

# Does Ownership Structure Affect Audit Quality? Evidence from Non-CPA Ownership Provisions

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Current draft: August 2026

## ABSTRACT

This paper examines whether allowing non-CPAs to own an equity stake in CPA firms affects audit quality. Exploiting the staggered adoption of state statutes that allow non-CPA ownership in audit entities, I compare audit quality between clients whose auditors operate in adopting states and those whose auditors operate in non-adopting states. I study three audit settings: public company financial statement audits, nonprofit organization (NPO) financial statement audits, and employee benefit plan (EBP) audits. Across all three settings, I find that audit quality declines following adoption, with the declines concentrated among clients audited by small audit firms. Adoption is also associated with an increase in the number of audit firms operating in treated states and lower audit fees in NPO and EBP audits. In contrast, public company audit fees remain unchanged. These results indicate that fee pressure arises primarily in markets dominated by small audit firms. Taken together, the evidence suggests that non-CPA ownership weakens professional accountability within firms and intensifies audit market competition, affecting both audit quality and pricing.

**Keywords:** Audit Quality; Ownership Structure; Non-CPA Ownership; CPA Firms; Professional Partnerships; Audit Market Competition; Audit Fees

**JEL Classification:** J44, L11, L84, M41, M42, M48

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\* I am deeply grateful for the support and guidance I received from my dissertation committee: John Core, Nemit Shroff (chair), and Andrew Sutherland. This paper is the recipient of the Best Paper Award from the 2026 Rutgers Accounting Doctoral Symposium. I thank Matthias Breuer, Jong-Hag Choi, Bala Dharan, Chuck Downing, Raphael Duguay, Sophia Hamm, Jung Koo Kang, Clive Lennox, Jeffrey Mahoney, Joe Moran, Jae Yong Shin, Rodrigo Verdi, Felix Vetter, Joe Weber, Chloe Xie, and seminar participants at the 2026 Korean American Accounting Professors Association (KAAPA) Summer Conference, MIT, and the 2026 Rutgers Accounting Doctoral Symposium for providing helpful comments and suggestions. I am grateful to MIT for its generous financial support. All errors are my own.

## 1. Introduction

CPA firms are organized as professional partnerships, which mitigate agency problems by concentrating decision rights and residual risk-bearing in the same individuals (Fama and Jensen 1985).<sup>1</sup> Partners deliver audit services while bearing financial and licensure risk arising from regulatory sanctions when audit quality is deficient. Consistent with this logic, U.S. state accountancy statutes have historically restricted equity ownership in CPA firms to licensed CPAs (AICPA/NASBA 1992). However, many states have relaxed these restrictions, allowing non-CPAs to own equity and thereby raising the question of how expanded ownership affects audit quality.<sup>2</sup>

This question has become increasingly salient as private equity (PE) investment in the accounting industry accelerates. For example, the first PE investment in a top 20 U.S. accounting firm occurred in 2021, and PE funds invested in about a quarter of the 30 largest firms in 2024 alone (Drew 2021; Iacone 2025). Recent studies examine the consequences of PE investment in *non-audit* affiliates of accounting firms (e.g., Borysoff et al. 2024; Doan et al. 2025; Cui et al. 2026). However, these studies find limited and mixed evidence on audit quality.<sup>3</sup> One reason is that such investments are recent, and any effects on audit quality may take years to materialize. PE investment is also endogenous because PE funds select target firms on observable fundamentals (Bernstein 2022), and subsequent differences in audit quality may reflect this selection rather than the ownership change. Moreover, ownership changes in non-audit affiliates may not materially affect the control rights governing the audit practice, limiting implications for audit quality.

In this paper, I examine whether allowing non-CPAs to own equity in *audit* entities affects audit quality. The effect of non-CPA ownership on audit quality is *ex ante* ambiguous. On the one hand, partnership governance is effective because key decision makers bear the consequences of their decisions (Levin and Tadelis 2005). In audit firms, licensed partners both manage audit

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<sup>1</sup> In corporations, by contrast, ownership is separated from control, and agency costs are managed through disclosure, board oversight, and capital-market discipline (Shleifer and Vishny 1997). These mechanisms are less effective for professional services, where service quality depends on specialized expertise and is often difficult for outside parties to verify (Levin and Tadelis 2005).

<sup>2</sup> I use "non-CPA" to refer to an individual without a CPA license, and "non-CPA ownership" to refer to such an individual owning equity directly in the audit entity of an accounting firm. Accordingly, equity held only in a legally separate, affiliated non-audit business, such as a consulting entity, does not constitute non-CPA ownership. Section 2 describes the distinction in detail.

<sup>3</sup> Abramova and Barrios (2025) and Mao et al. (2025) also examine PE investments in the accounting industry but focus on firm growth, deal structures, and audit pricing rather than audit quality.

engagements and share in the firm's gains and losses, giving them strong incentives to maintain audit quality. Partners also monitor one another because any partner's failure can impose reputational costs on all others (Kandel and Lazear 1992). Non-CPAs, by contrast, do not have a CPA license to lose and do not sign audit opinions, leaving them less exposed to sanctions from the profession following audit failures. Expanding ownership to non-CPAs can therefore separate decision authority from professional risk, attenuating monitoring incentives and increasing agency problems within the firm.

Non-CPA ownership can also affect audit quality through increased audit market competition. By expanding the set of potential equity participants, non-CPA ownership can facilitate entry by new audit firms, particularly in local audit markets.<sup>4</sup> Changes in competition shift bargaining power between audit firms and clients such that equilibrium audit quality can change in either direction depending on which side's preferences dominate (Cook et al. 2020; Li et al. 2025).<sup>5</sup> One possibility is that entry intensifies competition for clients and shifts auditors' incentives toward client retention (Koh et al. 2013), leading auditors to exercise less professional skepticism (Newton et al. 2013; Pan et al. 2023) and strengthening companies' bargaining power to demand more reporting discretion (Newton et al. 2016). On the other hand, to the extent clients bear part of the costs of low audit quality (Palmrose et al. 2004) and enjoy the capital market benefits of high-quality audits (Blackwell et al. 1998; Minnis 2011; Kausar et al. 2016; Shroff 2020), the same increase in competition can instead strengthen auditors' incentives to supply high-quality audits.

Beyond competition, integrating non-CPAs can bring complementary human capital and financial resources. The core assets of professional partnerships are reputation and human capital (Morrison and Wilhelm 2004), and audit firms are no exception (van Lent 1999). Non-CPAs can contribute industry expertise as well as IT and data analytics capabilities. Allowing equity participation strengthens incentives for these employees to remain within the firm as their advancement is otherwise capped because they cannot become partners. Equity participation by

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<sup>4</sup> For example, non-CPA ownership allows new audit firms to be formed with non-CPAs rather than with licensed CPAs alone. Establishing an audit firm requires upfront investment and working capital to cover operating expenses before client fees are collected (Poe 2012). Broadening the set of potential owners who can supply this capital can thus lower barriers to entry.

<sup>5</sup> I refer to firms performing audits as "audit firms" or "auditors" and their clients as "audit clients" or "companies."

non-CPAs also expands the capital available to the firm, supporting investments in staff training and quality control (Barry 2011). Through these channels, integrating non-CPAs can expand audit production capacity and improve audit quality. Taken together, the net effect of non-CPA ownership on audit quality is an empirical question.

