The Effect of Public Firm Audit Regulation on Private Firm Auditing: Audit-Partner-Level Evidence

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Abstract: Using partner-level data on audit adjustments for public firms and audit-opinion data for private firms, we study whether and how public firm audit regulation impacts audit partners' private firm auditing practices. We exploit a regulation in China that applies only to public firm auditing and aims to increase transparency and rigor in audit procedures. Following the implementation of the regulation, audit partners issue more modified opinions for private firms. We explore two potential mechanisms through which audit partners treat private clients less leniently: knowledge transfer and increased professional skepticism. We find suggestive evidence consistent with both mechanisms. Collectively, our paper demonstrates that public audit regulations can have a positive spillover on private firms through audit partners.

Keywords: Audit partner, knowledge transfer, professional skepticism, spillover effects of regulation.

JEL Classification: D83, G3, M42, M48.

1. Introduction

Audit regulations for public firms are ubiquitous. Previous studies document both the benefits and costs of these regulations for the intended public firms (e.g., DeFond and Lennox 2017, Bourveau et al. 2021, Gipper et al. 2021). Yet, these regulations can also impact non-public clients under distinct regulatory and capital market conditions (Minnis and Shroff 2017), leading to spillover effects on auditing. Such spillover effects hold economic significance for mandatory auditing regulations and their economic rationale (e.g., Donovan et al. 2014, Leuz and Wysocki 2016). To further understand the spillover effect of public audit regulations on auditing, our study focuses on a learning-spillover channel that impacts the auditing of *private* firms: the role of audit partners.[1] Specifically, we analyze whether audit partners transfer the expertise and rigor from public firm engagements to private clients after implementing a public audit regulation.

We exploit an auditing regulation, the CSA 1504 standard in China, which is intended to increase transparency and rigor in audit procedures and applies only to public firms ("the public audit regulation"). CSA 1504 requires auditors to include key audit matters ("KAMs") in their audit reports, document and deliberate all potential critical matters, and specify how they address KAMs during the auditing process. Zeng et al. (2021) show that CSA 1504 leads to improved audit quality, consistent with the anecdotes gathered during our interviews with audit partners.

Audit partners' technical expertise and professional judgment are crucial to the audit process (Libby and Luft 1993, Zerni 2012, Gul et al. 2013, Lennox and Wu 2018). Therefore, we explore two non-mutually exclusive mechanisms through which audit partners become more rigorous in private firm auditing after implementing the public audit regulation: knowledge

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[1] Following previous studies (e.g., Lennox et al., 2020), we use the terms "signatory auditors," "signing auditors," and "audit partners" interchangeably. Furthermore, we define a private firm as an entity that is not publicly listed, meaning its capital (e.g., equity or debt) is not traded on a secondary market (Minnis and Shroff 2017).

transfer and increased professional skepticism.[2] Knowledge transfer may occur when the audit partners of public firms become more efficient in identifying signals that better predict material misstatements (Bonner, 1990) after CSA 1504 implementation. The audit partners can transfer their improved skills and technical expertise to the audits of their private clients.

Increased professional skepticism can manifest independently or complement the knowledge transfer mechanism. Regulators usually adopt a presumptive doubt perspective, prompting partners to exercise greater professional skepticism when verifying management assertions and audit evidence (Nelson 2009).[3] As a result, partners tend to raise the threshold of evidence required to substantiate their opinions after CSA 1504. Moreover, increased transparency from the KAM disclosure requirement exposes partners to greater scrutiny and potential reputation loss after failed audits (e.g., Chy and Hope 2021). Audit partners, in turn, may adopt a more stringent approach towards clients in line with publicly disclosed KAMs, consistent with the literature on the real effect of mandatory disclosures (e.g., Christensen et al. 2017). Therefore, partners may change their behavior and auditing approach broadly.

However, audit partners may not transfer their knowledge and professional skepticism from public to private clients. The different economic characteristics of these client types may impede learning spillovers. Furthermore, CSA 1504 applies only to public firms, so audit partners' attention may shift toward public clients while moving away from private clients (e.g., Duguay et al. 2020, Beardsley et al. 2021). Increased professional skepticism may not carry over to private clients, because audit partners' incentives may differ for public and private firms. Therefore, it

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[2] Professional skepticism is formally defined as "auditor judgments and decisions that reflect a heightened assessment of the risk that an assertion is incorrect, conditional on the information available to the auditor" (Nelson, 2009, p. 1 and p. 4).

[3] Presumptive doubt is "indicated by 'negative evidence proneness,' whereby the auditor tends to weight evidence more heavily when the evidence supports the hypothesis that the financial statements are misstated and less heavily when the evidence supports the hypothesis that the financial statements are not misstated" (Nelson, 2009, p. 14).

remains an empirical question whether audit partners treat private clients more strictly after CSA 1504, particularly how big the economic magnitude may be.

A unique aspect of our study is that we have partner-level granular data on both public and private audits, including the audit adjustments of public clients as well as audit-opinion data for private clients from the Ministry of Finance (MOF) in China. The granular data provide two benefits. First, we can examine whether partners make more audit adjustments for their public clients that reflect a stringent process post-implementation of CSA 1504. Second, we can also investigate whether these partners treat their private clients more strictly following the regulation. We also use CSA 1504's staggered implementation in our research design, which started in 2016 for AH firms (cross-listed on both the Mainland China A-share market and the Hong Kong H-share market) and subsequently extended to non-AH firms in 2017.

We start by validating that the public audit regulation results in stricter auditing practices for public clients, using its staggered implementation. In line with prior studies on the positive impact of CSA 1504 on audit quality (Zeng et al. 2021), we find higher audit quality for public firms, as evidenced by less financial misreporting, more audit fees, and a lower likelihood of small profits, three of the most promising measures of audit quality (e.g., Aobdia 2019).

We next examine whether audit partners treat their private clients more strictly by issuing more modified opinions. To test this idea, we use a generalized difference-in-differences (DiD) design to compare the audit opinions of private firms that engage audit partners with more public clients to the audit opinions of private firms that engage audit partners with no public client services. This research design allows us to examine how signatory auditors vary their audit opinions for private clients over time following the implementation of CSA 1504. We find that, compared to signatory auditors with no public clients, signatory auditors with more public client

shares have a higher likelihood of issuing modified audit opinions for their private clients.

One concern with this finding is that audit partners are not randomly assigned to clients, and clients may actively engage in partner-level opinion shopping. For example, risky clients could exert pressure on audit firms to assign less strict partners to them.[4] However, this concern would make these clients less likely to receive a modified opinion, which would bias against our results. The other concern is that our variable of interest may be correlated with a host of partner-level characteristics. In addition to including the year, industry, and audit-office fixed effects as well as client-risk time-varying characteristics, we control for the partner-level characteristics and their interaction term with the post-period to alleviate concerns about omitted variable bias. Our results are robust to the matching method and alternative key measures.

In the final set of analyses, we examine our proposed mechanisms: knowledge transfers and increased professional skepticism. To evaluate the first mechanism of knowledge transfers, we begin by investigating whether the effect is more pronounced when there is greater similarity in audit accounts between partners' public and private clients, particularly in instances where the partners' attention is focused, such as on KAM accounts. Our finding is consistent with this notion. We then investigate whether the effects are more pronounced for audit partners who are not industry specialists before the regulation. Partners with industry expertise may conduct more effective risk assessments and testing than those without such expertise. On the other hand, audit

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[4] In the mapping-out figure (Figure 1), we find that counterfactual treatment effects in the pre-regulation period are insignificantly different from the benchmark period, supporting the parallel-trends assumption. Additionally, the incentive for private firms to engage in opinion shopping may be relatively weaker, because the modified opinions of private firms are not be publicly accessible, except for confidential access by some specific users, such as regulators and lenders. As a result, the economic consequences of receiving modified opinions may not be as severe for private firms as they are for public firms. Furthermore, while some private firms may have incentives to go public (IPO) and therefore prefer more stringent audit partners, it remains unclear whether these incentives change in response to CSA 1504. To enhance the robustness of our findings, we conduct additional analyses by excluding a subset of private firms that could potentially be eligible for an IPO. Our results remain consistent. Lastly, we do not observe any significant changes in the characteristics of private clients, such as leverage, within partners' client portfolios before or after the regulation.

partners without industry specialization can enhance more of their expertise after the public audit regulation, and they transfer this enhanced knowledge to their private clients. We find more pronounced results for partners who are not industry specialists prior to CSA 1504.

To test the second mechanism, we explore the association between our main findings and increased professional skepticism. Although we cannot directly observe partners' professional skepticism, previous studies suggest it can manifest through actions such as modified opinions and audit adjustments (Krishnan 1994, He et al. 2018). Conditional on a client's pre-audit financial statement information, an audit partner with a greater degree of professional skepticism is more likely to detect a misstatement, compel clients to make adjustments, and issue modified opinions. Consistent with increased professional skepticism, we find that our main result is more pronounced when partners adjust more accounts and issue more modified opinions for their public clients. While these tests are suggestive, they provide descriptive evidence for the proposed mechanisms.

Our paper makes several contributions. First, our paper adds to the literature on the spillover effects of public auditing regulation on other unregulated entities (e.g., Lamoreaux 2016, Fung et al. 2017, Duguay et al. 2020). Previous studies primarily examine how public audit regulations spill over to other *public* clients with largely similar economic features and monitoring environments. One exception is Duguay et al. (2020), who finds a negative spillover on *non-profit organizations* due to supply constraints and competition for auditing services. We highlight the role of audit partners in shaping the spillover effect of public audit regulations on *private* firm auditing. Audit partners are pivotal to the auditing process (Gul et al. 2013), and their distinct characteristics contribute to decision-making diversity (Hanlon et al. 2022), which can lead to differential effects of public audit regulations on private firm auditing. Therefore, focusing on partner-level analysis offers more nuanced and comprehensive insight into regulatory spillovers.

