>	0.239**	0.240*	-0.877***
	(2.61)	(1.69)	(-5.26)
<i>LnHour</i>		0.121**	0.029
		(2.09)	(0.46)
<i>DBig10</i>	0.158**	-0.229	-0.817**
	(2.19)	(-0.99)	(-2.19)
<i>LnAuditRev</i>	-0.150***	0.328***	0.300*
	(-4.69)	(3.27)	(1.89)
<i>LnOfficeRev</i>	0.031	-0.007	0.009
	(1.27)	(-0.21)	(0.08)
<i>LnTA</i>	0.245***	-0.001	-0.080*
	(9.75)	(-0.02)	(-1.81)
<i>LnSubsidy</i>	0.322***	0.146***	0.096**
	(7.22)	(4.02)	(2.36)
<i>Leverage</i>	0.203**	-0.381**	0.138
	(2.25)	(-2.29)	(0.86)
<i>ROA</i>	-0.359	-0.443	-2.125*
	(-1.05)	(-1.40)	(-1.80)
<i>Growth</i>	0.093*	0.128	-0.105
	(1.73)	(1.15)	(-0.43)
<i>RecInv</i>	0.210*	1.037***	-0.258
	(1.89)	(5.80)	(-1.35)
<i>CFO</i>	-0.304	-0.944*	-2.107***
	(-1.05)	(-1.80)	(-3.14)
<i>Tenure</i>	-0.017***	0.002	0.037**
	(-5.27)	(0.37)	(2.07)
<i>Constant</i>	3.436***	-1.479	-2.706*
	(5.47)	(-0.97)	(-1.80)
<i>Audit Branch FE</i>	Yes	Yes	Yes
<i>Year FE</i>	Yes	Yes	Yes
<i>Industry FE</i>	Yes	Yes	Yes

<i>N</i>	1082	1026	763
<i>Adj-R²/ Pseudo-R²</i>	0.451	0.096	0.101

Notes: The sample of Panel A consists of clients of audit firm branches from 2010 to 2012. *Agov* is defined based on the total centralization degree score. *LConTemple* is the natural logarithm number of Confucian temples near the audit firm's historic headquarters. *Rice is* an indicator that equals 1 if the audit firm's historic headquarters is in a rice-farming region, and 0 otherwise. The sample of Panel B consists of clients of audit firms from 2010 to 2012 based on four audit firm mergers in 2011 or 2012. *Agov_MA* is an indicator that equals 1 if the centralization score after the acquisitions is higher than before, and 0 otherwise. *Post* is an indicator that equals 1 if the observations are in the year or after the acquisitions, and 0 otherwise. Details of other variables are given in Appendix A. Standard errors are clustered at the firm level. ***, **, and * indicate two-tailed t-statistics with statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 8: Balancing coordination costs and information acquisition costs

Panel A: The opening of a high-speed railroad station							
	<i>Financial Control</i>		<i>Strategic Control</i>		<i>Operational Control</i>		
	<i>Centralized rev system</i>	<i>Centralized cost system</i>	<i>Royalty fees to HQ</i>	<i>Centralized recruiting system</i>	<i>Centralized governance policy</i>	<i>Inspection every year</i>	<i>GovScore</i>
<i>Dependent Variable: LnHour</i>							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>HST</i>	-0.109 (-1.53)	-0.059 (-0.90)	0.024 (1.46)	-0.117** (-2.10)	-0.054 (-0.84)	-0.049 (-1.28)	-0.060 (-1.21)
<i>AGov</i>	0.103** (2.08)	0.113** (2.37)	-0.055 (-1.21)	0.128*** (3.23)	0.054* (1.89)	0.034 (0.70)	0.131*** (3.17)
<i>HST×AGov</i>	0.130* (1.83)	0.084 (1.22)	-0.115** (-2.05)	0.162** (2.57)	0.075 (0.95)	0.065 (0.72)	0.111** (1.97)
<i>N</i>	3506	3506	3506	3506	3506	3506	3506
<i>Adj-R²</i>	0.480	0.479	0.480	0.484	0.477	0.476	0.482
<i>Dependent Variable: Adj_Down</i>							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>HST</i>	-0.156 (-1.23)	-0.144 (-1.16)	0.050 (1.23)	-0.014 (-0.19)	-0.013 (-0.18)	-0.194** (-2.33)	0.000 (0.01)
<i>AGov</i>	-0.003 (-0.12)	0.007 (0.24)	-0.225*** (-2.70)	0.186** (2.48)	0.194** (2.25)	0.132** (2.28)	0.141*** (3.09)
<i>HST×AGov</i>	0.231* (1.74)	0.221* (1.69)	-0.068 (-0.62)	0.060 (0.71)	0.057 (0.67)	0.279** (2.09)	0.161** (2.14)
<i>N</i>	3506	3506	3506	3506	3506	3506	3506
<i>Pseudo-R²</i>	0.036	0.037	0.039	0.039	0.038	0.038	0.041
<i>Dependent Variable: Restatement</i>							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>HST</i>	0.141 (1.40)	0.160 (1.47)	0.116 (1.35)	0.163* (1.70)	0.355*** (3.21)	0.169* (1.94)	0.215*** (2.91)
<i>AGov</i>	-0.259* (-1.94)	-0.324*** (-2.58)	0.239*** (1.94)	-0.201*** (-1.58)	0.101 (0.84)	-0.237** (-1.94)	-0.124* (-1.14)