Empirically testing the effect of non-CPA ownership on audit quality is challenging because historical ownership data for audit firms are not publicly available, making it difficult to directly observe changes in audit firm ownership structure over time. I partially overcome this challenge by using the staggered state-level adoption of non-CPA ownership provisions, which began in the mid-1990s, as an institutional shock that relaxes statutory restrictions on who may own equity in audit firms and thereby plausibly shifts firms' ownership structure.<sup>6</sup>

I use three audit settings to examine this effect: (i) public company financial statement audits, (ii) nonprofit organization (NPO) financial statement audits, and (iii) employee benefit plan (EBP) audits. These settings differ in the size of the audit firms that dominate each market, which shapes where non-CPA ownership is likely to be prevalent. Public company audits are concentrated among Big N firms, where non-CPA ownership is essentially absent. However, a non-trivial share is conducted by non-Big N firms, where non-CPAs are more likely to hold equity. Because public company audit quality is disciplined by PCAOB inspection and capital market scrutiny (DeFond and Zhang 2014), this setting allows me to assess whether any ownership-related effects observed among smaller firms persist under strong external oversight. In contrast, NPO and EBP audits are performed primarily by local auditors, where non-CPA ownership is more common. Without capital market discipline, clients may treat these audits as compliance exercises and prioritize lower audit fees over higher audit quality (Minnis and Shroff 2017; Breuer et al. 2025). However, to the extent that clients demand audit quality, the sources of that demand differ between the two audit markets. For NPO audits, audit quality supports access to donations and grants, as funders rely on audited financial statements to assess stewardship over restricted resources (Kitching 2009;

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<sup>6</sup> Outside the U.S., ownership information is partially observable in some jurisdictions through public registers. For example, Companies House in the U.K. requires firms to disclose designated members' names. However, the U.K. permitted non-CPA ownership in audit firms beginning in 1991, a decade before this disclosure regime began in 2001. The U.K. setting also lacks the staggered cross-jurisdiction variation in non-CPA ownership rules that supports the U.S. design.

Duguay 2022). In EBP audits, the incentive for audit quality comes largely from regulatory enforcement (DOL 2025). Examining all three settings thus allows me to triangulate the relation between ownership and audit quality when different economic forces dominate, strengthening the external validity of the findings.

I begin by validating state-level adoption of non-CPA ownership provisions as an empirical setting in four ways. First, I show that adoption timing is not explained by local CPA labor market conditions or state macroeconomic factors, mitigating concerns that the policy coincides with broader economic shocks. Second, using owner information from Alabama and Alaska, I document that non-CPA ownership in both states rises soon after each state's adoption of the provisions.<sup>7</sup> Third, I find that adoption is followed by an increase in the number of CPA firms operating in the state, consistent with relaxed ownership restrictions easing entry.<sup>8</sup> To rule out contemporaneous state-level shocks, I use a triple-difference design that compares the change in the number of CPA firms to the change in the number of law firms within the same state following adoption (e.g., Bloomfield et al. 2017; Cascino et al. 2021). The increase in the number of firms appears only in the accounting profession. Fourth, I document a modest decline in CPA exam candidates following adoption, consistent with the provisions reducing licensure incentives (e.g., in cases of family succession at small CPA firms).

Having validated the setting, I compare audit quality between clients whose auditors operate in states that adopt non-CPA ownership provisions and those whose auditors operate in states that have not (yet) adopted such provisions, using a stacked difference-in-differences design (Baker et al. 2022; Barrios 2022a). I measure audit quality using established proxies specific to each setting, following prior research. For public company audits, I proxy for audit quality using clients' absolute total accruals and financial restatements (Aobdia 2019).<sup>9</sup> For restatements, following

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<sup>7</sup> I contacted the boards of accountancy in all 50 U.S. states and the District of Columbia to assess the availability of audit firm ownership data. Most responding boards indicated that historical ownership information is either not maintained or confidential under state law. Alabama and Alaska, however, make owner information partially available. I describe the board inquiry process in detail in section 1 of the online appendix.

<sup>8</sup> I measure the number of CPA firms using NAICS code 541211 (Offices of Certified Public Accountants), which the Census Bureau defines as establishments of accountants certified to audit accounting records and to attest to compliance with GAAP. Firms primarily engaged in providing tax, payroll, or bookkeeping services are classified separately under NAICS codes 541213, 541214, and 541219 and are excluded from the count.

<sup>9</sup> In robustness analyses, I use signed total accruals as the dependent variable and obtain largely consistent results.

Hennes et al. (2008), I focus on accounting irregularities, which are restatements caused by intentional misreporting rather than unintentional errors. Using these measures, I find that clients whose auditors operate in adopting states report higher absolute total accruals by 0.6% of total assets relative to clients whose auditors operate in non-adopting states, corresponding to 2.8% of the pre-treatment standard deviation. These clients also experience a 0.9 percentage point increase in the probability of an irregularity, corresponding to 6.4% of the pre-treatment standard deviation.

To shed light on potential mechanisms, I conduct additional analyses in the public company audit setting. First, I examine whether the adoption of the provisions is associated with changes in restatements attributable to *unintentional* errors among treated clients relative to those of control clients.<sup>10</sup> If non-CPA ownership affects audit quality through routine audit execution or investments in audit technology, such effects should be reflected in improved detection of clients' unintentional errors and thus a decline in such restatements. I find no differential change in unintentional errors between treated and control clients, suggesting limited effects on routine execution or audit technology. Second, I split accounting irregularities into those correcting income overstatements (overstatement irregularities) and those correcting income understatements (understatement irregularities). The post-adoption increase in irregularities is concentrated in overstatement irregularities. Treated clients experience a 1.0 percentage point increase in the probability of overstatement irregularities, with no detectable change for understatement irregularities. This asymmetry is consistent with auditors becoming more tolerant of income overstatements, reflecting weaker incentives to challenge companies' aggressive reporting.

For NPO audits, I use two proxies for audit quality. The first is the program ratio, which measures the share of total expenses allocated to mission-related activities rather than administrative and fundraising functions. This ratio is a salient metric that donors and rating agencies use to assess organizational effectiveness, giving NPOs incentives to inflate it by

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<sup>10</sup> Irregularities and unintentional errors capture different dimensions of audit quality. Irregularities are intentional misstatements by clients. Thus, detecting them reflects the auditor's professional skepticism in challenging clients' aggressive reporting, which is the dimension that both the agency and competition channels predict will weaken under non-CPA ownership. Unintentional errors, by contrast, are inadvertent misstatements. Thus, catching them reflects routine audit execution, which is less tied to the ownership change. I therefore use irregularities as the primary proxy and examine unintentional errors as a mechanism test.

opportunistically classifying overhead expenses as program spending (Baber et al. 2001; Keating et al. 2008). The second is the likelihood of reporting zero fundraising expenses, which is an extreme form of such misclassification (Krishnan et al. 2006). Higher-quality audits can constrain such behaviors and enhance reporting credibility (Harris et al. 2015; Duguay 2022). I find that NPOs audited by firms in adopting states report a 0.5 percentage point higher program ratio and a 4.8 percentage point increase in the likelihood of reporting zero fundraising expenses, relative to NPOs audited in non-adopting states, consistent with lower audit quality. These effects correspond to increases of 5.6% and 10.9% of the respective pre-treatment standard deviations.