To the best of our knowledge, our paper is the first to explore the economic implications of audit partners in a public audit regulation spillover to private firms.

Furthermore, our research advances our understanding of how partners affect audit outcomes, especially for private clients with limited capital market attention and a lower risk of auditor reputation loss (e.g., DeFond and Zhang 2014). The transparency regulations that mandate the disclosure of audit partner identities, such as the PCAOB Form AP Rule (PCAOB 2016), highlight the need to understand their impacts at a more granular level. However, the extent to which partners impact private firm auditing, thereby shaping the broader information environment, remains relatively under-explored. Our paper contributes to this line of research.

Finally, our paper also contributes to the literature on the auditing outcomes of private firms. Private firms are integral to the economy, but often encounter poor information environments with few information intermediaries, making their reporting quality critical for accessing credit markets.[5] Despite the significance of private firms' auditing outcomes, the factors influencing their audit opinions are not well documented compared to public firms (Lisowsky and Minnis 2020), especially supply-side factors (with some exceptions such as Bianchi 2018, Carcello et al. 2009, and Hope and Langli 2010). Our paper documents the spillover benefits of public audit regulations within the same partner across different clients. We also answer the call of Lisowsky and Minnis (2020) for research on the factors that lead to qualified audit opinions for private firms to inform policymakers and standard setters.

2. Institutional Background

On December 23, 2016, the Chinese Ministry of Finance published China Standards on Auditing (CSA) No. 1504, *Communicating Key Audit Matters in the Independent Auditor's*

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[5] See, e.g., Allee and Yohn 2009, De Franco et al. 2011, Kim et al. 2011, Lennox and Pittman 2011, Minnis 2011, DeFond and Zhang 2014, Kausar 2016.

Report. This new standard mandates that auditors identify KAMs, explain why each KAM is significant, and explain how they manage KAMs during the audit engagement. The new rule also stipulates that the audit committee must be informed of the critical matters raised during each audit period. Revenue recognition, accounts receivable allowance, and goodwill impairments are the most frequently reported KAMs.

In addition to identifying and disclosing KAMs, CSA 1504 requires further work from auditors. For instance, auditors are required to focus more on the risk of material misstatement during the auditing process, and to record all matters that have been considered as potential KAMs in the audit working papers, including matters that were initially considered critical but ultimately not listed as key audit matters. If the matters are not listed as key matters, the reasons for this decision need to be provided.[6]

We also conducted interviews with audit partners to obtain further institutional insights on how CSA 1504 impacts audit partners' behavior and auditing approaches. Audit partners state that implementing the KAM regulation has led to an increased focus on audit risk control and a rigorous approach to the audit process, particularly concerning areas that present a higher likelihood of material misstatement. They diligently identify and discuss each potential KAM, and undertake a thorough auditing process to address the KAMs prior to issuing their audit opinions.

CSA 1504 involves a staggered implementation. In 2016, firms cross-listed on the Mainland China A-share market and the Hong Kong H-share market (AH firms) were subject to CSA 1504. In 2017, non-AH companies also became subject to CSA 1504. Auditors of all publicly listed Chinese companies were compelled to disclose KAMs. There are enforcement actions by

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[6] Prior research on CSA 1504 mainly focuses on the informativeness of the KAM report and the audit quality at the firm level and finds some mixed evidence (e.g., Minutti-Meza 2021, Zeng et al. 2021, Liao et al. 2022). Our paper focuses on analysis at the audit partner level and includes samples that receive qualified opinions before the implementation of CSA 1504.

the MOF against engagement auditors if they violate the KAM regulation and other auditing compliance requirements.

In China, auditing services are purchased by private firms for managerial and external funding needs. Private firms are not always required to prepare audited financial reports but must obtain an audit in the following situations: when applying for loans from financial institutions (such as a bank) without collaterals, when held by a sole proprietor, when owned by the state, when part of a Sino-foreign joint venture, and in certain industries (e.g., real estate, high-technology, software). All the rest of the private firms can voluntarily have their financial statements audited.[7]

Signatory auditors in China are similar to engagement partners in the US (He et al. 2018, Lennox et al. 2020). In China, audit reports usually list the names of two signatory auditors: (1) the review auditor, who oversees the audit, and (2) the engagement auditor, who supervises the fieldwork on a day-to-day basis. We use the engagement auditor in our main specification to study our research question. Even though the two signatory auditors do not necessarily possess equity, we follow Lennox et al. (2020) and label them as "audit partners."

3. Conceptual Development
3.1 The Importance of Audit Partners in Audit Quality

The audit-firm level analysis often presumes a homogeneous quality of service across the firm. However, audits are conducted by engagement partners across various offices. Each of these partners establishes client relationships, manages audit engagements, interprets evidence, and

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[7] Four types of private firms have been required to comply with the "Accounting Standards for Business Enterprises" since January 1, 2008 (which are similar to the accounting standards with which publicly listed firms comply): state-owned enterprises, state-holding enterprises, city commercial banks, and commercial insurance companies. Nevertheless, these four types of private firms represent just a limited portion of our sample, and our results remain robust after excluding these four types of firms. Furthermore, private firms with both mandatory and voluntary audits occur in the pre- and post-periods of CSA 1504, so our identification strategy helps mitigate the selection biases. Other medium-to-large private firms are also encouraged to comply with these standards. Small businesses have also been encouraged (but not required) to adopt these standards since January 1, 2013.

issues the final audit report (Ferguson et al. 2003). Consistent with this notion, DeFond and Zhang (2014) propose shifting the audit-quality analysis from the audit firm or office level to the individual auditor level. This shift is essential as individual auditors can have significantly different characteristics that influence audit quality (Hanlon et al. 2022).

Given that these partners are pivotal in the audit process—planning, implementing, and deciding on the audit report—it is reasonable to believe that their distinct characteristics heavily influence audit quality (Gul et al. 2013). In particular, their technical expertise and professional judgment are crucial to the auditing process (Chin and Chi 2009). This expertise and professional judgment, deeply rooted in individual knowledge and experience, is not easily disseminated across the firm (Ferguson et al. 2003). For instance, while knowledge-sharing resources exist at the audit firm level, the personal experience, expertise, and information of individual audit partners hold greater salience when it comes to transferring knowledge and applying their professional judgment to their other audit engagements (Simon 1955, Chi and Chin 2011, Zerni 2012).

3.2 Audit Partner Learning

3.2.1 Audit Partner Technical Expertise Learning

Given the large amounts of data and information generated during an audit, partners may have limited attention and face friction when processing all available information (Simon 1955, Hanlon et al. 2022). These frictions could stem from the sheer volume of data, the complexity of the financial systems, or evaluating interconnected facets of a company's operations. By directing their attention towards key areas, CSA 1504 helps the audit partners of public clients more effectively allocate their limited attention. This enables them to become more skilled at identifying signals that better predict material misstatements (Bonner 1990). For instance, audit partners can allocate their limited attention to areas with a higher likelihood of external disclosure.

The knowledge acquired by audit partners can pertain to either audit accounts or the industry condition (e.g., Zeng et al. 2021). At the audit account level, partners can examine areas during private firm auditing that are similar to those likely to result in misstatements for comparable accounts at public firms. At the industry level, partners, particularly those who may lack industry expertise, can gather additional information about industry conditions and apply this knowledge when auditing other private clients.

3.2.2 Audit Partner Broad Behavior Learning

CSA 1504, which is a principle-based approach rather than a prescriptive one, places significant reliance on partners' professional judgment throughout the auditing process. CSA 1504 can also lead to broad behavioral changes among audit partners, particularly in fostering increased professional skepticism.

Two incentives encourage partners to adopt more rigorous auditing practices following the implementation of CSA 1504. First, the literature on the real effects of mandated disclosure (e.g., Christensen et al. 2017) finds that disclosing certain information could incentivize the party who discloses the information to change their real behavior due to increased transparency and public pressure. Specifically, auditors are required to explicitly disclose how they manage audit risk that is related to KAMs. This disclosure can convey their commitment to professionalism and diligence when dealing with KAMs (Leuz and Wysocki 2016). The increased scrutiny and the potential reputational risks, along with the heightened regulatory risks, may incentivize partners to cautiously exercise their professional judgment and to issue modified opinions that align with the issues highlighted in publicly disclosed KAMs.

Second, in China, entities, including auditors, are concerned with adhering to government regulations, as regulatory oversight is a significant source of auditor incentives (Lennox and Wu

2022). The oversight includes monetary penalties and the suspension of auditors who fail to fulfill their auditing responsibilities from participating in IPOs or other auditing businesses. In evaluating management statements and audit data, regulators usually advocate that auditors should adopt a presumptive doubt perspective, requiring them to gather more substantial evidence to support their audit opinions (Nelson 2009). With the introduction of CSA 1504, audit partners are increasingly inclined to adopt this presumptive doubt perspective. As a result, auditors are encouraged to seek additional evidence to substantiate their opinions, thereby increasing the likelihood of issuing modified opinions.

3.2.3 No Effect on Learning

CSA 1504 mandates that auditors disclose significant issues identified during an audit. However, it is possible that auditors might mainly disclose information that is already known to the public. In cases where audit partners have effectively addressed the disclosed risks, CSA 1504 may not change the partner's behavior. This possibility could arise if the auditing firm already has a strong infrastructure and well-established auditing procedures in place, leaving limited room for further improvement for audit partners. Moreover, some audit partners might resist changes, especially if they have been following the same auditing practices for an extended period, consistent with the notion of "inertia" (Hanlon et al. 2022).