	(-1.83)	(-3.77)	(2.81)	(-2.95)	(0.91)	(-2.17)	(-1.71)
<i>HST</i> × <i>AGov</i>	0.036	0.017	0.185*	0.031	-0.220*	-0.016	-0.174*
	(0.31)	(0.12)	(1.75)	(0.27)	(-1.69)	(-0.16)	(-1.72)
<i>N</i>	3268	3268	3268	3268	3268	3268	3268
<i>Pseudo-R</i> ²	0.063	0.067	0.061	0.062	0.059	0.062	0.060

Panel B: Information technology investment

	<i>Financial Control</i>		<i>Strategic Control</i>		<i>Operational Control</i>		
	<i>Centralized rev system</i>	<i>Centralized cost system</i>	<i>Royalty fees to HQ</i>	<i>Centralized recruiting system</i>	<i>Centralized governance policy</i>	<i>Inspection every year</i>	<i>GovScore</i>
<i>Dependent Variable: LnHour</i>							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>HIT</i>	-0.083	-0.094	0.054	-0.211***	-0.165*	-0.111	-0.290***
	(-1.17)	(-1.35)	(1.60)	(-4.64)	(-2.05)	(-1.50)	(-4.94)
<i>AGov</i>	0.101*	0.094*	-0.026	0.096**	0.003	0.024	0.015
	(1.92)	(1.92)	(-0.56)	(2.29)	(0.08)	(0.62)	(0.46)
<i>HIT</i> × <i>AGov</i>	0.126*	0.131*	-0.228***	0.233***	0.178**	0.141*	0.359***
	(1.70)	(1.80)	(-3.04)	(3.44)	(2.02)	(1.75)	(5.45)
<i>N</i>	3506	3506	3506	3506	3506	3506	3506
<i>Adj-R</i> ²	0.480	0.479	0.478	0.484	0.478	0.477	0.486
<i>Dependent Variable: Adj_Down</i>							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>HIT</i>	-0.077	-0.070	0.082	0.000	-0.180**	-1.016***	-0.095
	(-0.55)	(-0.54)	(1.44)	(0.19)	(-2.18)	(-6.90)	(-1.12)
<i>AGov</i>	-0.020	-0.011	-0.259***	0.174***	0.089	-0.056	0.194***
	(-0.32)	(-0.24)	(-4.81)	(5.21)	(1.04)	(-1.28)	(5.51)
<i>HIT</i> × <i>AGov</i>	0.226*	0.218*	0.036	0.070	0.317**	1.193***	0.158*
	(1.82)	(1.89)	(0.30)	(0.99)	(2.43)	(6.77)	(1.94)
<i>N</i>	3506	3506	3506	3506	3506	3506	3506
<i>Pseudo-R</i> ²	0.037	0.037	0.040	0.039	0.040	0.038	0.041
<i>Dependent Variable: Restatement</i>							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>HIT</i>	-0.113	-0.152	-0.161	0.047	-0.016	0.463***	0.124

<i>AGov</i>	(-1.02) -0.238*	(-1.58) -0.329***	(-1.60) 0.095	(0.39) -0.082	(-0.11) 0.081	(4.07) -0.045	(1.09) 0.008
<i>HIT×AGov</i>	(-1.63) -0.001	(-3.60) 0.085	(1.12) 0.224	(-0.92) -0.191*	(0.68) -0.141	(-0.43) -0.658***	(0.07) -0.326***
<i>N</i>	3268	3268	3268	3268	3268	3268	3268
<i>Pseudo-R</i> ²	0.061	0.064	0.060	0.062	0.059	0.067	0.060