Lastly, for EBP audits, I proxy for audit quality using deficient filer enforcement cases. EBPs file Form 5500 annually with the Internal Revenue Service (IRS) and Department of Labor (DOL) to report plan finances, investments, and operations. Deficient filers are benefit plans whose Form 5500 filings are rejected by the Employee Benefits Security Administration (EBSA) for violations of statutory reporting requirements. Auditors are expected to prevent such violations through pre-issuance review and reconciliation of the Form 5500 filing. Deficient filings reflect failures in auditors' verification process (Cascino et al. 2021). I find that EBPs whose auditors operate in adopting states are 0.4 percentage points more likely to be identified as deficient filers than plans audited in non-adopting states. This difference represents an increase of 5.6% relative to the pre-treatment standard deviation, suggesting a decline in EBP audit quality after adoption.

Pre-treatment trends in audit quality are similar for treatment and control clients across all three audit settings. After adoption, the trends diverge, with effects beginning to emerge one to three years after the restrictions on non-CPA ownership are relaxed, depending on the audit quality proxy. The delayed response is consistent with adjustment frictions within audit firms. Implementing non-CPA ownership requires firms to identify and recruit non-CPAs into equity-holding roles and to integrate them into audit production and governance. Thus, the implications for audit quality are likely to materialize gradually.

Next, I examine heterogeneity by audit firm size, partitioning each of the three samples into clients audited by Big N and non-Big N firms. Both the agency and competition channels predict stronger effects among non-Big N firms, although for different reasons. The agency channel

requires non-CPAs to own equity, which weakens within-firm professional accountability. Because non-CPA ownership is essentially absent at Big N firms, agency-related effects should concentrate at non-Big N firms. The competition channel similarly predicts stronger effects at non-Big N firms, which primarily operate in local audit markets where entry induced by non-CPA ownership intensifies competition and shifts firms' incentives toward client retention. Big N firms, by contrast, face less competitive pressure from new entry due to their stronger reputations (DeAngelo 1981; Weber et al. 2008) and the higher switching costs faced by their larger clients (Krishnan 1994; Guo et al. 2024). Consistent with both channels, I find that declines in audit quality across all three settings are concentrated among clients of non-Big N auditors.

I then assess whether allowing non-CPAs to own equity affects the pricing of audit services. Non-CPA ownership is expected to put downward pressure on audit fees by increasing entry into local audit markets. In addition, access to outside capital partially substitutes for partners' own capital, reducing the amount of undiversified risk borne by partners and, in turn, the risk premium required to supply audit services. Consistent with these predictions, I find that audit fees decline in NPO and EBP audit markets, which are dominated by non-Big N auditors. In contrast, I find no evidence of fee reductions in the public company audit market, where audit supply is highly concentrated among Big N auditors and entry is limited. However, even within the public company setting, I find some evidence of audit fee declines among clients of non-Big N auditors, consistent with competitive effects being concentrated among auditors more exposed to entry.

This paper contributes to the audit firm governance literature by documenting how ownership structure within the audit firm affects audit quality. Prior studies examine partner ownership among licensed CPAs in a Chinese setting (Lennox et al. 2020, 2025) or PE investments in non-audit affiliates of accounting firms, where ownership does not directly confer control rights over audit practice (Borysoff et al. 2024; Abramova and Barrios 2025; Doan et al. 2025). In contrast, I exploit staggered state-level adoptions that permit non-CPAs to own equity directly in audit firms. This institutional change reallocates residual claims within the audit firm without extending licensure risk, allowing me to isolate the effects of separating ownership from professional accountability.

Second, this study contributes to the literature on audit market structure (Pearson and Trompeter 1994; Koh et al. 2013; Cook et al. 2020; Pan et al. 2023; Li et al. 2025) by showing that ownership regulation shapes competition in local audit markets. By relaxing statutory restrictions on equity participation, non-CPA ownership provisions expand audit market participation at the state level. I document an increase in the number of audit firms operating in adopting states, accompanied by declines in audit fees in NPO and EBP markets, where non-Big N auditors dominate. In contrast, audit fees in the public company market remain unchanged, consistent with the high concentration of Big N firms and limited scope for entry (GAO 2008). Together, these findings show that ownership regulation shapes both audit market participation and competitive outcomes, with implications for audit quality and pricing.

Finally, this paper contributes to the literature on the organizational form of professional partnerships (Kandel and Lazear 1992; Morrison and Wilhelm 2004; Levin and Tadelis 2005) by providing empirical evidence on how ownership restrictions shape service quality. Using evidence from CPA firms, I show that allowing non-CPAs to hold equity is associated with audit quality declines. My findings suggest that weakening the alignment between authority and professional risk may dominate the complementarities from broader ownership in professional service firms.<sup>11</sup>

## **2. Non-CPA Ownership Provisions**

### ***2.1. Institutional Background***

Historically, U.S. state accountancy statutes required that all equity holders of CPA firms be licensed accountants (AICPA/NASBA 1992).<sup>12</sup> This rule reflected a long-standing view that those who control an audit firm should also be professionally accountable for audit quality. Since

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<sup>11</sup> The focus of this paper is on the effect of non-CPA ownership on audit quality and not on evaluating its welfare consequences. Whether the decline in audit quality reduces welfare depends on how much financial statement users value assurance. For clients whose stakeholders place little value on assurance, a lower-quality and lower-cost audit may simply reflect the market supplying the assurance demanded (Minnis and Shroff 2017; Breuer et al. 2025). By contrast, for clients whose investors or donors rely on audited financial statements, the same decline may impose real costs by reducing the reliability of that information (DeFond and Zhang 2014; Duguay 2022). Whether this trade-off nets to a welfare gain or loss is beyond the scope of this paper.

<sup>12</sup> The Uniform Accountancy Act defines a CPA firm broadly to include a partnership or any other form of organization through which CPAs provide attest services. In practice, CPA firms are typically organized as limited liability partnerships, limited liability companies, or professional corporations. The non-CPA ownership provisions apply consistently across these forms. Throughout the paper, I use "professional partnership" in the economic sense to refer to a governance structure in which equity is concentrated among licensed professionals who participate in decision making (Fama and Jensen 1983), rather than the statutory form.

licensed CPAs are personally subject to professional discipline and reputational concerns, restricting ownership to CPAs was viewed as important for maintaining independence and protecting the public interest. By the mid-1990s, however, regulators and professional bodies began to question whether a strict CPA-only ownership rule was unnecessarily restrictive and constrained firms' ability to attract capital and specialized expertise. For example, at the 1997 American Institute of Certified Public Accountants (AICPA) meeting, then-Chair Robert Mednick noted that "in today's complex business world, even the audit often requires the skills and knowledge of non-CPAs. And in order to get the most qualified individuals, non-CPAs need to have the ability to acquire equity ownership." He argued that such participation would strengthen audit quality by helping firms incorporate complementary expertise into audit engagements.