3.3 Spillover Effect on Private Firms through Audit Partners

Audit partners' knowledge, skills, and behaviors acquired through public auditing engagements can have spillover effects on unregulated parties, including private firms. The knowledge transfer is consistent with previous studies on how partners learn from their other engagements (e.g., He et al. 2022). The presence of limited attention among audit partners further underscores this notion. This limited attention may compel them to lean on more recent, client-specific, and readily applicable knowledge and experiences from their engagements.

Consequently, they are more likely to apply similar auditing procedures and knowledge to look for similar areas that trigger private clients' misstatements.

The spillover effects extend not only to client-specific knowledge but also to broader behavioral changes, especially in the realm of professional judgment, such as an increase in professional skepticism. Specifically, audit partners may apply this heightened professional skepticism to their work with private clients, in line with Knechel et al.'s (2015) notion of audit partners maintaining a consistent approach across audits, regardless of whether the client is public or private (Hanlon et al. 2022). Therefore, even though private firms may have simpler operations and less regulatory oversight compared to public firms, audit partners can apply this rigorous approach to private clients, which might lead to more modified opinions.

However, the potential impact of CSA 1504 on unregulated parties remains uncertain. After the public auditing regulation, auditing firms may face labor and resource constraints (Duguay et al. 2020), leading partners to concentrate more on their public clients. By contrast, private companies may receive less capital market attention and have less stringent regulatory oversight (Minnis and Shroff 2017). Hence, audit partners might not allocate time and resources to auditing private firms effectively. Additionally, the transfer of audit partners' knowledge between public and private clients may not be straightforward, inhibiting the learning process. Some audit partners might even adopt a compliance-focused approach, limiting their willingness to learn and broadly apply professional skepticism to other clients.

3.4 Implications of the Role of Audit Partners in Regulatory Spillovers

Regulatory measures designed to enhance the economic efficiency of specific segments may generate broader effects through interrelated changes across multiple segments. This spillover effect carries significant implications for mandatory reporting and auditing regulations. If public audit regulations can positively influence unregulated clients, they can serve as an economic

justification for auditing and reporting regulations (Donovan et al. 2014, Leuz and Wysocki 2016). Previous studies explore various regulatory spillovers and interactions between segments. For instance, researchers have examined how resource scarcity influences regulatory spillovers (e.g., Duguay et al. 2020), changes in audit industry market shares (e.g., Aobdia and Shroff 2017), the real effects of mandatory reporting and auditing regulations (e.g., Christensen et al. 2017, Shroff 2020), disclosure spillovers through cross-firm learning (e.g., Breuer et al. 2022), as well as industry learning and practices within public firms (e.g., Fung et al. 2017, He et al. 2022). Our paper enhances the understanding of the role of audit partners in the spillover effects of public audit regulations on private firms.

Focusing on partner-level analysis provides a more nuanced and comprehensive understanding of regulatory spillovers. Audit partners, being key decision-makers in complying with public audit regulations, wield significant influence over the auditing of private firms. Their individual attributes, such as attention span and experiences, introduce variation into the decision-making process (referred to as "the people dimension" in Hanlon et al. 2022). This variation can result in differential effects of public audit regulations on private firm auditing. To illustrate, public auditing regulations can influence the learning process and prompt changes in the professional judgment of partners with certain characteristics. Their different responses to such regulations can result in differential spillover effects on auditing practices, affecting a wide array of clients, both regulated and unregulated, including private firms.

With the growing availability of audit partner information following the PCAOB Form AP rule, unique opportunities emerge for future research to explore the economic implications of information about audit partner identities. By leveraging our data, we can gain insights into audit processes, regulatory effects, and audit partners' economic roles, thereby informing auditing

standards and contributing to the development of more effective regulatory policies for better financial reporting.

4. Data and Methodology

4.1 Data and Sample

We use two samples. The first sample consists of all the Chinese A-share-listed firms from 2013 to 2018; this sample period covers a three-year window around CSA 1504, which was enacted in 2016, and aligns with our private firm sample period. We use this sample to examine the influence of the public audit regulation on audit quality. Since 2006, all audit firms in China have been required to submit annual self-inspection reports to the MOF (MOF 2005). In this report, audit firms are required to report information about their operating performance, as well as key information regarding audit engagements (e.g., audit adjustments, audit opinions, audit fees, and clients' key financial positions).

Our public firm data are obtained from three sources: the audit adjustments data are from the MOF, the data on signatory auditors' names, clients' financial performance, and corporate governance are from the China Stock Market and Accounting Research Database (CSMAR), and the data on key audit matters are from the Chinese Research Data Services Platform (CNRDS). We start with all Chinese firms listed in the A-share market between 2013 and 2018, which gives us 18,514 client firm-year observations. We drop 474 observations in the financial sector and 1,933 observations with missing financial data, leaving us with a sample size of 16,107 client firm-year observations that includes 3,440 public firms, 437 audit offices, and 4,214 signatory engagement auditors. Panel A of Appendix B shows the industry distribution of the public sample; 64.91% of the firms are in the manufacturing industry.

The second sample consists of private Chinese firms with audited financial statements from 2013 to 2018. We choose 2013 to 2018 because only the data of private firm audits are available during this period. We obtain the audit opinion data of private firms from the MOF. We obtain data on private firm characteristics from the Red Shield Company, which is associated with the State Administration for Industry and Commerce (SAIC); although financial information is not publicly disclosed online, the Red Shield Company provides us with the data for the purpose of academic research. We merge these data with the private firms through name matching.

After excluding observations that are missing information on audit opinions or missing financial data for the control variables, and observations that the signing engagement partner does not engage clients in both the pre- and post-regulation period, our final sample of private firms has 209,541 firm-year observations, which includes 1,804 audit offices, 6,412 engagement audit partners, and 162,815 private firms. Panel B of Appendix B shows the industry distribution of the private sample; the top three industries in our sample are manufacturing (22.28%), wholesale and retail (17.80%), and leasing and business services (11.99%).

4.2 Model Specification

4.2.1 Public Audit Regulation and Audit Quality

In this section, we start by examining whether CSA 1504 results in higher audit quality and more rigorous audits. We run the following OLS model (1) using the sample of public firms:

Audit Quality = β_0 + β_1Post + Firm and Partner Controls + Audit Office FE + Ind FE + Year FE + ε   (1)

For the dependent variable, we use a vector of audit quality measures to ensure the robustness of our results: (1) *Restatement* equals one if the firm's financial statements are restated in subsequent years, and is 0 otherwise; (2) *Auditfee* equals the natural log of audit fees; (3)

Smallprofit equals one if the firms' return on assets (*ROA*) is between 0 and 0.003, and equals 0 otherwise. The three variables are prominent measures of audit quality, aligning with industry practices, regulatory perspectives, and internal inspections by audit firms (e.g., Aobdia 2019, Rajgopal et al. 2021).

Our variable of interest in Model (1) is *Post,* which equals one if the year is after 2017 for non-AH clients or if the year is after 2016 for AH clients, and is 0 otherwise. If CSA 1504 leads to auditors becoming more rigorous, we would expect a significant negative coefficient on *Post* for *Restatement* and *Smallprofit*, and a significant positive coefficient on *Post* for *Auditfee*.

Following previous studies (e.g., Lennox et al. 2016, Tong et al. 2022, Liu 2023), we include a vector of controls that may influence audit quality. First, we control for firm characteristics, including firm size (*Size* = the natural log of total assets), corporate profitability (*ROA* = net income divided by total assets), leverage (*Lev* = total liabilities scaled by total assets), market-to-book ratio (*MB* = the market value of firms divided by the book value, where the market value is the stock price at the fiscal year-end multiplied by the number of outstanding shares, and where the book value is the total shareholder equity), cash holding (*Cash* = the value of cash and cash equivalents divided by total assets), and firm age (*Listage* = the natural log of the number of years since a firm was publicly listed on a stock exchange). Second, we account for the effectiveness of corporate governance by including board independence (*Indratio* = the ratio of independent directors to the number of board directors), board size (*Boardsize* = the natural log of the number of directors plus 1), and CEO duality (*Duality* equals 1 when the CEO of a firm also chairs the board, and is 0 otherwise).

Finally, we control for a set of engagement partner characteristics: partner gender (*Gender*), which equals one if the signing engagement partner is female, and equals 0 otherwise; education

level (*Edu*), which equals one if the partner holds an undergraduate degree or above, and equals 0 otherwise; equity ownership (*Equity*), which equals one if the partner has equity ownership in the audit office, and equals 0 otherwise; industry expertise (*Ind_Expertise*), which is measured as the total assets of firms audited by the partner, which are in the same industry as the focal firm, divided by the total assets of all firms in the industry. This measure is constructed based on the partners' comprehensive client portfolio, which includes both public clients and private firms. We also control for audit office and client industry fixed effects to account for the time-invariant industry and audit office characteristics, and the year fixed effect to account for the time trend. Standard errors are clustered at the client level to allow for correlations across years.

Panel A of Table 1 reports the descriptive statistics for the sample of public firms. The mean of *Restatement* is 0.032, suggesting that 3.2% of public firms' financial statements are restated in our full sample. The mean value and standard deviation of *Auditfee* are 13.648 and 0.175, respectively. The mean of *Smallprofit* is 0.026, indicating that 2.6% of public firms' earnings just beat or meet the zero earnings benchmark. The mean values of *Gender*, *Edu*, and *Equity* are 0.383, 0.717, and 0.214, respectively, suggesting that about 38.3% of partners in our public firm sample are female, 71.7% of partners hold an undergraduate degree, and 21.4% of the engagement partners have equity ownership in the audit office. The mean and standard deviation of *Ind_Expertise* are 0.015 and 0.034, respectively, indicating that there is a relatively large variation in industry expertise across partners.