Panel C: Client complexity

	<i>Financial Control</i>		<i>Strategic Control</i>		<i>Operational Control</i>		
	<i>Centralized rev system</i>	<i>Centralized cost system</i>	<i>Royalty fees to HQ</i>	<i>Centralized recruiting system</i>	<i>Centralized governance policy</i>	<i>Inspection every year</i>	<i>GovScore</i>
<i>Dependent Variable: LnHour</i>							
<i>Complex</i>	(1) 0.045 (0.96)	(2) 0.002 (0.04)	(3) -0.119*** (-3.46)	(4) -0.019 (-0.42)	(5) -0.023 (-0.23)	(6) 0.019 (0.26)	(7) -0.027 (-0.62)
<i>AGov</i>	0.207*** (3.38)	0.180*** (2.96)	-0.140** (-2.47)	0.229*** (5.11)	0.127** (2.61)	0.127*** (3.24)	0.206*** (6.51)
<i>Complex×AGov</i>	-0.177*** (-3.38)	-0.127* (-1.88)	0.090 (1.45)	-0.119** (-2.46)	-0.094 (-0.92)	-0.133* (-1.83)	-0.115** (-2.74)
<i>N</i>	3506	3506	3506	3506	3506	3506	3506
<i>Adj-R</i> ²	0.480	0.479	0.478	0.483	0.478	0.478	0.482
<i>Dependent Variable: Adj_Down</i>							
<i>Complex</i>	(1) 0.011 (0.16)	(2) 0.110 (1.41)	(3) 0.044 (0.65)	(4) 0.050 (0.62)	(5) 0.116 (1.13)	(6) 0.095 (0.45)	(7) 0.047 (0.57)
<i>AGov</i>	0.050 (1.07)	0.094* (1.97)	-0.227*** (-4.14)	0.155*** (3.25)	0.124** (2.36)	0.130* (1.74)	0.197*** (4.64)
<i>Complex×AGov</i>	-0.052 (-1.00)	-0.177** (-2.15)	0.070 (0.72)	-0.119** (-2.11)	-0.175* (-1.94)	-0.141 (-0.74)	-0.131*** (-2.72)
<i>N</i>	3506	3506	3506	3506	3506	3506	3506
<i>Pseudo-R</i> ²	0.036	0.036	0.039	0.039	0.038	0.037	0.041
<i>Dependent Variable: Restatement</i>							

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Complex</i>	0.220*** (3.41)	0.197** (2.15)	0.045 (0.47)	0.257** (2.45)	0.395*** (2.76)	0.142 (1.22)	0.186** (2.23)
<i>AGov</i>	-0.173 (-0.95)	-0.252* (-1.74)	0.056 (0.45)	-0.049 (-0.65)	0.217** (2.53)	-0.236*** (-3.37)	-0.077 (-0.82)
<i>Complex</i>×<i>AGov</i>	-0.154* (-1.76)	-0.129 (-1.09)	0.235 (1.54)	-0.256*** (-2.63)	-0.365*** (-2.70)	-0.053 (-0.46)	-0.155* (-1.92)
<i>N</i>	3268	3268	3268	3268	3268	3268	3268
<i>Pseudo-R</i> ²	0.061	0.064	0.059	0.060	0.058	0.060	0.058

Notes: This table's sample includes all audit branches' clients from 2010 to 2012. *HST* is an indicator that equals 1 if the city of audit engagement has opened a high-speed railroad station, and 0 otherwise. *HIT* is an indicator that equals 1 if the audit firms' ratio of information technology expenditure to total revenue is greater than the median, and 0 otherwise. *Complex* is defined as an indicator that equals 1 if the number of subsidiaries is greater than the sample median, and 0 otherwise. Details of other variables are given in Appendix A. Standard errors are clustered at the firm level. ***, **, and * indicate two-tailed t-statistics with statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 9: Audit firm internal control right allocation and audit fees