In response to these concerns, the AICPA and the National Association of State Boards of Accountancy (NASBA) jointly introduced the Third Edition of the Uniform Accountancy Act (UAA), which served as a model statute for state accountancy boards. Section 7(c)(1) of the UAA permitted firms to admit non-licensee owners so long as licensed CPAs retained a simple majority of the firm's equity. The UAA also required non-licensee owners to participate actively in the firm and reserved signature authority on attest engagements to licensed CPAs.<sup>13</sup> Since the UAA itself is not binding, these provisions took effect only when adopted by individual state boards. Adoption proceeded gradually across states. Nebraska was the first state to implement such a provision in 1994, followed by North Carolina in 1995. By 2024, all states and the District of Columbia, except Hawaii, had enacted legislation permitting non-CPAs to own up to 49 percent of a firm's total equity. Table 1, panel A, reports the effective dates of these adoptions across states, and figure 1 presents the adoption timeline graphically.

An important implication of this institutional change is that it relaxed statutory restrictions on direct ownership within the firm's licensed audit entity. Prior to adoption, non-CPAs were not necessarily absent from firm operations. Some firms could already rely on consultants, technicians, and other employees without CPA licenses whose work may have affected the operation of the

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<sup>13</sup> The UAA imposed few additional conditions on non-CPA ownership. For example, non-licensee owners were subject to state board fitness requirements, including good-character standards that generally excluded those with dishonesty-related convictions.

audit practice. In some cases, non-CPAs may also have shared in firm profits through organizational arrangements that differed across firms.<sup>14</sup> The non-CPA ownership provisions, however, authorized minority non-CPA ownership within the licensed audit entity. By permitting non-CPAs to own equity directly in that entity, the reform tied their participation more directly to the firm's governance and residual claims.

These provisions operate at the state level and cannot be circumvented through cross-state registration. Public accounting in the U.S. is regulated by state boards of accountancy, and each CPA firm office that provides attest services (e.g., audits and reviews) must comply with the accountancy statutes of the state in which it is located, including ownership requirements. The applicable ownership rule is therefore determined by the state in which the audit office that performs the engagement is located.<sup>15</sup> As a result, a firm cannot avoid a state's non-CPA ownership rule by relying on the registration of a different office in a more permissive state.<sup>16</sup> Moreover, audit production is organized around local offices and engagement partners subject to oversight by state boards of accountancy. Accordingly, ownership rules shape firms' internal governance and promotion systems at the state-office level.

A common concern in studies examining policy changes is that such changes rarely occur in isolation (Leuz and Wysocki 2016; Leuz 2018). In my setting, such a concern arises if adoption timing was influenced by contemporaneous changes in economic or labor market conditions. For example, states experiencing changes in the local supply of licensed CPAs or broader economic shocks might have been more inclined to relax ownership restrictions. To assess this possibility, I use a Cox proportional hazards model and examine whether adoption sequences are systematically

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<sup>14</sup> For example, some firms used alternative practice structures to accommodate non-CPA participation within existing legal constraints. Section 2.2 provides a more detailed discussion of these structures and explains how they differ from non-CPA ownership provisions.

<sup>15</sup> This logic applies to Big N audit firms as well. Audit partners may share in the equity of a national parent firm. However, discussions with multiple state boards of accountancy confirm that ownership requirements are applied at the level of the local CPA firm office that performs the audit engagement. The relevant ownership measure is the composition of the local office's partners under the applicable state's accountancy statute, not the national firm's overall partnership. As a result, two offices of the same firm can be subject to different ownership rules if they operate in states with different accountancy statutes.

<sup>16</sup> CPA Mobility provisions relax certain temporary licensing requirements for out-of-state CPA firms engaged in interstate practice (e.g., Cascino et al. 2021; Aobdia et al. 2025). However, these provisions do not override the accountancy statutes of the state in which the attest services are performed, including ownership requirements. Accordingly, mobility provisions do not allow a firm to avoid a state's non-CPA ownership restrictions by relying on registration in another state.

related to characteristics of the local CPA labor market (e.g., levels and growth of CPA wages and employment) as well as broader state-level macroeconomic factors (e.g., GDP, unemployment, and entrepreneurial activity). As reported in table 1, panel B, neither local CPA labor market characteristics nor macroeconomic conditions predict the timing of adoption, mitigating concerns that the adoption sequence reflects contemporaneous labor market or macroeconomic shocks.

## ***2.2. Distinction from Alternative Practice Structures***

Non-CPA ownership provisions are distinct from the alternative practice structure (APS), an existing organizational arrangement under which non-CPAs participate in accounting firms through a different ownership channel. Under APS, the CPA firm that performs attest services remains a separate legal entity owned exclusively by licensed CPAs, while a second affiliated entity provides the firm's non-attest services (e.g., consulting and technology-related services).<sup>17</sup> Because the non-attest entity does not perform regulated attest work, it is not subject to state accountancy board ownership restrictions. As a result, ownership of that entity is not restricted to licensed CPAs. The two entities often share personnel and infrastructure through lease and service agreements that transfer compensation between them. However, they remain legally distinct, and non-CPAs do not share in the residual claims of the audit entity.

This distinction matters because APS and non-CPA ownership provisions affect the audit practice through different ownership arrangements. Non-CPA participation under APS is confined to an affiliated non-attest entity, whereas non-CPA ownership provisions permit non-CPAs to hold equity directly in the licensed CPA firm. The statutory reform therefore changes who can share in the residual claims and governance rights of the entity responsible for attest services, whereas APS preserves CPA-only ownership of that entity. The distinction also has implications for personnel incentives inside the licensed CPA firm. Legal permission for non-CPAs to own equity directly in the licensed CPA firm expands partnership access for employees without CPA licenses who

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<sup>17</sup> For example, Grant Thornton employs an APS by separating into two affiliated legal entities: Grant Thornton LLP, which provides audit and assurance services, and Grant Thornton Advisors LLC, which offers non-audit consulting services.

otherwise would have remained in managerial roles without a path to ownership.<sup>18</sup> APS does not create the same incentive because the licensed CPA firm remains closed to non-CPA owners, even if the firm network includes non-CPA owners elsewhere (e.g., in the affiliated non-attest entity).

In practice, APS usage was limited before the 2020s, which further distinguishes APS from the state-level ownership reforms. A 2008 U.S. Government Accountability Office (GAO) report noted that only “a small number of firms” employed APS and that such structures were uncommon enough to draw additional regulatory scrutiny. Industry experts also emphasized their operational complexity. Ronald Eagar, president of Grassi & Co., described APS as “like running three separate companies when you could simply be running one. It causes more expenses to compete and makes it mechanically more difficult to operate.” Widespread interest in APS emerged after 2021, following a sharp increase in PE investment in the accounting industry. For example, Mao et al. (2025) document that only seven traditional accounting firms were acquired by PE investors between 2000 and 2020 (0.33 acquisitions per year), compared with 31 acquisitions between 2021 and 2024 (7.75 acquisitions per year). These PE-backed firms adopted APS to structure their investments by separating non-attest services from attest services within the firm network.

### ***2.3. Effect on Non-CPA Ownership, State-Level Audit Firm Entry, and the CPA Labor Market***

To support the use of non-CPA ownership provisions as an empirical setting, I examine whether the adoption of the provisions affects non-CPA ownership, state-level audit firm entry, and the CPA labor market. I begin by showing that non-CPA ownership increased soon after the adoption. Historical ownership data is not available for most states, but Alabama and Alaska make owner information partially available for firms operating in each state. I identify owners without a CPA license from public records and track their number around each state’s adoption.<sup>19</sup> Figure 2, panels A and B, plot the yearly number of newly admitted owners without the license in Alabama and Alaska, respectively. Non-CPA ownership was initially absent in both states and increased within a year of each state’s adoption.