4.2.2 The Effect of Public Firm Audit Regulation on Private Firm Auditing

To examine the influence of public firm audit regulation on private firm auditing at the audit partner level, we run the following regression (2) using our large sample of private firms:

$$Opinion = \beta_0 + \beta_1 Public\_Client\_Share \times Post + \beta_2 Public\_Client\_Share + \beta_1 Post + \beta Firm \ and$$

$$Partner \ Controls + Audit \ Office \ FE + Industry \ FE + Year \ FE + \varepsilon \quad (2)$$

Our dependent variable is *Opinion*, which equals one if a private client receives qualified audit opinions, and is 0 otherwise. *Post* is equal to 1 if the year is after 2016 for audit partners with public clients listed in both mainland China and Hong Kong (AH public clients) or if the year is after 2017 for audit partners with non-AH public clients, and is 0 otherwise. *Public_Client_Share* denotes the number of a signatory auditor's clients in year t, and equals the ratio of public clients in the signatory auditors' client portfolio, capturing both the extensive and the intensive margins. As part of our robustness checks, we use alternative variables, *Public_Share_Revenues* and *Public_Share_Dummy*, which exhibit a high degree of correlation with *Public_Client_Share* (approximately 60% and 70%, respectively). *Public_Share_Revenues* denote the total revenues from public clients divided by the total revenues generated by the signatory auditors in year t, and *Public_Share_Dummy* denotes the number of public clients divided by the number of total clients by the signatory auditors in year t. We include *Public_Client_Share* and its interaction term with *Post* (*Public_Client_Share×Post*) in Model (2), which is our variable of interest.

Given the data availability, we control for firm size (*Size* = the natural log of total assets), corporate profitability (*ROA* = net income divided by total assets), leverage (*Lev* = total liabilities scaled by total assets), firm age (*Firmage* = the natural log of years since the firm was founded), assets turnover (*AssetsTurnover* = Total sales revenues scaled by total assets), negative earnings (*Loss* equals one if the earnings of the client are negative, and 0 otherwise), and firm state ownership (*SOE* equals one if the client is state-owned enterprises, and 0 otherwise).

One concern might be that the variable *Public_Client_Share* may be correlated with a host of partner-level variables such as their experience, education, and/or qualifications. Therefore, we

also consider audit partner characteristics, including audit partner equity ownership, experience with public clients, financial background, educational background, and gender. Importantly, we include the interaction between these characteristics and the *Post* variable to account for the differential effects of partner characteristics, thereby further alleviating concerns about potential omitted variable bias. We include audit office fixed effects and industry fixed effects to control for time-invariant audit firm and industry characteristics, along with a year-fixed effect to account for the time trend. Including the audit office fixed effect helps isolate variation at the partner level within the same audit office. The standard errors are clustered at the client level to allow for correlations across years.

Panel B in Table 1 reports the summary descriptive statistics for the sample of private firms. The mean of *Opinion* is 0.039, suggesting that around 3.9% of the private firms in our full sample receive modified audit opinions. This ratio is slightly higher than the ratio for public firms (3.2% in Panel A), which indicates that the reporting quality is lower in private firms. The mean of *Post* is 0.425, suggesting that 42.5% of the observations in our sample fall after CSA 1504 implementation, and that our sample is fairly balanced before and after the event window. In our sample, about 13.1% of private firms are audited by partners that also conduct audits for public clients. The mean values of *Public_Client_Share* and *Public_Share_Revenues* are 0.005 and 0.228, respectively, suggesting that, on average, public clients represent 0.5% of the client portfolios of signatory auditors but contribute 22.8% of the overall revenue (audit fees). These numbers suggest that auditors charge public firms more than they charge private companies. The mean of Size is 8.318, which is smaller than that in the public firm sample (22.118), suggesting that the size of private firms is much smaller than public firms. In addition, the mean values of Lev and ROA are 0.647 and -0.028, indicating that private firms generally exhibit higher leverage and lower

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profitability than public firms. The mean of SOE is 0.009, suggesting that about 0.9% of firms in the private firm sample are state-owned enterprises.

The descriptive statistics of partner characteristics show that the mean values of *Equity, Fin_Back, Edu*, and *Gender* are 0.430, 0.435, 0.481, and 0.478, respectively, suggesting that about 43.0% of partners in the private firm sample have office ownership, 43.5% have a financial background, 48.1% hold an undergraduate degree, and 47.8% are female. These partner descriptive statistics show that the ratio of partners that own equity ownership is higher than that in the public firm sample, and the educational level of partners in the private firm sample is lower than that in the public firm sample.

5. Results

5.1 The Public Audit Regulation and Audit Quality

We first examine whether signatory auditors are more rigorous after CSA 1504 by using the specification in Model (1). The results are reported in Table 2, where the dependent variables in the regressions for columns (1) to (3) are *Restatement*, *Auditfee*, and *Smallprofit,* respectively. These three variables are promising measures of audit quality, consistent with industry practices, regulatory viewpoints, and internal assessments conducted by auditing firms (Aobdia 2019, Rajgopal et al. 2021).

The coefficient on *Post* in column (2) is significantly positive at the 1% level, suggesting that after CSA 1504, there is an increase in audit fees in public firms, which indicates a higher audit quality. The coefficients on *Post* in columns (1) and (3) are all negative and statistically significant. These results suggest that the frequency of financial restatements and small earnings decrease after CSA 1504. Overall, the results in Table 2 suggest an improvement in audit quality

following the implementation of CSA 1504, which is consistent with the findings from prior studies (e.g., Zeng et al. 2021) as well as our interview findings.

5.2 The Effect of Public Firm Audit Regulation on Private Firm Auditing

In this section, we study how the public audit regulation impacts private firm auditing at the audit partner level. Specifically, we examine whether auditors transfer expertise from their public to private clients after the public firm audit regulation. We use CSA 1504 as our public audit regulation to capture the intensity of partners' learning experiences in public firms. We then examine how audit practices in private firms change after the regulation for public firm audits.

The results are reported in Table 3. *Public_Client_Share* is based on the number of clients that the signing auditors audit in year t, and is equal to the ratio of public clients in the partners' client portfolio. Column (1) shows the results for the sample population, column (2) presents the results for the propensity score matching, and column (3) provides the results for the entropy balancing matching. The coefficients on the interaction term *Public_Client_Share×Post* are significantly positive in all columns.[8] The results suggest that after CSA 1504, compared to auditors with no public clients, auditors with more public clients are more likely to issue modified audit opinions; auditors become more rigorous when the percentage of their public clients increases. The coefficient on the interaction term in column (1) suggests that a one standard-deviation increase in *Public_Client_Share×Post* is associated with a 33.3% increase in *Opinion*. The results indicate that the audit partners treat private firms more rigorously after CSA 1504, and

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[8] The negative and statistically significant coefficients on *Public_Client_Share* may reflect that prior to 1504, audit partners may not have incentives to issue more modified opinions to their private clients, where audit failures are associated with less scrutiny and reputation loss (Hope and Langli, 2010). We show that subsequent to the implementation of CSA 1504, there is an incremental increase in the likelihood of audit partners issuing modified opinions when compared to the period prior to the regulatory changes. Furthermore, for the sample that excludes audit firms exclusively serving private firms, we find that our main results hold, and *Public_Client_Share* is nearly zero and statistically insignificant, suggesting that partners with public clients tend to implement stricter auditing procedures.

the magnitude is economically significant. The coefficients on *Lev*, *ROA*, *Firmage*, and *Loss* are significantly positive in columns (1) and (2), suggesting that private firms with higher leverage, greater profitability, higher firm age, and negative earnings are more likely to receive modified audit opinions. The coefficients on the control variables *Size* and *AssetsTurnover* are all significantly negative, suggesting that larger firms and firms with higher asset turnover ratios are less likely to receive modified audit opinions. We also find that the coefficients on $Equity \times Post$ and $Public\_Experience \times Post$ are significantly negative, indicating that audit partners with ownership or with more experience in public audits tend to issue less modified audit opinions for their private clients after CSA 1504. In addition, the coefficient on $Edu \times Post$ is significantly positive, suggesting that audit partners with higher education are more likely to issue modified audit opinions for their private clients after CSA 1504.

We also estimate Model (2) using a propensity score matched sample to further assess whether the differences in observable client characteristics might affect our results. Specifically, we use an alternative sample wherein we match each client-year observation from the sample of firms audited by partners with public clients (treatment group) to an observation from the sample of firms audited by partners with no public clients (control group), resulting in a smaller sample. We match treatment and control firms using the propensity score of engaging public clients; the propensity score is estimated using client risk characteristics for firms in the same industry (e.g., *Size*, *Lev*, *ROA*, *Firmage*, *AssetsTurnover*, *Loss*, and *SOE*). The results are presented in column (2) of Table 3. They show that our findings remain robust when we use a matched sample in which the client characteristics across audit partners are similar.

As an alternative matching, we estimate Model (2) using the entropy balancing matching method. Entropy balancing is a general form of matching to improve covariate imbalance and

mitigate selection bias when compared to propensity score matching (PSM); it assigns continuous weights to control group observations, ensuring that the means of the control group covariates are approximately equal to those in the treatment group (Gaver and Utke 2019; McMullin and Schonberger 2020). We entropy balance our sample on all control variables in Model (2) to match partners engaging public clients to partners without public clients. The results in column (3) of Table 3 show that our findings remain robust after reweighting the sample using entropy balancing.

5.3 Mechanism Exploration

Having demonstrated the main results of public firm audit regulation impacting private firm auditing at the audit partner level, we investigate mechanisms that improve private firm auditing: knowledge transfer and increased professional skepticism. For knowledge transfer, we hypothesize that signatory auditors become more skilled at identifying informative signals that can predict material misstatement after CSA 1504. For increased professional skepticism, we anticipate that CSA 1504 will broadly change audit partners' learning behavior. Through both mechanisms, audit partners can transfer their expertise and rigor from public firm engagement to private clients after the regulation. We offer suggestive evidence of potential mechanisms through which partners enhance private firm auditing.