<i>Panel A: Local branches</i>							
<i>Dependent Variable</i>	<i>LnAF</i>						<i>GovScore</i>
	<i>Financial Control</i>		<i>Strategic Control</i>		<i>Operational Control</i>		
	<i>Centralized rev system</i>	<i>Centralized cost system</i>	<i>Royalty fees to HQ</i>	<i>Centralized recruiting system</i>	<i>Centralized governance policy</i>	<i>Inspection every year</i>	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>AGov</i>	0.020 (0.78)	0.041* (1.75)	-0.029* (-1.69)	0.063*** (3.05)	0.031 (1.17)	-0.010 (-0.36)	0.049** (2.29)
<i>LnHour</i>	0.149*** (9.67)	0.148*** (9.62)	0.149*** (9.71)	0.145*** (9.50)	0.149*** (9.71)	0.150*** (9.77)	0.147*** (9.60)
<i>IBig4</i>	0.782*** (9.83)	0.792*** (10.07)	0.778*** (10.02)	0.797*** (10.22)	0.782*** (9.91)	0.766*** (9.88)	0.814*** (10.24)
<i>DBig10</i>	0.079** (2.34)	0.082** (2.47)	0.079** (2.39)	0.078** (2.37)	0.070** (2.17)	0.073** (2.21)	0.073** (2.21)
<i>LnAuditRev</i>	-0.024 (-1.07)	-0.029 (-1.31)	-0.026 (-1.19)	-0.030 (-1.39)	-0.019 (-0.91)	-0.017 (-0.81)	-0.030 (-1.35)
<i>LnOfficeRev</i>	0.050*** (4.78)	0.049*** (4.73)	0.050*** (4.81)	0.048*** (4.56)	0.049*** (4.65)	0.051*** (4.79)	0.048*** (4.56)
<i>LnTA</i>	0.272*** (18.07)	0.272*** (18.11)	0.272*** (18.06)	0.271*** (18.17)	0.271*** (18.11)	0.271*** (18.01)	0.272*** (18.17)
<i>LnSubsidy</i>	0.056*** (4.08)	0.057*** (4.12)	0.057*** (4.09)	0.058*** (4.24)	0.056*** (4.05)	0.056*** (4.06)	0.057*** (4.10)
<i>Leverage</i>	-0.044 (-0.89)	-0.044 (-0.89)	-0.043 (-0.87)	-0.043 (-0.86)	-0.044 (-0.88)	-0.044 (-0.89)	-0.044 (-0.89)
<i>ROA</i>	-0.136 (-0.58)	-0.132 (-0.56)	-0.134 (-0.57)	-0.145 (-0.61)	-0.152 (-0.64)	-0.138 (-0.58)	-0.146 (-0.62)
<i>Growth</i>	-0.032 (-1.41)	-0.032 (-1.43)	-0.032 (-1.40)	-0.034 (-1.50)	-0.032 (-1.40)	-0.031 (-1.38)	-0.033 (-1.46)
<i>RecInv</i>	-0.004 (-0.05)	-0.004 (-0.04)	-0.004 (-0.05)	-0.003 (-0.03)	-0.008 (-0.08)	-0.006 (-0.06)	-0.001 (-0.02)
<i>CFO</i>	0.075	0.077	0.073	0.071	0.069	0.075	0.070

	(0.67)	(0.69)	(0.65)	(0.64)	(0.63)	(0.67)	(0.63)
<i>Tenure</i>	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	(0.45)	(0.44)	(0.50)	(0.60)	(0.46)	(0.48)	(0.53)
<i>Constant</i>	5.927***	5.968***	5.965***	6.014***	5.882***	5.881***	6.002***
	(15.90)	(16.04)	(16.14)	(16.35)	(15.93)	(15.97)	(15.97)
<i>Year FE</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Industry FE</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	3268	3268	3268	3268	3268	3268	3268
<i>Adj-R²</i>	0.702	0.702	0.702	0.703	0.702	0.702	0.702

Panel B: Headquarters

<i>Dependent Variable</i>	<i>LnAF</i>						
	<i>Financial Control</i>		<i>Strategic Control</i>		<i>Operational Control</i>		<i>GovScore</i>
	<i>Centralized rev system</i>	<i>Centralized cost system</i>	<i>Royalty fees to HQ</i>	<i>Centralized recruiting system</i>	<i>Centralized governance policy</i>	<i>Inspection every year</i>	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>AGov</i>	0.045	0.073***	-0.090***	0.095***	-0.012	0.038	0.019
	(1.58)	(3.27)	(-3.99)	(9.10)	(-0.81)	(1.17)	(1.00)
<i>LnHour</i>	0.117***	0.118***	0.117***	0.118***	0.117***	0.117***	0.117***
	(7.27)	(7.38)	(7.08)	(7.54)	(7.50)	(7.47)	(7.48)
<i>IBig4</i>	0.827***	0.824***	0.808***	0.827***	0.827***	0.819***	0.829***
	(9.19)	(9.08)	(8.67)	(9.22)	(9.23)	(9.39)	(9.13)
<i>DBig10</i>	0.100***	0.097***	0.099***	0.097***	0.112***	0.100***	0.099***
	(5.33)	(5.51)	(5.99)	(6.86)	(8.01)	(7.72)	(6.36)
<i>LnAuditRev</i>	-0.002	-0.003	-0.007	-0.002	0.010	-0.000	0.003
	(-0.07)	(-0.15)	(-0.33)	(-0.10)	(0.45)	(-0.01)	(0.11)
<i>LnTA</i>	0.270***	0.270***	0.271***	0.270***	0.268***	0.269***	0.268***
	(10.44)	(10.45)	(10.76)	(10.22)	(10.15)	(9.96)	(10.02)
<i>LnSubsidiary</i>	0.098***	0.097***	0.096***	0.098***	0.098***	0.099***	0.098***
	(5.97)	(5.97)	(5.97)	(6.18)	(6.07)	(6.22)	(6.08)
<i>Leverage</i>	-0.007	-0.009	-0.005	-0.004	-0.003	-0.004	-0.006
	(-0.12)	(-0.15)	(-0.09)	(-0.07)	(-0.05)	(-0.07)	(-0.11)
<i>ROA</i>	-0.243	-0.247	-0.258	-0.245	-0.228	-0.236	-0.232
	(-1.23)	(-1.24)	(-1.33)	(-1.24)	(-1.14)	(-1.16)	(-1.15)