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<sup>18</sup> I provide descriptive characteristics of non-CPAs within audit entities, including their role composition, educational background, and seniority, compared with CPAs, in section 2 of the online appendix.

<sup>19</sup> I describe the construction of the Alabama and Alaska non-CPA ownership data in detail in section 1 of the online appendix.

I next examine state-level audit firm entry. I measure firm entry by the number of CPA firms operating in the state, and capture related supply-side responses in the CPA labor market using CPA exam candidates. Allowing non-CPA ownership enables CPA firms to raise additional capital and admit individuals previously excluded from equity ownership into the partnership. This broader access to capital and partnership positions can facilitate the formation of new firms. If APS arrangements already provided sufficient access to capital, the statutory adoption of non-CPA ownership should have little effect on firm entry. Accordingly, an increase in the number of firms following adoption would indicate that non-CPA ownership provisions are economically distinct from APS. To examine the effects of adoption on firm entry, I employ a stacked difference-in-differences (DiD) design following Baker et al. (2022) and Barrios (2022a). Using data from the Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages (QCEW), I estimate Poisson regressions of the following form on the stacked state-year-cohort level dataset.<sup>20</sup>

$$y_{s,t,c} = \exp(\beta_1 Treated_{s,c} \times Post_{t,c} + \sum \gamma_1 Controls_{s,t} + \sum \gamma_2 Fixed\ Effects) + \varepsilon_{s,t,c} \quad (1)$$

where  $s$ ,  $t$ , and  $c$  index states, years, and treatment cohorts, respectively. The dependent variable,  $y_{s,t,c}$ , is the number of firms that are classified as NAICS code 541211 (Offices of Certified Public Accountants) in state  $s$  in year  $t$ .<sup>21</sup>  $Treated_{s,c}$  equals one for treated states in cohort  $c$  and zero for control states.  $Post_{t,c}$  equals one beginning in the year in which the treated states in cohort  $c$  adopt non-CPA ownership provisions, and remains one thereafter.

Table 2, panel B, reports the baseline results. In column 1, I estimate the model with State  $\times$  Cohort and Year  $\times$  Cohort fixed effects. Column 2 adds time-varying controls with the same fixed-effect structure. Across both specifications, the coefficient on  $Treated \times Post$  is positive, statistically significant, and similar in magnitude. For example, in column 2, the coefficient is 0.046 ( $z$ -stat. = 2.73), indicating a 4.7% ( $\approx e^{0.046} - 1$ ) increase in the number of firms following adoption, relative to non-adopting states. Given a pre-treatment average of 1,033 firms, this

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<sup>20</sup> Following recent econometric work highlighting the limitations of log-linear models for nonnegative count outcomes (e.g., Cohn et al. 2022; Chen and Roth 2024), I use a Poisson pseudo-maximum likelihood specification proposed by Santos Silva and Tenreiro (2006) and further developed by Correia et al. (2020), rather than log-transforming the dependent variable.

<sup>21</sup> Firms primarily engaged in providing tax, payroll, or bookkeeping services are classified under separate NAICS codes (541213, 541214, and 541219) and are therefore excluded from this measure.

estimate corresponds to an increase of approximately 49 firms. To assess dynamic effects, I replace the post-treatment indicator variable with a set of indicators for each year relative to adoption. Figure 3, panel A, plots the event-time coefficients.<sup>22</sup> I find no differential pre-trends between treated and control states, but a modest increase in the number of CPA firms after two years that strengthens over time.

A remaining concern is that unobservable state-level time-varying factors could be correlated with both adoption timing and CPA firm entry. To address this concern, I implement a triple-difference (DiDiD) design that compares firm entry outcomes of each state using a within-state control group. Following Bloomfield et al. (2017) and Cascino et al. (2021), I use legal professions as the control group. I obtain firm counts for legal services from the BLS QCEW data using NAICS code 541110 (Offices of Lawyers). Table 2, panel C, presents the results. Column 1 estimates the model with  $\text{State} \times \text{CPA} \times \text{Cohort}$  and  $\text{CPA} \times \text{Year} \times \text{Cohort}$  fixed effects, where *CPA* is an indicator that equals one for accounting professions and zero for legal professions. These fixed effects control for unobservable differences between professions within a state and national profession-specific trends, respectively. Column 2 adds controls and their interactions with *CPA*. Column 3 further includes  $\text{State} \times \text{Year} \times \text{Cohort}$  fixed effects to absorb state-year level shocks that could be correlated with both adoption and local firm entry. Across all specifications, the coefficient on  $\text{Treated} \times \text{Post} \times \text{CPA}$  is positive and statistically significant at the 5% level or better. The estimates imply that, relative to legal professions, CPAs experience an approximately 5% increase in the number of firms following adoption. Figure 3, panel B, plots event-time coefficients from a specification that replaces the post-treatment indicator with event-time indicators. The estimates show no differential pre-trends but a positive effect beginning one year after adoption.

Next, I examine whether the provisions affect individuals' decisions to pursue CPA licensure by analyzing CPA exam candidates. One channel through which the provisions may affect this decision involves family succession in small CPA firms.<sup>23</sup> With non-CPA ownership permitted,

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<sup>22</sup> The corresponding regression results for the dynamic analyses in figure 3 are reported in table OA5 in the online appendix.

<sup>23</sup> For candidates pursuing positions at large firms, incentives to obtain a CPA license are only marginally affected by adoption, since the license remains a standard requirement at these firms. The decline I document is therefore most plausibly driven by narrower channels such as inheritance of small CPA firms.

individuals who would have sat for the CPA exam to inherit or take over a family-owned firm can now assume equity ownership without obtaining a license. To the extent that this channel operates, I expect the number of CPA exam candidates to decline following adoption.

To assess this expectation, I use data from the NASBA CPA Exam Candidate Performance Books and focus on the period from 1990 to 2003.<sup>24</sup> These books provide state-level counts of CPA exam candidates. I estimate equation (1) using the number of candidates as the dependent variable. Table 3, panel B, presents the results. I find that states adopting the provisions experience a decline of 12% ( $\approx e^{-0.128} - 1$ ) in CPA exam candidates, relative to non-adopting states. For comparison, Barrios (2022b) documents a 36% decline in CPA exam participation following adoption of the 150-hour rule.<sup>25</sup> I replace the *Post* variable with a series of event-time indicators, and plot the corresponding regression coefficients in figure 3, panel C. I find that the number of exam candidates in treated states trends no differently than that of control states during the pre-adoption period, but the number of candidates in treated states declines steadily following adoption.

### 3. Research Design and Sample Description

To empirically examine the effects of non-CPA ownership on audit quality and pricing, I employ a stacked DiD design following Baker et al. (2022) and Barrios (2022a), with the cohort-client-year as the unit of analysis. Non-CPA ownership provisions were adopted at different times across states over a 31-year period, staggered from 1994 to 2024. For each adoption year, I define the treated group as clients whose audit engagement is performed by an office located in a state that adopts a non-CPA ownership provision in that year, and the control group as clients whose audit engagement is performed by an office located in a state that does not adopt the provision for

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<sup>24</sup> I restrict CPA exam candidate analysis to the period from 1990 through 2003 to ensure consistency in the measurement of exam participation over time. Beginning in 2004, the CPA exam transitioned from a paper-and-pencil format to a computer-based format, which was accompanied by several institutional changes that affect candidate counts. First, prior to 2004, the CPA exam was offered only twice per year, in May and November. After the transition, testing windows expanded to multiple periods throughout the year, and candidates were permitted to take individual sections separately and retain passing credits across windows. Second, the new format also led NASBA to revise its classification of exam candidates. In 2004, all candidates were treated as first-time candidates, and in subsequent years, candidate status was defined at the exam-section level rather than the exam level.