5.3.1 Knowledge Transfer

To assess the mechanism of knowledge transfer, we consider the knowledge acquired by our partners, which can be attributed to specific audit accounts or the industry condition. At the audit account level, partners can examine the common accounts of private firm audits that may lead to material misstatements in the audits of similar accounts for public clients. At the industry level, partners, especially those without industry expertise, can gather additional insights into industry conditions and apply this knowledge to auditing other clients. Consistent with these two types of

knowledge, we examine the results when there is a higher degree of similarity in the audit accounts for both partners' public and private clients, and when an audit partner is not an industry specialist before the public audit regulation.

First, we examine whether knowledge transfers are more pronounced when audit partners audit similar accounts among their private clients, particularly when these accounts are prevalent within the key audit areas of their public clients. We classify the KAM into accounts that are also more prevalent among private firms (*Common_Kam*), such as revenues, operating expenses, inventories, receivables, and property, plant, and equipment, which are relevant to private firms' unclean audit opinions. *Common_Kam* denotes the number of common KAMs that the partner issues to public clients. We expect that when an auditor discloses more common KAMs that are relevant to their private clients, the knowledge gained from public firms will be more transferable to private firms. To test whether a shared KAM strengthens the knowledge transfer effect, we partition auditors with public clients into two subsamples based on *Common_Kam*: the first subsample includes audit partners who disclose more common KAMs to their public clients (*Common_Kam* is above the sample top percentile); the second subsample includes audit partners who disclose less or no common KAMs to their public clients (*Common_Kam* is below the sample top percentile). We then merge these two subsamples with the group of auditors without public clients, and re-estimate Model (2).

Columns (1) and (2) of Table 4 present the results. The magnitude of coefficients on the interaction term *Public_Client_Share×Post* is larger in the subsample where auditors disclose more common KAMs as their private clients. The coefficients on the interaction term in columns (1) and (2) suggest that a one unit increase in *Public_Client_Share×Post* is associated with a 53.7% increase in *Opinion* for signatory auditors whose disclosed KAMs are more relevant to their private

clients, while the increase in *Opinion* in the subsample with less shared KAMs is 20.4%. The difference in the coefficients is statistically significant (p-value = 0.014). The results are consistent with our expectation that the knowledge transfer effect is more pronounced when audit partners audit similar accounts for both public and private clients, especially when these accounts are prevalent within the key audit areas of their public clients. In addition, the coefficients on the control variables are similar to those in Table 3.

Next, we examine whether knowledge transfers are more pronounced when audit partners are not industry specialists in the pre-regulation period. Compared to non-industry-specialist audit partners, partners with industry expertise may conduct effective risk assessments and testing prior to CSA 1504. Conversely, non-industry-specialist partners are likely to enhance their expertise after CSA 1504, which they may subsequently transfer to their private clients. As a result, we may find weaker knowledge transfer effects for partners who are industry specialists. To empirically examine this idea, we partition the sample of signatory auditors with public clients into two subsamples based on the industry expertise before CSA 1504.

We measure industry expertise based on partners' comprehensive client portfolio, which includes both public clients and private firms (Lennox and Wu 2018). The industry expertise is measured as the total assets of firms in the same industry with the focal firm that is audited by the partner, divided by the total assets of all firms in the industry. We partition partners with public clients into two subsamples based on the average *Industry_Specialist* in the pre-regulation period. The first subsample includes audit partners whose average industry expertise is higher before CSA 1504 (pre-regulation average *Industry_Specialist* is above the sample top percentile), while the second subsample consists of audit partners whose average industry expertise is lower before CSA 1504 (pre-regulation average *Industry_Specialist* is below the sample top percentile). We then

merge these two subsamples with the group of partners without public clients, and re-estimate Model (2).

The results are reported in columns (3) and (4) of Table 4. The magnitude of the coefficient on the interaction term *Public_Client_Share×Post* is larger in subsamples where partners are not industry specialists before CSA 1504. The coefficients on the interaction term in columns (3) and (4) suggest that a one-unit increase in *Public_Client_Share×Post* is associated with a 42.8% (17.4%) increase in *Opinion* for signatory auditors that are non-industry (industry) specialist partners. However, the statistical difference falls short of conventional levels of significance (p-value=0.348). The results are consistent with our conjecture that the knowledge transfer is more pronounced when audit partners are not industry specialists in the pre-regulation period. Additionally, the coefficients on the control variables are similar to those in Table 3.

5.3.2 Increased Professional Skepticism

Professional skepticism can alter the initial planning of an audit and can influence the choice of audit opinion. After the implementation of CSA 1054, signatory auditors are more likely to adopt a presumptive doubt where partners are more skeptical of evidence that a claim is true than of evidence that it is untrue; thus, partners are encouraged to collect more evidence when validating an audit report (Nelson 2009). The KAM disclosure requirement in CSA 1504 exposes partners to more scrutiny and reputational risk from failed audits, increasing signatory auditors' incentives for professional skepticism (e.g., Nelson 2009, Chy and Hope 2021). While a partner's judgment is unobservable, we anticipate that their adjustments and modified opinions will reveal at least some of their professional skepticism (Nelson 2009, He et al. 2018).

We start by partitioning the subsample of signatory auditors based on the change in audit adjustments (*Audit_Adjustment*) before and after the implementation of CSA 1504.

Audit_Adjustment is equal to the difference between pre-audit earnings and post-earnings scaled by the absolute value of pre-audit earnings. If a signatory auditor's absolute change in *Audit_Adjustment* is above the top quartile for the subsample of audit partners that have public clients, it is in the subgroup with a higher increase in audit adjustments (and vice versa). We then merge the two partitioned subsamples with the group of audit partners who do not have public clients, and re-estimate Model (2). We hypothesize that a greater increase in the audit adjustment ratio indicates increased professional skepticism, suggesting that partners with increased professional skepticism collect more evidence to help identify material misstatements.

The results are presented in columns (1) and (2) of Table 5. The magnitude of the coefficient on the interaction term *Public_Client_Share×Post* is larger in subsamples where audit partners make more audit adjustments to public clients after CSA 1504. The coefficients on the interaction term in columns (1) and (2) suggest that a one-standard-deviation increase in *Public_Client_Share×Post* is associated with a 51.2% increase in *Opinion* for signatory auditors who adjust more accounts for their public clients on average, but the increase in *Opinion* for the sub-sample with fewer adjusted accounts is 27.9%. However, this difference is not statistically significant (p-value = 0.409). The results align with our conjecture that audit partners tend to be less lenient with their private clients when they make more audit adjustments for public firms and exhibit a higher level of professional skepticism. This finding is also consistent with previous studies (e.g., He et al. 2018), which suggests that an increase in audit adjustments reflects an increase in audit partners' professional skepticism.

We then divide the subsample of audit partners with public clients based on the change of *Opinion_Ratio* between the pre- and post-regulation period. *Opinion_Ratio* is the ratio of modified opinions that a signatory auditor issues for public clients in a given year. We first calculate the

mean of *Opinion_Ratio* by the partner in the pre- and post-regulation period. We then derive the change of *Opinion_Ratio* (*Opinion_Ratio_Change*) as the difference between the pre-regulation average *Opinion_Ratio* and the post-regulation average *Opinion_Ratio*. If a partner's *Opinion_Ratio_Change* is greater than zero, we put the observation in the subgroup for partners with increased ratios of modified audit opinions (and vice versa). We then combine the two partitioned subsamples with the sample of partners who have no public clients, and re-estimate Model (2). We hypothesize that a partner is more professionally skeptical when they issue more modified opinions.

Columns (3) and (4) of Table 5 present the findings. The magnitude of the coefficient for the interaction variable *Public Client Share×Post* is generally greater in subsamples where partners issue more modified opinions for their public clients after CSA 1504. The coefficients on the interaction term in columns (1) and (2) suggest that a one standard-deviation increase in *Public_Client_Share×Post* leads to a 157.69% (20.40%) increase in *Opinion* for signatory auditors who issue a higher (lower) ratio of qualified audit opinions for their public clients on average. The difference between the coefficients is statistically significant (p-value = 0.002). The results are weakly consistent with our conjecture that the results are more pronounced when partners are more professionally skeptical and issue more modified opinions to their public clients.

Our analyses exploit granular partner-level data, so alternative explanations, such as economic ties between public and private firms, should exhibit a strong correlation with partner-level connections to explain our results. However, our cross-sectional analyses are conducted by partitioning audit partner characteristics. This partitioning may be susceptible to the standard concerns with correlated omitted variables; therefore, these analyses may not reveal causal relationships.

5.4 Robustness Analyses

We next conduct robustness checks for our main findings and cross-sectional analyses to reinforce the interpretations.

We first assess the potential concern related to correlated omitted variables that change surrounding the public audit regulation and differentially affect public and private firms. We examine differences in pre-public-audit-regulation trends in our outcome variables across treatment and control groups by mapping out counterfactual treatment effects over our sample period. We map out the treatment effect in Figure 1. The counterfactual treatment effects in the pre-regulation period are small and statistically indistinguishable from the benchmark period. This finding supports the parallel-trends assumption. As an additional (closely related) way to assess the validity of the parallel trends assumption, we plot univariate trends separately for the treatment and control groups in the pre-public audit regulation period (untabulated). A visual inspection provides no indication of differential trends between our comparison groups, further reassuring that the parallel trends assumption is valid in our analyses.

We also conduct two diagnostic assessments to address potential concerns related to staggered implementation. First, we confirm that our findings remain consistent even without any client control variables. Second, we employ an event study DiD approach and also use only the clean-control group (the group that was never treated) as the control. These two analyses account for the possibility of dynamic and heterogeneous treatment effects, and they also adjust the set of units that are suitable for the control group, as suggested by Baker et al. (2022).