<i>Growth</i>	-0.005 (-0.31)	-0.004 (-0.28)	-0.003 (-0.23)	-0.004 (-0.29)	-0.007 (-0.44)	-0.006 (-0.39)	-0.005 (-0.35)
<i>RecInv</i>	0.096 (0.66)	0.101 (0.68)	0.090 (0.62)	0.072 (0.50)	0.082 (0.54)	0.090 (0.57)	0.084 (0.54)
<i>CFO</i>	0.138* (1.87)	0.143* (1.94)	0.144* (2.02)	0.124* (1.77)	0.134* (1.87)	0.140* (1.96)	0.132* (1.85)
<i>Tenure</i>	0.004*** (2.90)	0.004** (2.75)	0.004** (2.75)	0.004** (2.35)	0.005*** (3.01)	0.005*** (3.30)	0.004** (2.88)
<i>Constant</i>	6.178*** (9.90)	6.150*** (9.75)	6.222*** (9.83)	6.149*** (9.54)	6.252*** (9.61)	6.212*** (9.16)	6.245*** (9.54)
<i>Year FE</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Industry FE</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	3059	3059	3059	3059	3059	3059	3059
<i>Adj-R²</i>	0.646	0.647	0.647	0.648	0.645	0.646	0.645

Notes: Panel A consists of *local audit branches* from 2010 to 2012. Panel B consists of all clients of *audit firm headquarters* from 2010 to 2012. We employ the following model: $LnAF = \beta_0 + \beta_1 AGov + \beta_2 X + \varepsilon$ in both panels. The dependent variable, *LnAF* is the natural logarithm of audit fees. *AGov* is an indicator variable capturing the centralized organization based on revenue collection, cost allocations, royalties, recruiting system, and centralized inspection in columns (1) to (6). In column(7), *Agov* is defined as the total centralization score. Details of other variables are given in Appendix A. Standard errors are clustered at the firm level. ***, **, and * indicate two-tailed t-statistics with statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 10: Audit firm internal control right allocation and risk appetite

<i>Panel A: Earnings management</i>							
<i>Dependent Variable</i>	<i>Accrual</i>						<i>GovScore</i>
	<i>Financial Control</i>		<i>Strategic Control</i>		<i>Operational Control</i>		
	<i>Centralized rev system</i>	<i>Centralized cost system</i>	<i>Royalty fees to HQ</i>	<i>Centralized recruiting system</i>	<i>Centralized governance policy</i>	<i>Inspection every year</i>	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>AGov</i>	0.001	0.001	-0.001	0.001	0.001	0.001	0.001
	(0.50)	(0.63)	(-0.63)	(0.31)	(0.62)	(0.49)	(0.36)
<i>IBig4</i>	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	(0.24)	(0.24)	(0.20)	(0.17)	(0.23)	(0.20)	(0.24)
<i>DBig10</i>	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(-0.18)	(-0.19)	(-0.17)	(-0.25)	(-0.31)	(-0.21)	(-0.26)
<i>LnAuditRev</i>	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002
	(-1.20)	(-1.22)	(-1.22)	(-1.14)	(-1.16)	(-1.20)	(-1.16)
<i>LnOfficeRev</i>	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	(1.51)	(1.49)	(1.46)	(1.48)	(1.54)	(1.54)	(1.51)
<i>LnTA</i>	-0.004***	-0.004***	-0.004***	-0.004***	-0.004***	-0.004***	-0.004***
	(-5.13)	(-5.13)	(-5.11)	(-5.16)	(-5.18)	(-5.15)	(-5.16)
<i>LnSubsidy</i>	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***
	(-3.83)	(-3.82)	(-3.84)	(-3.82)	(-3.82)	(-3.82)	(-3.82)
<i>Leverage</i>	0.014***	0.014***	0.014***	0.014***	0.014***	0.014***	0.014***
	(3.30)	(3.30)	(3.31)	(3.31)	(3.30)	(3.30)	(3.29)
<i>ROA</i>	0.152***	0.152***	0.152***	0.152***	0.152***	0.152***	0.152***
	(6.18)	(6.18)	(6.18)	(6.18)	(6.17)	(6.17)	(6.17)
<i>Growth</i>	0.009***	0.009***	0.009***	0.009***	0.009***	0.009***	0.009***
	(3.28)	(3.28)	(3.28)	(3.28)	(3.28)	(3.28)	(3.28)
<i>RecInv</i>	0.000	0.000	0.000	0.000	-0.000	0.000	0.000
	(0.03)	(0.03)	(0.02)	(0.01)	(-0.00)	(0.02)	(0.01)
<i>CFO</i>	-0.179***	-0.179***	-0.179***	-0.179***	-0.179***	-0.179***	-0.179***
	(-9.44)	(-9.44)	(-9.44)	(-9.45)	(-9.45)	(-9.44)	(-9.45)
<i>Tenure</i>	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.000***	-0.001***