<sup>25</sup> This estimate reflects the combined effect of a 21% increase in test-taking in the year immediately preceding adoption and a 15% decline in the years following adoption (Barrios 2022b, p. 19).

at least three more years.<sup>26</sup> These treated and control groups for each adoption year are labeled as a cohort, and I stack all cohorts to create my testing sample. By comparing treated clients only to not-yet-treated clients, this research design mitigates concerns related to heterogeneous dynamic treatment effects (e.g., Goodman-Bacon 2021; Baker et al. 2022; Barrios 2022a).

I estimate regressions of the following form using the stacked dataset:

$$y_{i,t,c} = \beta_1 Treated_{i,c} \times Post_{t,c} + \sum \gamma_1 Controls_{i,t} + \sum \gamma_2 Fixed\ Effects + \varepsilon_{i,t,c} \quad (2)$$

where  $i$ ,  $t$ , and  $c$  index audit clients, years, and event cohorts, respectively. The dependent variable,  $y_{i,t,c}$ , is one of the proxies for audit quality for client  $i$  in year  $t$ , defined separately for each audit setting.  $Treated_{i,c}$  equals one for treated clients in cohort  $c$  and zero for control clients.  $Post_{t,c}$  equals one beginning in the year in which treated clients in cohort  $c$  receive the treatment and remains one thereafter.  $Controls_{i,t}$  is a vector of control covariates that vary across audit settings and is discussed in detail in the next subsection. Standard errors are clustered at the state-event cohort level to account for potential covariance in outcomes within a state in an event cohort. Finally, I include a broad set of fixed effects that vary across audit settings to reflect differences in institutional features and data availability. All fixed effects are interacted with event cohort so that identification comes from within-cohort comparisons.

### 3.1. Public Company Audit

My first measure of audit quality for public company audits is total *Absolute Accruals*. Accounting manipulations that are not detected and corrected by the auditors should be reflected in accruals; however, accruals also capture companies' reporting choices and underlying business activity. Despite these conceptual limitations (e.g., Hribar and Nichols 2007; Dechow et al. 2010), accrual-based measures remain widely used in the auditing literature (DeFond and Zhang 2014; Lennox and Wu 2018). Moreover, using confidential PCAOB inspection data, Aobdia (2019) shows that unsigned total accruals perform reasonably well in capturing audit quality as directly assessed by PCAOB inspectors. I use total accruals rather than discretionary accruals to avoid

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<sup>26</sup> I require a three-year untreated period to ensure that control clients remain untreated for a sufficient period, which reduces contamination from anticipatory responses and prevents near-future adopters from entering the control group. This approach follows recent guidance on constructing valid not-yet-treated control groups in staggered adoption settings (Baker et al. 2025).

econometric issues associated with two-stage discretionary accrual models (Chen et al. 2018, 2022), and absolute rather than signed accruals because the magnitude, not the sign, proxies for the auditor's constraint of misstatement in either direction (Gipper et al. 2021). Recent research continues to follow this approach (e.g., Carson et al. 2022, 2025; Hallman et al. 2022; He et al. 2025).<sup>27</sup>

My second measure is based on financial statement restatements. Specifically, *Irregularity* is an indicator variable that equals one for the year(s) in which a company's financial statements are misstated and the subsequent restatement is classified as involving an SEC investigation or attributed to fraud, irregularities, or misrepresentations (e.g., Hennes et al. 2008; Armstrong et al. 2013; Srinivasan et al. 2015; Dai et al. 2025). Although such events are relatively rare, they represent severe financial reporting failures that often reflect deficiencies in audit quality. I assign the indicator to the year(s) when the irregularity occurs rather than the year in which it is detected and publicly disclosed.

Following prior research (e.g., Ashbaugh-Skaife et al. 2008; Armstrong et al. 2013; Gipper et al. 2021; Dai et al. 2025), I include control variables in my regression to mitigate the concern that changes in a client's financial performance, business size, or risk confound the relation between non-CPA ownership and audit quality. Specifically, I control for company size (*Size*), leverage ratio (*Leverage*), return on assets (*ROA*), book-to-market ratio (*Book-to-Market*), cash flow from operations (*CFO*), sales growth (*Sales Growth*), bankruptcy risk (*Z-Score*), growth in gross property, plant and equipment (*PPE Growth*), cash flow volatility (*CFO Vol*), an indicator for whether the company reports a loss (*Loss*), engages in restructuring activity (*Restructure*), reports zero R&D and advertising expenses (*No Intangible*), engages in an M&A transaction (*M&A*), and has a December fiscal year-end (*Busy Season*). For the accrual model, since I collapse the two-stage discretionary accrual estimation into a single regression, I add Jones model regressors (e.g.,

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<sup>27</sup> I assess the robustness of the public company accruals results to alternative accrual specifications in two ways. First, Chen et al. (2025) raise concerns about using absolute total accruals in single-step regressions. Following their suggestion, I conduct robustness analyses using quantile regressions of *signed* total accruals. Second, I estimate a more flexible specification that interacts the Jones model regressors with year-cohort and industry-cohort fixed effects, allowing the Jones model coefficients to vary across years and industries (Chen et al. 2018, 2022). In both specifications, I find results that are largely consistent with my main analyses. Table OA6, panels A and B, in the online appendix report these results, respectively.

the inverse of lagged total assets; the change in revenues less the change in receivables, scaled by lagged total assets; and net property, plant and equipment over lagged total assets), as well as the lagged turnover ratios of accounts receivable and accounts payable as part of the accruals model (Gipper et al. 2021). I estimate the regression both with and without controls to assess whether the estimates are sensitive to their inclusion. Appendix A provides detailed variable definitions.

I include Client  $\times$  Cohort, State  $\times$  Cohort, and Audit Firm  $\times$  Year  $\times$  Cohort fixed effects. Client  $\times$  Cohort fixed effects control for time-invariant unobservable client characteristics and aspects of the client-audit firm match. State  $\times$  Cohort fixed effects control for time-invariant state characteristics. Audit Firm  $\times$  Year  $\times$  Cohort fixed effects absorb both time-varying and time-invariant characteristics of a given audit firm in a given year.<sup>28</sup> Together, this fixed-effects structure ensures that the identifying variation comes from within cohorts in the stacked sample. Additional details on the sample construction for public company audit analyses are provided in section 3 of the online appendix. Table 4, panel A, summarizes the sample selection procedure.