As another robustness check for our primary findings, we use two alternative variables related to *Public_Client_Share*. *Public_Share_Revenue* is calculated as the total revenue derived from public clients divided by the total revenue generated by the signatory auditors in year t.

Additionally, *Public_Client_Share (Review)* represents the ratio of public clients within the signatory review partners' client portfolio. In Table 6, we find robust and consistent results that support our main findings. These results suggest that the spillover effect through the audit partner on private firm auditing remains robust when we account for the economic significance of public clients. Similarly, we find this spillover effect among the review partners, who oversee the entire audit process. In an untabulated test, we investigate whether audit fees for private firms increase as a consequence of CSA 1504. We find a significant increase in audit fees, which is consistent with the notion that the regulation has a positive spillover on private firms' audit quality.

We also explore whether knowledge transfers are more prominent when audit partners come from non-Big 4 audit firms. Big audit firms usually have more comprehensive and effective internal rules that "guide and standardize the auditors' application of auditing and accounting standards" than small audit firms (Francis et al. 2014). The standardized audit process in big audit firms reduces the room for improvement (Levin and Tadelis 2005). As a result, we may find weaker knowledge transfer effects for individual audit partners from big audit firms. To empirically examine this idea, we partition the sample of signatory auditors with public clients into two subsamples based on the origin of audit partners (*Big 4*). *Big 4* is equal to 1 if the signatory auditor comes from a Big 4 audit firm, and equals 0 otherwise. Next, we merge these two partitioned subsamples with the group of partners without public clients, and re-estimate Model (2). The results are in columns (1) and (2) of Appendix D. The results are consistent with our conjecture that the knowledge transfer is more pronounced when audit partners come from small audit firms where the audit procedures are less standardized.

We next examine whether audit partners exhibit a greater level of professional skepticism among those who had lower levels of professional skepticism prior to CSA 1504. He et al. (2018)

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find that partners who begin their careers during an economic downturn are more likely to be professionally skeptical. Consistent with this idea, we partition the subsample of signatory auditors based on whether the audit partner starts their audit career during an economic downturn (*Economic_Downturn*). We follow He et al. (2018) in defining China's economic downturn years, and a year is classified as a downturn when there is a decline in economic growth (measured by real GDP growth).[9] If a signatory auditor enters the audit market during an economic downturn, *Economic_Downturn* equals one, and equals 0 otherwise. We then merge the two partitioned subsamples with the group of audit partners who do not adjust earnings for public clients, and re-estimate Model (2).

The results are in columns (3) and (4) of Appendix D. The magnitude of the coefficient on the interaction term *Public_Client_Share×Post* is larger in subsamples where audit partners start their audit career during economic downturns. The coefficient on the interaction term shows that a one-standard-deviation increase in *Public_Client_Share×Post* is associated with a 25.87% (22.88%) increase in *Opinion* for signatory auditors that enter the audit market during an economic downturn (during non-economic downturns). The results are consistent with our conjecture that the increase in audit partners strictly treating their private clients is lower when they have already developed a high level of professional skepticism.

In the untabulated analyses, we additionally leverage the characteristics of audit partners and present supplementary results to underscore the impact of auditor partners on the spillover of public audit regulations into private firm auditing. We observe a more pronounced effect when audit partners have less experience with public clients, are younger, and have served as

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[9] Over the 1969–2015 period, the following years are classified as downturn years in China: 1971, 1972, 1974, 1975, 1976, 1979, 1980, 1981, 1985, 1986, 1989, 1990, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2008, 2009, 2011, 2012, 2014, and 2015.

engagement partners for shorter periods of time. These findings suggest a greater partner learning in these scenarios, reinforcing the knowledge transfer mechanism. Additionally, we find a stronger result when audit partners have previously faced government penalties. This result aligns with the notion that partners who have experienced government penalties are likely to adopt a more rigorous approach after CSA 1504, supporting the mechanism of increased professional skepticism. Together, these results further solidify the role of audit partners in the spillover of public audit regulation into private firm auditing.

6. Conclusion

We analyze whether and how public firm audit regulation facilitates audit partners' private firm auditing. We find that signatory auditors with public clients are more likely than signatory auditors without public clients to issue modified opinions for their private clients following the implementation of public audit regulation.

We explore two mechanisms that enhance private firm auditing: knowledge transfer and increased professional skepticism. Consistent with the knowledge transfer mechanism, we find that the result is greater when audit partners are not industry specialists and when an audit partner's public and private clients have more common audit accounts where the partners' attention is focused. Consistent with increased professional skepticism, we find that when partners make more frequent audit adjustments and issue more modified opinions to their public clients, the results are stronger. Taken together, our results advance our understanding of the broader impact of public audit regulation on private firms.

Our study is subject to several limitations. First, our proposed mechanisms may not be mutually exclusive. We find evidence that supports both mechanisms but cannot empirically distinguish between them entirely. Second, although we use a relatively stringent identification

strategy and control for client characteristics and risks, it is hard to control for all client and partner characteristics, and it is likely that some of our results might be subject to omitted variable concerns. Furthermore, we use CSA 1504 as a setting and find a spillover benefit on private firm auditing at the partner level. However, other public audit mandates may not have a similar spillover effect. Lastly, while the granular data allow us to observe the signatory auditors' entire client portfolio (particularly private firm audits), the setting in China may have some generalizability concerns due to its different legal, cultural, and institutional framework (e.g., DeFond et al. 2021, Lennox and Wu 2022). For instance, the Big 4 audit firms in China do not hold a significant market share, and the litigation risk associated with auditing services is comparatively lower, even for public clients (e.g., Wu et al. 2020).
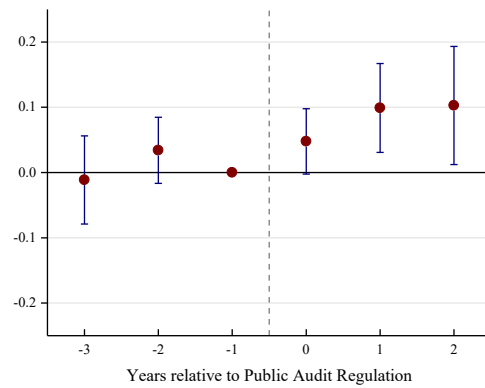
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Figure 1

Years relative to Public Audit Regulation

Notes: This figure uses our main variable of interestand plots the event study-type difference-in-differences estimates. The dependent variable is *Opinion*, which equals 1 if the client receives a qualified audit opinion, and 0 otherwise. Event-year 0 is defined as being after the public audit regulation. To map out the pattern in the counterfactual treatment effects, we make the one year before the implementation of the public audit regulation serve as the benchmark period (i.e., the coefficient is constrained to equal zero).

Table 1: Summary Descriptives

Panel A: Public Firm Sample

	N.	Mean	Median	Std. Dev.	P25	P75
Restatement	16,107	0.032	0.000	0.175	0.000	0.000
Auditfee	16,107	13.648	13.528	0.640	13.218	13.998
Smallprofit	16,107	0.026	0.000	0.158	0.000	0.000
Post	16,107	0.406	0.000	0.491	0.000	1.000
Size	16,107	22.118	21.960	1.300	21.199	22.865
ROA	16,107	0.035	0.036	0.067	0.013	0.065
Lev	16,107	0.425	0.411	0.214	0.252	0.580
MB	16,107	2.432	1.734	2.286	0.921	3.115
Cash	16,107	0.329	0.313	0.171	0.195	0.440
Listage	16,107	2.254	2.303	0.748	1.792	2.944
Indratio	16,107	0.376	0.364	0.054	0.333	0.429
Boardsize	16,107	2.238	2.303	0.177	2.079	2.303
Duality	16,107	0.278	0.000	0.448	0.000	1.000
Gender	16,107	0.383	0.000	0.486	0.000	1.000
Edu	16,107	0.717	1.000	0.450	0.000	1.000
Equity	16,107	0.214	0.000	0.410	0.000	0.000
Ind Expertise	16,107	0.015	0.004	0.034	0.001	0.012

Panel B: Private Firm Sample

	N.	Mean	Median	Std. Dev.	P25	P75
Opinion	209,541	0.039	0.000	0.194	0.000	0.000
Public_Client_Share	209,541	0.005	0.000	0.019	0.000	0.000
Public_Share_Revenues	205,040	0.228	0.000	1.086	0.000	0.000
Public_Share_Review	209,541	0.007	0.000	0.021	0.000	0.000
Public_Client_Share×Post	209,541	0.003	0.000	0.014	0.000	0.000
Post	209,541	0.424	0.000	0.494	0.000	1.000
Size	209,541	8.318	8.247	2.513	6.703	9.868
Lev	209,541	0.647	0.540	0.851	0.194	0.838
ROA	209,541	-0.028	0.002	0.289	-0.017	0.038
Firmage	209,541	2.002	2.079	0.834	1.386	2.639
AssetsTurnover	209,541	0.922	0.413	1.528	0.033	1.135
Loss	209,541	0.391	0.000	0.488	0.000	1.000
SOE	209,541	0.009	0.000	0.095	0.000	0.000
Equity	209,541	0.430	0.000	0.495	0.000	1.000
Ind_Expertise	209,541	0.000	0.000	0.002	0.000	0.000
Public_Experience	209,541	0.738	0.000	1.885	0.000	0.000
Fin_Back	209,541	0.435	0.000	0.496	0.000	1.000
Edu	209,541	0.481	0.000	0.500	0.000	1.000
Gender	209,541	0.478	0.000	0.500	0.000	1.000
Common_Kam	27,489	1.092	0.000	1.806	0.000	2.000
Audit_Adjustment	22,591	-0.067	0.000	0.666	-0.045	0.000
Modified Opinion_Ratio	27,489	0.024	0.000	0.100	0.000	0.011
Economic_Downturn	18,281	0.331	0.000	0.471	0.000	1.000

Notes: This table presents descriptive statistics for the variables used in the analysis. Panel A provides descriptive statistics for the variables used in the analysis of the public audit regulation and audit quality. Panel B provides descriptive statistics for the variables used in the within-audit-partner expertise transfer in private firm auditing. See Appendix A for the variable definitions.