	(-3.23)	(-3.24)	(-3.23)	(-3.22)	(-3.26)	(-3.20)	(-3.23)
<i>Constant</i>	0.173***	0.173***	0.174***	0.172***	0.172***	0.173***	0.173***
	(7.59)	(7.62)	(7.54)	(7.60)	(7.62)	(7.63)	(7.55)
<i>Year FE</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Industry FE</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	6545	6545	6545	6545	6545	6545	6545
<i>Adj-R²</i>	0.119	0.119	0.119	0.119	0.119	0.119	0.119

Panel B: Stock return volatility

<i>Dependent Variable</i>	<i>RetVol</i>						
	<i>Financial Control</i>		<i>Strategic Control</i>		<i>Operational Control</i>		<i>GovScore</i>
	<i>Centralized rev system</i>	<i>Centralized cost system</i>	<i>Royalty fees to HQ</i>	<i>Centralized recruiting system</i>	<i>Centralized governance policy</i>	<i>Inspection every year</i>	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	
<i>AGov</i>	0.001	0.001	-0.001	-0.002	-0.002	-0.000	-0.001
	(1.20)	(1.27)	(-1.18)	(-1.50)	(-1.36)	(-0.26)	(-1.35)
<i>IBig4</i>	-0.004	-0.004	-0.004	-0.005	-0.005	-0.004	-0.005
	(-1.12)	(-1.12)	(-1.16)	(-1.23)	(-1.24)	(-1.26)	(-1.27)
<i>DBig10</i>	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002
	(-0.73)	(-0.73)	(-0.73)	(-0.80)	(-0.73)	(-0.81)	(-0.78)
<i>LnAuditRev</i>	0.000	0.000	0.000	0.001	0.001	0.001	0.001
	(0.33)	(0.33)	(0.35)	(0.59)	(0.56)	(0.56)	(0.65)
<i>LnOfficeRev</i>	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(-0.26)	(-0.27)	(-0.30)	(-0.04)	(-0.22)	(-0.24)	(-0.19)
<i>LnTA</i>	-0.002***	-0.002***	-0.002***	-0.002***	-0.002***	-0.002***	-0.002***
	(-3.71)	(-3.70)	(-3.69)	(-3.74)	(-3.71)	(-3.71)	(-3.73)
<i>LnSubsidy</i>	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(-0.76)	(-0.75)	(-0.78)	(-0.76)	(-0.74)	(-0.77)	(-0.76)
<i>Leverage</i>	0.003	0.003	0.003	0.003	0.003	0.003	0.003
	(1.11)	(1.11)	(1.12)	(1.10)	(1.13)	(1.12)	(1.13)
<i>ROA</i>	0.031	0.031	0.031	0.032	0.032	0.032	0.032
	(1.62)	(1.62)	(1.62)	(1.62)	(1.62)	(1.63)	(1.62)
<i>Growth</i>	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(-0.04)	(-0.04)	(-0.04)	(-0.05)	(-0.08)	(-0.05)	(-0.05)

<i>RecInv</i>	-0.005 (-1.39)	-0.005 (-1.39)	-0.005 (-1.40)	-0.005 (-1.39)	-0.005 (-1.39)	-0.005 (-1.42)	-0.005 (-1.40)
<i>CFO</i>	-0.027 (-1.48)	-0.027 (-1.48)	-0.027 (-1.48)	-0.027 (-1.48)	-0.027 (-1.48)	-0.027 (-1.48)	-0.027 (-1.48)
<i>Tenure</i>	-0.000*** (-2.67)	-0.000*** (-2.69)	-0.000*** (-2.66)	-0.000** (-2.53)	-0.000** (-2.34)	-0.000*** (-2.62)	-0.000*** (-2.59)
<i>Constant</i>	0.071*** (5.47)	0.071*** (5.47)	0.072*** (5.69)	0.068*** (5.07)	0.069*** (5.20)	0.069*** (5.41)	0.067*** (4.80)
<i>Year FE</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Industry FE</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	5294	5294	5294	5294	5294	5294	5294
<i>Adj-R²</i>	0.026	0.026	0.026	0.027	0.027	0.026	0.026

Notes: The sample of this table includes all clients of either *audit-firm headquarters* or *audit branches* from 2010 to 2012. The dependent variable in Panel A is *Accrual*, defined as discretionary accruals based on the performance-matched model. It is measured at t . The dependent variable in Panel B is *RetVol*, which is defined as the yearly return volatility of t . *AGov* is an indicator variable capturing the centralized organization based on revenue collection, cost allocations, royalties, recruiting system, and centralized inspection in columns (1) to (6). In column (7), *Agov* is defined as the total centralization score. Details of other variables are in Appendix A. Standard errors are clustered at the firm level. ***, **, and * indicate two-tailed t-statistics with statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 11: Audit firm internal control right allocation and client assignments: Branches versus headquarters.