### **3.2. *Nonprofit Organization (NPO) Audit***

NPOs, like for-profit companies, face reporting incentives to present favorable financial results. The dimensions along which reporting is evaluated, however, differ. Whereas for-profit companies are primarily assessed on earnings performance, NPOs are evaluated based on the program ratio (Baber et al. 2001). Donors, charity watchdogs, and rating agencies rely heavily on this ratio to assess organizational effectiveness (Okten and Weisbrod 2000).<sup>29</sup> Because program expenses are self-reported, NPOs may attempt to inflate this measure by reclassifying administrative and fundraising expenses as program costs. One extreme form of this behavior is reporting zero fundraising expenses in cases where NPOs plausibly should incur non-zero amounts (Krishnan et

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<sup>28</sup> I also estimate an alternative specification with a less saturated fixed-effects structure by replacing Audit Firm  $\times$  Year  $\times$  Cohort fixed effects with Audit Firm  $\times$  Cohort and Year  $\times$  Cohort fixed effects. This specification relaxes the absorption of audit firm–year–specific shocks and exploits additional within-year variation across audit firms.

<sup>29</sup> The IRS also acknowledges the importance of this measure by stating that “one principal use of Form 990 data on charities’ spending is to show the portion of funds that a charity spends on its charitable purpose” (GAO 2002). In addition, various charity watchdogs, such as the Better Business Bureau’s Wise Giving Alliance and the American Institute of Philanthropy’s CharityWatch, use the program ratio as one of the main measures for grading NPOs.

al. 2006). Consistent with these concerns, prior research documents evidence of such program ratio management (e.g., Keating et al. 2008; Yetman and Yetman 2012, 2013; Balsam et al. 2025).

Audits serve as an important monitoring mechanism that constrains such opportunistic reporting. Prior studies find that NPO audits are associated with higher financial reporting quality and stronger governance. For example, Harris et al. (2017) show that audited NPOs exhibit fewer instances of asset misappropriation, while Garven et al. (2018) show that audited NPOs are less likely to report abnormally high program ratios. Using state-level audit mandates, Duguay (2022) provides evidence that audits reduce program ratio inflation, and Duguay (2024) documents that audits lead charities to adopt stronger governance mechanisms.

Building on this literature, I proxy for NPO audit quality using two financial reporting measures: the program ratio (*Program Ratio*) and an indicator for zero reported fundraising expenses (*Zero Fundraising*). Abnormally high program ratios indicate lower reporting quality in audited NPO financial statements. I use the total level of the program ratio, rather than a residual-based abnormal measure, and include the corresponding first-stage regressors directly as control variables to avoid econometric concerns associated with two-stage estimation (Chen et al. 2018, 2022).<sup>30</sup> Section 3 of the online appendix provides details on the sample construction, control variables, and fixed effects for the NPO analyses, and table 4, panel B, summarizes the sample selection procedure.

### **3.3. *Employee Benefit Plan (EBP) Audit***

EBPs file Form 5500 annually with the IRS and DOL to disclose plan finances, investments, and operations. These reports are intended to provide employees with enough information regarding their benefit plans so that they can monitor the plans to prevent mismanagement and abuse of plan funds (DOL 2025). The Employee Retirement Income Security Act of 1974 (ERISA) requires EBPs with 100 or more participants to have their Form 5500 filings audited by an

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<sup>30</sup> Prior NPO studies estimate abnormal program ratios by regressing the ratio on organizational characteristics, including size, fundraising strategy, and charitable mission type, and use the residual as a proxy for abnormal reporting behavior (e.g., Baber et al. 2001; Yetman and Yetman 2012, 2013; Garven et al. 2018).

independent qualified public accountant (IQPA).<sup>31</sup> EBP auditors are responsible for obtaining reasonable assurance that the plan’s financial statements are free of material misstatement due to fraud or error. The auditing process includes reviewing the Form 5500 filings before issuing the audit report to ensure that the filing includes all required information and disclosures complying with ERISA and DOL requirements (Lilling 2015).

Prior research suggests that EBP audits play a critical role in protecting plan participants’ assets by improving reliability and ensuring regulatory compliance. For example, Jack (2020) documents that pre-issuance review procedures by auditors reduce the likelihood of erroneous Form 5500 filings. Stockbridge (2024) shows that EBP audits improve compliance with ERISA rules and help safeguard participant assets. Using survey data, Nash (2025) finds that the audits are associated with fewer DOL deficiency notices.

Following prior research, I proxy for EBP audit quality using deficient EBP filings identified by EBSA (e.g., Cascino et al. 2021). Specifically, *Deficient Filers* is an indicator variable that equals one for the plan-year(s) that EBSA classifies as deficient under ERISA §502(c)(2). This measure captures failures in filing completeness and accuracy that auditors are expected to prevent through pre-issuance review and reconciliation of the Form 5500 filing with the audited financial statements. Additional details on the sample construction, control variables, and fixed-effects structure for EBP analyses are provided in section 3 of the online appendix. Table 4, panel C, summarizes the sample selection procedure.

## 4. Empirical Analyses

### 4.1. Results for Audit Quality

#### 4.1.1. Public Company Audit Quality

Table 5, panel A, reports the descriptive statistics for the public company audit quality proxies used in the analyses. The average values of *Absolute Accruals* and *Irregularity* are 0.159 and 0.018, respectively. The mean level of absolute accruals is slightly higher than that reported in prior

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<sup>31</sup> Plans with fewer than 100 participants are required to submit only summary financial information. Under the “80 to 120 Participant Rule” established by ERISA, a plan that begins the year with 100 to 120 participants and previously filed without an audit may continue to do so. Once participation exceeds 120, an audited Form 5500 is required, and the plan must reduce participation below 100 to again qualify for unaudited filing (Stockbridge 2024).

research (e.g., Gipper et al. 2021), which likely reflects differences in sample composition. Whereas Gipper et al. focus their analyses on the clients of Big N auditors, my sample also includes clients audited by non-Big N auditors, which are associated with higher absolute accruals on average.<sup>32</sup> The average value of irregularity indicates that 1.8% of client-year observations restate their financial statements, which is slightly lower than estimates in earlier studies. For example, Armstrong et al. (2013) report an irregularity rate of 3%. One explanation is differences in sample period coverage. While their sample ends in 2009, my sample extends through 2022, a period during which baseline irregularity rates have declined (e.g., Audit Analytics 2025).<sup>33</sup>

I begin my analyses by estimating equation (2) on the public company sample to test whether allowing non-CPA ownership affects the quality of public company audits. Table 5, panel B, columns 1–3, present the results from estimating equation (2) with *Absolute Accruals* as the dependent variable. The three columns vary in fixed-effect structure and inclusion of time-varying control variables.<sup>34</sup> Across all three specifications, the coefficient on *Treated*  $\times$  *Post* is positive, statistically significant at either the 5% or 1% level, and similar in magnitude. In column 3, for example, the coefficient is 0.006 (*t*-stat. = 2.61), suggesting that clients audited by firms that operate in states permitting non-CPA ownership report higher absolute total accruals by 0.6% of total assets after the adoption of the provision, compared with those of clients whose auditors operate in non-adopting states. In economic terms, this estimate corresponds to an increase of 4.9% ( $=0.006/0.122$ ) relative to the pre-treatment mean or 2.8% ( $=0.006/0.213$ ) relative to its pre-treatment standard deviation.

Columns 4–6 use *Irregularity* as the dependent variable. I find that the coefficients for *Treated*  $\times$  *Post* are positive and statistically significant at the 5% level or better. In column 6, for example, the coefficient is 0.009 (*t*-stat. = 2.89), implying that treated clients experience a 0.9 percentage

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<sup>32</sup> Restricting my sample to clients audited by Big N auditors yields mean absolute accruals of 0.09, which is comparable to the 0.08 reported by Gipper et al. (2021).