Table 2: Public Audit Regulation and Public Audit Quality

Dependent Variable	Restatement (1)	Auditfee (2)	Smallprofit (3)
Post	-0.021***	0.282***	-0.029*
	(-3.31)	(5.38)	(-1.84)
Size	0.007***	0.354***	0.003
	(2.79)	(40.11)	(1.15)
ROA	-0.208***	-0.812***	-0.093***
	(-5.00)	(-10.44)	(-5.86)
Lev	0.005	0.139***	0.038***
	(0.45)	(3.95)	(3.99)
MB	0.001	0.032***	-0.002***
	(1.44)	(11.09)	(-3.45)
Cash	-0.027**	-0.018	-0.028***
	(-2.39)	(-0.49)	(-2.97)
Listage	0.002	-0.032***	0.004*
	(0.64)	(-3.45)	(1.95)
Indratio	-0.014	-0.169	0.002
	(-0.38)	(-1.42)	(0.04)
Boardsize	-0.014	-0.037	0.008
	(-1.14)	(-0.82)	(0.72)
Duality	0.007*	0.012	-0.002
	(1.73)	(1.07)	(-0.86)
Gender	-0.008**	0.012	0.003
	(-2.39)	(1.29)	(0.98)
Edu	0.001	0.006	-0.001
	(0.20)	(0.54)	(-0.24)
Equity	-0.005	0.029***	0.002
	(-1.30)	(2.58)	(0.48)
Ind_Expertise	-0.113	1.451***	-0.064
	(-1.47)	(4.09)	(-0.98)
Ind FE	Yes	Yes	Yes
Office FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	16,107	16,107	16,107
Adj. R-squared	0.033	0.662	0.046

Notes: This table presents the results from our analysis of the influence of the public audit regulation on public audit quality. In Columns (1) - (3), the dependent variables are *Restatement*, *Auditfee*, and *Smallprofit*, respectively. *Restatement* equals 1 if the firm's financial statements are restated in subsequent years, and 0 otherwise; *Auditfee* is equal to the natural log of audit fees; *Smallprofit* equals 1 if the firms' ROA is between 0 and 0.003, and equals 0 otherwise. The variable of interest is Post, which equals 1 for AH-share listed firms in years since 2016 and A-share listed firms in years since 2017, and 0 otherwise. See Appendix A for the definitions of the control variables. The table reports ordinary least squares (OLS) coefficient estimates and t-statistics (in parentheses) based on robust standard errors clustered by client. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 3: The Effect of Public Firm Audit Regulation on Private Firm Auditing

Dependent Variable: Opinion	Baseline Regression (1)	PSM Sample (2)	Entrophy Balancing Sample (3)
Public_Client_Share×Post	0.067***	0.056**	0.039**
	(3.20)	(2.25)	(2.00)
Public_Client_Share	-0.082***	-0.070***	-0.045***
	(-4.86)	(-3.36)	(-2.92)
Post	-0.000	-0.002	-0.002
	(-0.09)	(-0.48)	(-0.85)
Size	-0.002***	-0.001***	-0.001***
	(-11.56)	(-4.78)	(-5.02)
Lev	0.009***	0.009***	0.010***
	(11.85)	(6.39)	(6.57)
ROA	0.013***	0.015***	0.010***
	(7.59)	(5.21)	(2.96)
Firmage	0.017***	0.011***	0.010***
	(30.98)	(13.25)	(13.57)
AssetsTurnover	-0.004***	-0.003***	-0.003***
	(-13.75)	(-6.23)	(-9.22)
Loss	0.011***	0.007***	0.006***
	(12.01)	(4.61)	(5.64)
SOE	0.002	0.001	-0.003
	(0.42)	(0.22)	(-1.62)
Equity	0.002	0.000	0.002
	(1.13)	(0.01)	(1.19)
Equity×Post	-0.005***	-0.004	-0.006***
	(-2.88)	(-1.33)	(-3.31)
Ind_Expertise	-0.507**	-0.095	-0.180
	(-2.12)	(-0.26)	(-0.81)
Ind_Expertise×Post	0.297	0.369	0.111
	(0.90)	(0.76)	(0.41)
Public_Experience	0.000	0.000	0.000
	(0.67)	(0.45)	(0.96)
Public_Experience×Post	-0.001***	-0.001	-0.001***
	(-2.84)	(-1.36)	(-3.09)
Fin_Back	-0.000	-0.001	0.002
	(-0.15)	(-0.42)	(1.28)
Fin_Back×Post	0.000	0.002	0.003
	(0.15)	(0.94)	(1.48)
Edu	-0.004***	-0.005**	-0.006***
	(-2.87)	(-2.14)	(-3.61)
Edu×Post	0.003**	-0.004	0.001
	(2.06)	(-1.57)	(0.46)
Gender	0.001	-0.000	0.001
	(0.76)	(-0.18)	(0.84)
Gender×Post	-0.002	0.004*	0.004***
	(-1.23)	(1.76)	(2.59)
Office FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	209,541	50,133	209,541
Adj. R-squared	0.312	0.286	0.204

Table 3 (Continued)

Notes: This table presents the results from our analysis of the effect of public firm audit regulation on private-firm auditing. *Public_Client_Share* is equal to the ratio of public clients in the signatory engagement auditors' client portfolio.Columns (1) shows the result with the sample population, and Column (2) and (3) present results with the propensity score matching and entropy balancing matching. See Appendix A for the definitions of the other variables. The table reports ordinary least squares (OLS) coefficient estimates and t-statistics (in parentheses) based on robust standard errors clustered by client. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 4: Knowledge Transfer Mechanism Test

Dependent Variable: Opinion	Common Kam		Industry Specialist	
	More Common Kam	Less Common Kam	Industry Specialist	Non-Industry Specialist
	(1)	(2)	(3)	(4)
Public_Client_Share×Post	0.108***	0.041*	0.035	0.086***
	(2.76)	(1.82)	(0.76)	(2.99)
Public_Client_Share	-0.097***	-0.068***	-0.077**	-0.087***
	(-3.96)	(-3.55)	(-2.06)	(-4.85)
Post	-0.001	-0.001	0.006	0.000
	(-0.33)	(-0.38)	(0.65)	(0.03)
Difference (p-value)	0.014		0.348	
Firm and Partner Controls	Yes	Yes	Yes	Yes
Office FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	188,588	201,583	188,040	200,012
Adj. R-squared	0.317	0.313	0.316	0.314

Notes: This table presents results that examine the knowledge transfer mechanism for the spillover effect. Columns (1) and (2) show the results of subsamples partitioned according to the number of common key audit matters that a partner reports (Common_Kam). *Common_Kam* is equal to the number of common KAMs (e.g. revenues, operating expenses, inventories, receivables, and property, plant and equipment, which are relevant to private firms' unclean audit opinions) that the partner issued to public client. Columns (3) and (4) show the results of subsamples partitioned according to whether the signatory auditor has greater industry expertise during the pre-regulation period. We meausure *Industry_Specialist* based on a partner's whole client portfolio, which includes both public and private clients. *Industry_Specialist* is equal to total revues of clients audited by the partner that are in the same industry with the focal private client divided by total revenues of all firms in the industry. See Appendix A for the variable definitions. The table reports ordinary least squares (OLS) coefficient estimates and t-statistics (in parentheses) based on robust standard errors clustered by client. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 5: Increased Professional Skepticism Mechanism Test

Dependent Variable: Opinion	Audit Adjustment		Modified Opinion Ratio	
	More Adjustment	Less Adjustment	Higher Raitio	Lower Ratio
	(1)	(2)	(3)	(4)
Public_Client_Share×Post	0.103**	0.056**	0.317***	0.041**
	(2.00)	(2.32)	(3.57)	(2.07)
Public_Client_Share	-0.078**	-0.082***	-0.153***	-0.070***
	(-2.15)	(-4.28)	(-4.32)	(-3.86)
Post	-0.002	0.002	-0.000	0.003
	(-0.47)	(0.58)	(-0.11)	(0.92)
Difference (p-value)	0.409		0.002	
Firm and Partner Controls	Yes	Yes	Yes	Yes
Office FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	186,501	195,387	187,679	198,292
Adj. R-squared	0.316	0.315	0.316	0.315

Notes: This table presents results that examine the increased auditor professional skepticism mechanism for the spillover effect. Columns (1) and (2) show the result by partitioning the subsample of signatory auditors based on the change of audit adjustments (*Audit_Adjustment)* around the public audit regulation. *Audit_Adjustment* is equal to the difference between pre-audit earnings and post earnings scaled by the absolute value of pre-audit earnings. If a signatory auditor's absolute change in *Audit_Adjustment* after the public regulation is above the top quartile for the subsample of audit partners that have public clients, they are placed in the subgroup for higher increase in audit adjustments (and vice versa). Columns (3) and (4) show the results for subsamples partitioned according to the partner's change of the ratio of modified audit opinions (*Modified Opinion Ratio*) between the pre-regualtion and post-regulation period. See Appendix A for the variable definitions. The table reports ordinary least squares (OLS) coefficient estimates and t-statistics (in parentheses) based on robust standard errors clustered by client. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 6: Alternative Measures of Public Client Share

Dependent Variable: Opinion	Public_Share_Revenues (1)	Public_Share_Review (2)
Public_Share_Revenue×Post	0.001***	
	(3.76)	
Public_Client_Share (Review)×Post		0.044*
		(1.83)
Public_Client_Revenue	-0.001***	
	(-3.68)	
Public_Client_Share (Review)		-0.001
		(-0.03)
Post	-0.000	0.001
	(-0.10)	(0.48)
Firm and Partner Controls	Yes	Yes
Office FE	Yes	Yes
Industry FE	Yes	Yes
Year FE	Yes	Yes
Observations	205,040	209,541
Adj. R-squared	0.314	0.312