<i>Dependent Variable</i>	<i>Branch</i>							
	<i>Financial Control</i>		<i>Strategic Control</i>		<i>Operational Control</i>		<i>GovScore</i>	
	<i>Centralized rev system</i>	<i>Centralized cost system</i>	<i>Royalty fees to HQ</i>	<i>Centralized recruiting system</i>	<i>Centralized governance policy</i>	<i>Inspection every year</i>		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
<i>Accrual</i>	1.001** (1.78)	1.194 (1.58)	1.091* (1.58)	1.065* (1.85)	1.149*** (2.65)	0.935* (1.91)	1.389*** (3.07)	1.096*** (2.66)
<i>RetVol</i>	0.684** (1.96)	3.887 (0.61)	3.674 (0.47)	0.663*** (5.80)	10.245 (1.09)	1.518 (1.34)	0.729 (0.46)	3.677 (0.77)
<i>AGov*Accrual</i>		-0.084	0.051	0.604	-0.071	0.240	-0.307	0.045
<i>AGov*RetVol</i>		(-0.18)	(0.13)	(1.21)	(-0.16)	(0.31)	(-0.87)	(0.10)
<i>AGov</i>		-3.229	-3.020	4.600	-11.529	-1.313	0.017	-4.219
		(-0.52)	(-0.39)	(0.43)	(-1.31)	(-0.96)	(0.01)	(-0.94)
		0.121 (0.73)	0.112 (0.58)	0.074 (0.25)	0.160 (0.66)	0.084 (1.63)	0.116 (1.47)	0.244** (2.35)
<i>IBig4</i>	0.894*** (8.74)	0.893*** (8.95)	0.894*** (9.05)	0.956*** (9.47)	0.922*** (9.41)	0.906*** (8.60)	0.870*** (8.62)	0.922*** (8.97)
<i>DBig10</i>	0.297*** (10.39)	0.294*** (10.32)	0.295*** (10.20)	0.329*** (9.84)	0.331*** (10.57)	0.289*** (9.82)	0.279*** (10.88)	0.248*** (8.06)
<i>LnTA</i>	-0.055*** (-4.13)	-0.054*** (-4.13)	-0.054*** (-4.14)	-0.060*** (-4.36)	-0.056*** (-3.99)	-0.055*** (-4.15)	-0.053*** (-4.11)	-0.053*** (-3.97)
<i>LnSubsidiary</i>	0.050* (1.67)	0.049* (1.68)	0.050* (1.68)	0.054* (1.88)	0.050* (1.73)	0.050* (1.67)	0.051* (1.72)	0.050* (1.67)
<i>Leverage</i>	-0.082 (-0.47)	-0.082 (-0.47)	-0.081 (-0.46)	-0.089 (-0.49)	-0.082 (-0.46)	-0.085 (-0.48)	-0.082 (-0.45)	-0.084 (-0.48)
<i>ROA</i>	-1.090* (-1.93)	-1.090* (-1.94)	-1.098* (-1.95)	-1.115* (-1.93)	-1.012* (-1.76)	-1.095** (-2.00)	-1.163** (-2.17)	-1.044* (-1.81)
<i>Growth</i>	0.150* (1.93)	0.150* (1.94)	0.150* (1.94)	0.148* (1.87)	0.146* (1.85)	0.151** (2.00)	0.154** (2.01)	0.148* (1.90)
<i>RecInv</i>	0.113	0.116	0.113	0.097	0.125	0.108	0.120	0.116

	(0.69)	(0.71)	(0.69)	(0.55)	(0.73)	(0.65)	(0.73)	(0.69)
<i>CFO</i>	1.021**	1.026**	1.034**	1.107**	1.033**	1.010**	1.058**	1.005**
	(2.10)	(2.13)	(2.12)	(2.15)	(2.01)	(2.03)	(2.15)	(2.00)
<i>Distance</i>	0.299***	0.298***	0.299***	0.295***	0.296***	0.299***	0.298***	0.298***
	(16.38)	(16.41)	(16.41)	(16.59)	(16.46)	(16.19)	(16.45)	(16.31)
<i>Constant</i>	-0.807**	-0.932**	-0.918**	-0.794**	-1.010**	-0.838**	-0.904***	-0.810**
	(-2.53)	(-2.46)	(-2.21)	(-2.54)	(-1.99)	(-2.48)	(-2.59)	(-2.25)
<i>Year FE</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Industry FE</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	5294	5294	5294	5294	5294	5294	5294	5294
<i>Pseudo-R²</i>	0.289	0.289	0.289	0.292	0.292	0.289	0.289	0.290