Notes: This table presents the results using alternative measures of partner's public client share. In Column (1), *Public_Share_Revenue* is equal to the total revenue from public clients divided by the total revenue generated by the signatory auditors in year t. In Column (2), *Public_Client_Share (Review)* is measured based on the client portfolio of the top signing partner (the review partner) and is equal to the ratio of public clients in the signatory review auditors' client portfolio. See Appendix A for the definitions of the other variables. The table reports ordinary least squares (OLS) coefficient estimates and t-statistics (in parentheses) based on robust standard errors clustered by client. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Appendix Table:

A. Variable Definitions

B. Industry Distributions

C. KAM in Different Industries

D. Additional Tests for Mechanism Testing

Appendix A: Variable Definition

Panel A. Variables in Public Firm Sample

Variable	Description	Data Source
Restatement	Equals 1 if the firm's financial statements are restated in subsequent years, and 0 otherwise	CSMAR
Auditfee	The natural log of audit fees	CSMAR
Smallprofit	Equals 1 if the firms' *ROA* is between 0 and 0.003, and equals 0 otherwise	MOF
Post	Equals 1 for H-share cross-listed firms in years since 2016 and A-share listed firms since 2017, and equals 0 otherwise	CSMAR
Size	The natural log of total assets	CSMAR
ROA	Net income divided by total assets	CSMAR
Lev	Total liabilities scaled by total assets	CSMAR
MB	The market value of firms divided by the book value	CSMAR
Cash	The value of cash and cash equivalents divided by total assets	CSMAR
Listage	The natural log of the number of years since a client was publicly listed in stock exchanges	CSMAR
Indratio	The ratio of independent directors to the number of board directors	CSMAR
Boardsize	The natural log of the number of directors	CSMAR
Duality	Equals 1 when the CEO of a client also chairs the board, and equals 0 otherwise	CSMAR
Gender	Equals 1 if the signing engagement partner is female, and equals 0 otherwise	MOF
Edu	Equals 1 if the partner has received a bachelors' degree or above, and equals 0 otherwise	MOF
Equity	Equals 1 if the partner has ownership in the audit office, and equals 0 otherwise	MOF
Ind_Expertise	Total assets of firms audited by the partner, which are in the same industry with the focal firm, divided by total assets of all firms in the industry. This measure is constructed based on partners' comprehensive client portfolio, which includes both public clients and private firms.	MOF, CSMAR

Panel B. Variables in Private Firm Sample

Variable	Description	Data Source
Opinion	Equals 1 if a client received unclean audit opinions, and equals 0 otherwise	MOF
Post	Equals 1 in years since 2017 and for signatory auditors that audit H-share cross-listed firms in 2016, and equals 0 otherwise	MOF
Public_Client_Share	Equal to the ratio of public clients in the signatory engagement auditors' client portfolio	MOF
Public_Share_Revenue	The total revenues from public clients divided by total revenues generated by the signatory auditors in year t	MOF
Public_Client_Share (Review)	Equal to the ratio of public clients in the signatory review partners' client portfolio	MOF
Post	Equal to 1 if the year is after 2016 for audit partners with public clients listed in both mainland China and Hong Kong (AH public clients) or if the year is after 2017 for audit partners with non-AH public clients, and 0 otherwise	MOF, CSMAR
Size	The natural log of total assets	Red Shield
Lev	Total liabilities scaled by total assets	Red Shield
ROA	Net income divided by total assets	Red Shield
Firmage	The natural log of years since the firm was founded	Red Shield
AssetsTurnover	Total sales revenues scaled by total assets	Red Shield
Loss	Equals 1 if the earnings of the client is negative, and 0 otherwise	Red Shield
SOE	Equals 1 if the client is state owned enterprises, and 0 otherwise	Red Shield
Equity	Equals 1 if the partner has ownership in the audit office, and equals 0 otherwise	MOF
Ind_Expertise	Total assets of firms audited by the partner, which are in the same industry with the focal firm, divided by total assets of all firms in the industry. This measure is constructed based on partners' comprehensive client portfolio, which includes both public clients and private firms.	MOF, CSMAR

Panel B. Variables in Private Firm Sample (Continued)

Variable	Description	Data Source
Public_Experience	Equals the number of years that the partner has started to audit public firms	CSMAR
Fin_Back	Equals 1 if the partner was majored in financial-related majors such as accounting, financial management and finance.	MOF
Edu	Equals 1 if the partner has received a bachelors' degree or above, and equals 0 otherwise	MOF
Gender	Equals 1 if the signing partner is female, and equals 0 otherwise	MOF
Common_Kam	Number of common key audit matters that the partner issued to public clients. Common key audit matters refers to KAMs that are more prevalent among private firms, including revenues, operating expenses, inventories, receivables, and property, plant and equipment.	CNRDS
Modified Opinion_Ratio	Equals the number of modied opinions the parther has given to public clients scaled by total number of public clients during the year	CSMAR
Economic_Downturn	Equals 1 if the parther started his/her auditing career in economic downturn years, and equals 0 otherwise	MOF

Notes: This table presents the definitions of variables used in our paper. Panel A shows the variables used in the analyses of public firms, while Panel B shows the variables used in the analyses of private firms.

Appendix B: Industry Distribution

Panel A. Indusrty dirstribution in public firm sample

Industry	Observation	Percent
Agriculture, Forestry, Animal Husbandry, and Fishery	224	1.39%
Mining	404	2.51%
Manufacture	10,455	64.91%
Electricity, Heat, Gas, and Water Production and Supply	529	3.28%
Construction	439	2.73%
Wholesale and Retail	846	5.25%
Transportation, Warehousing, and Postal Service	459	2.85%
Lodging and Catering	60	0.37%
Information Transmission, Software, and Information Technology Service	1,033	6.41%
Real Estate	700	4.35%
Leasing and Business Service	191	1.19%
Scientific Research and Technology Service	157	0.97%
Water Conservancy, Environment, and Public Facilities Management	198	1.23%
Resident Service, Repair, and Other Services	1	0.01%
Education	11	0.07%
Health and Social Work	36	0.22%
Culture, Sports, and Entertainment	226	1.40%
Comprehensive	138	0.86%
Full Sample	16,107	100.00%

Panel B. Indusrty dirstribution in private firm sample

Industry	Observation	Percent
Agriculture, Forestry, Animal Husbandry, and Fishery	4,918	2.35%
Mining	1,934	0.92%
Manufacture	46,695	22.28%
Electricity, Heat, Gas, and Water Production and Supply	7,343	3.50%
Construction	14,424	6.88%
Wholesale and Retail	37,307	17.80%
Transportation, Warehousing, and Postal Service	7,471	3.57%
Lodging and Catering	2,525	1.21%
Information Transmission, Software, and Information Technology Service	7,881	3.76%
Finance	8,730	4.17%
Real Estate	17,618	8.41%
Leasing and Business Service	25,134	11.99%
Scientific Research and Technology Service	18,172	8.67%
Water Conservancy, Environment, and Public Facilities Management	2,679	1.28%
Resident Service, Repair, and Other Services	2,957	1.41%
Education	229	0.11%
Health and Social Work	467	0.22%
Culture, Sports, and Entertainment	3,028	1.45%
Comprehensive	29	0.01%
Full Sample	209,541	100.00%

Notes: This table presents the industry distribution for observations in our sample.

Appendix C: KAMs in Different Industries

Industry	Mean Value of KAM
Agriculture, Forestry, Animal Husbandry, and Fishery	2.015
Mining	1.988
Manufacture	2.107
Electricity, Heat, Gas, and Water Production and Supply	2.153
Construction	1.999
Wholesale and Retail	2.099
Transportation, Warehousing, and Postal Service	1.896
Lodging and Catering	2.149
Information Transmission, Software, and Information Technology Service	2.192
Real Estate	2.019
Leasing and Business Service	2.098
Scientific Research and Technology Service	2.117
Water Conservancy, Environment, and Public Facilities Management	1.983
Resident Service, Repair, and Other Services	1.925
Education	2.059
Health and Social Work	2.212
Culture, Sports, and Entertainment	2.006
Comprehensive	2.500
Full Sample	2.082

Notes: This table shows the mean value of KAMs in different industries.

Appendix D: Additional Tests for Mechanism Testing

Dependent Variable: Opinion	Big 4		Economic Downturn	
	Big 4	Non-Big 4	Downturn Partners	Non-Downturn Partners
	(3)	(4)	(3)	(4)
Public_Client_Share×Post	0.021	0.077***	0.046	0.052**
	(0.56)	(3.31)	(1.17)	(2.14)
Public_Client_Share	-0.014	-0.099***	-0.074**	-0.074***
	(-0.47)	(-5.17)	(-2.25)	(-3.56)
Post	0.002	-0.002	0.000	0.000
	(0.79)	(-0.49)	(0.02)	(0.01)
Difference (p-value)	0.204		0.896	
Firm and Partner Controls	Yes	Yes	Yes	Yes
Office FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	185,323	206,266	188,109	194,269
Adj. R-squared	0.317	0.312	0.317	0.314

Notes: This table presents robustness checks for the mechanism testing. Columns (1) and (2) show the results of signatory auditors with public clients into two subsamples based on the origin of audit partners (*Big 4*). *Big 4* is equal to 1 if the signatory auditor comes from Big 4 audit firms, and equals 0 otherwise. Columns (3) and (4) show the results for subsamples partitioned according to whether the partner starts his/her audit career in economic downturn years. See Appendix A for the variable definitions. The table reports ordinary least squares (OLS) coefficient estimates and t-statistics (in parentheses) based on robust standard errors clustered by client. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.