Notes: The specification follows Huang et al. (2017) and Lennox and Li (2012). The sample of each panel includes all clients of either *audit firm headquarters* or *audit branches* from 2010 to 2012. The dependent variable *Branch* is an indicator variable that takes a value of 1 when the client is assigned to the branch, and 0 otherwise. *Accrual* is defined as discretionary accruals based on the performance-matched model. It is measured at $t-1$; *RetVol* is defined as the yearly return volatility of $t-1$. *AGov* is an indicator variable capturing the centralized organization based on revenue collection, cost allocations, royalties, recruiting system, and centralized inspection in columns (1) to (6). In column (7), *Agov* is defined as the total centralization score. Details of other variables are given in Appendix A. Standard errors are clustered at the firm level. ***, **, and * indicate two-tailed t-statistics with statistical significance at the 1%, 5%, and 10% levels, respectively.

OA1: International Big4 versus domestic audit firms

Panel A: International Big 4¹⁷

Audit hours	<i>Financial Control</i>		<i>Strategic Control</i>		<i>Operational Control</i>		<i>GovScore</i>
	<i>Centralized rev system</i>	<i>Centralized cost system</i>	<i>Royalty fees to HQ</i>	<i>Centralized recruiting system</i>	<i>Centralized governance policy</i>	<i>Inspection every year</i>	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>AGov</i>	0.049 (0.21)	0.049 (0.21)	- -	0.172 (1.20)	0.161 (1.26)	-0.182 (-0.79)	0.106 (1.47)
<i>N</i>	265	265	265	265	265	265	265
<i>Adj-R²</i>	0.622	0.622	0.623	0.635	0.630	0.622	0.677

Audit adjustment	<i>Financial Control</i>		<i>Strategic Control</i>		<i>Operational Control</i>		<i>GovScore</i>
	<i>Centralized rev system</i>	<i>Centralized cost system</i>	<i>Royalty fees to HQ</i>	<i>Centralized recruiting system</i>	<i>Centralized governance policy</i>	<i>Inspection every year</i>	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>AGov</i>	0.192** (2.16)	0.192** (2.16)		-0.822*** (-4.68)	0.537*** (3.49)	0.310 (0.46)	-0.333 (-1.00)
<i>N</i>	244	244	244	244	244	244	244
<i>Pseudo-R²</i>	0.115	0.115	0.113	0.161	0.135	0.114	0.119

Panel B: Domestic audit firms

Audit hours	<i>Financial Control</i>		<i>Strategic Control</i>		<i>Operational Control</i>		<i>GovScore</i>
	<i>Centralized rev system</i>	<i>Centralized cost system</i>	<i>Royalty fees to HQ</i>	<i>Centralized recruiting system</i>	<i>Centralized governance policy</i>	<i>Inspection every year</i>	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>AGov</i>	0.118**	0.116**	-0.085*	0.138***	0.065**	0.072*	0.089***

¹⁷ None of Big4 clients experienced a restatement from 2010 to 2012 and therefore can not estimate the restatement effect.

	(2.16)	(2.72)	(-1.78)	(3.86)	(2.66)	(1.98)	(3.04)
<i>N</i>	3241	3241	3241	3241	3241	3241	3241
<i>Adj-R</i> ²	0.353	0.353	0.352	0.355	0.351	0.351	0.352

Audit adjustment	<i>Financial Control</i>		<i>Strategic Control</i>		<i>Operational Control</i>		<i>GovScore</i>
	<i>Centralized rev system</i>	<i>Centralized cost system</i>	<i>Royalty fees to HQ</i>	<i>Centralized recruiting system</i>	<i>Centralized governance policy</i>	<i>Inspection every year</i>	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>AGov</i>	0.060	0.069*	-0.264***	0.276***	0.194***	0.190***	0.289***
	(1.28)	(1.72)	(-9.26)	(7.82)	(3.11)	(3.65)	(7.82)
<i>N</i>	3241	3241	3241	3241	3241	3241	3241
<i>Pseudo-R</i> ²	0.027	0.028	0.031	0.033	0.031	0.029	0.033

Restatement	<i>Financial Control</i>		<i>Strategic Control</i>		<i>Operational Control</i>		<i>GovScore</i>
	<i>Centralized rev system</i>	<i>Centralized cost system</i>	<i>Royalty fees to HQ</i>	<i>Centralized recruiting system</i>	<i>Centralized governance policy</i>	<i>Inspection every year</i>	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>AGov</i>	-0.243*	-0.313***	0.167***	-0.167**	0.031	-0.238***	-0.152*
	(-1.82)	(-3.38)	(2.68)	(-2.20)	(0.36)	(-2.87)	(-1.69)
<i>N</i>	3022	3022	3022	3022	3022	3022	3022
<i>Pseudo-R</i> ²	0.063	0.067	0.061	0.061	0.059	0.063	0.061