<sup>33</sup> The descriptive statistics for other client characteristics (reported in table OA3 in the online appendix) are largely consistent with those reported in prior research. For example, the average values for size, leverage, and book-to-market are similar to those reported in Aobdia (2019).

<sup>34</sup> Column 1 includes Client  $\times$  Cohort, State  $\times$  Cohort, and Audit Firm  $\times$  Year  $\times$  Cohort fixed effects and excludes control variables. Columns 2 and 3 include the full set of control variables. In column 2, I replace the Audit Firm  $\times$  Year  $\times$  Cohort fixed effects with Audit Firm  $\times$  Cohort and Year  $\times$  Cohort fixed effects, which relaxes the absorption of audit firm-year shocks and identifies the effect from within-year variation across audit firms.

point increase in the probability of an accounting irregularity after the adoption relative to the change for control clients. In economic terms, this estimate represents an increase of 45% ( $=0.009/0.020$ ) relative to the pre-treatment mean or 6.4% ( $=0.009/0.140$ ) relative to its pre-treatment standard deviation. Although this effect may appear large, its economic magnitude is below, or at most comparable to, the magnitudes documented in prior research examining other factors that affect the probability of irregularities. For example, Dai et al. (2025) document that companies that relied on the H-1B visa program for accounting roles experience a drop in the probability of irregularities by 46% after a reduction in the visa cap. Dou et al. (2016) report that increases in state unemployment insurance benefits are associated with a 98% rise in the likelihood of restatements.<sup>35</sup>

I further examine the dynamic effects of non-CPA ownership provision adoptions on public company audit quality. Specifically, I replace the *Post* variable in equation (2) with a series of event-time indicators for years relative to adoption. Figure 4, panel A, plots the event-time coefficients for the four years before and after adoption.<sup>36</sup> Audit quality trends for treated and control clients do not differ in the pre-treatment period. In the post-treatment period, however, audit quality deteriorates for treated clients, with *Absolute Accruals* increasing beginning one year after adoption and *Irregularity* increasing beginning two years after adoption.

#### 4.1.1.1. *Effect on Unintentional Errors*

I conduct two additional analyses to shed light on the mechanisms underlying the observed effects on public company audit quality. First, I examine whether companies whose auditors operate in states that allow non-CPA ownership experience a change in the likelihood of accounting restatements caused by *unintentional* errors, relative to companies whose auditors operate in non-adopting states. The difference between accounting irregularities and errors helps distinguish among the channels through which non-CPA ownership could affect audit quality. Unintentional errors primarily reflect routine audit execution and the effectiveness of audit technology. If non-

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<sup>35</sup> The 98% figure is derived by comparing the difference-in-differences coefficient of 0.040 reported in table 4, panel B, of Dou et al. (2016) with the unconditional average restatement probability of 0.041 reported in their table 3.

<sup>36</sup> The corresponding regression results for the dynamic analyses of audit quality are reported in table OA7 in the online appendix.

CPA ownership improves routine audit execution, for example by facilitating greater investment in audit technology that enhances detection and standardization of audit tasks, unintentional errors should decrease. If instead non-CPA ownership weakens routine audit execution through mechanical channels, such as cost cutting, coordination frictions, or reduced emphasis on standardized procedures, unintentional errors should increase. By contrast, if the post-adoption increase in irregularities reflects changes in auditors' incentives to constrain management's aggressive reporting discretion (e.g., weaker peer monitoring), there should be no corresponding change in unintentional errors.

Following Hennes et al. (2008), I identify unintentional errors as restatements that are not classified as financial fraud, irregularities, or misrepresentations, and that are not subject to SEC investigation. Accordingly, *Error* is an indicator variable that equals one if the company's restatement of year  $t$ 's financials is not regarded as an accounting irregularity. Table 6, panel A, presents the results. The coefficient on  $Treated \times Post$  is close to zero and statistically insignificant (coef. =  $-0.008$ ,  $t$ -stat. =  $-0.62$ ), even though the unconditional probability of an accounting error is six times larger than that of an irregularity in my sample (0.12 vs. 0.02). This evidence indicates that treated companies do not experience a differential change in unintentional errors compared to control companies.

The contrast with the earlier increase in irregularities helps identify the channel through which non-CPA ownership affects audit quality. If non-CPA ownership operated by altering routine audit execution, unintentional errors should have moved together with irregularities (i.e., declining if audit technology improved or rising if execution weakened from cost cutting or coordination frictions). The evidence is instead consistent with non-CPA ownership weakening auditors' incentives to constrain management's aggressive reporting choices, which would affect intentional misstatements but leave unintentional errors unchanged.

#### 4.1.1.2. *Effect on Overstatement vs. Understatement Irregularities*

Second, I examine whether the effect on accounting irregularities varies with the direction of the misstatement corrected by the restatement. I partition *Irregularity* based on whether the

restatement corrects an overstatement or understatement of previously reported net income. Specifically, *Overstatement Irregularity* (*Understatement Irregularity*) equals one if the associated restatement corrects an overstatement (understatement) of net income. Prior research emphasizes that restatements correcting income overstatements are widely considered the most salient indicators of audit failure because they reverse reporting choices that benefit managers ex ante (e.g., Francis et al. 2013; Chen 2024). When auditors face client retention pressures, they may become more tolerant of income overstatements that inflate reported performance. Accordingly, if non-CPA ownership weakens auditors' incentives to challenge aggressive reporting, its effects should be concentrated in *Overstatement Irregularity* rather than *Understatement Irregularity*. Table 6, panel B, presents the results. Consistent with this prediction, I find a positive and statistically significant effect for *Overstatement Irregularity*, with no corresponding effect for *Understatement Irregularity*.

My analysis with public company audits is subject to some caveats. First, the treatment period for some states overlaps with the passage of the Sarbanes–Oxley Act (SOX) in 2002 and the inception of the PCAOB's auditor inspection program. Both reforms, however, are generally viewed as strengthening public company audit quality, which would bias my estimates toward finding improvements rather than deterioration. The analysis also uses Audit Firm  $\times$  Year  $\times$  Cohort fixed effects to mitigate the effect of such confounding regulations.<sup>37</sup> To further corroborate my findings, I move to two entirely different settings, NPO and EBP audits, which fall outside PCAOB oversight and are less directly affected by SOX. Second, because public company audits are concentrated among Big N auditors, the external validity of the public company results for smaller local auditors may be limited. The NPO and EBP analyses below address this concern by examining audit settings in which local firms account for a much larger share of the markets.

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<sup>37</sup> These fixed effects absorb firm-level shocks within each year, including any differential impact of SOX or PCAOB inspection across audit firms, such as a greater impact on Big N firms than on smaller firms.

#### 4.1.2. NPO Audit Quality

I next examine the effect of non-CPA ownership on NPO audit quality.<sup>38</sup> I estimate equation (2) using the NPO audit sample, and present the results in table 7. In columns 1 and 2, I report results using *Program Ratio* as the dependent variable and include  $\text{NPO} \times \text{Audit Firm} \times \text{Cohort}$ ,  $\text{Activity Type} \times \text{Year} \times \text{Cohort}$ , and  $\text{State} \times \text{Cohort}$  fixed effects. Column 1 excludes time-varying control variables, while column 2 adds the full set of controls. I find that the coefficients for  $\text{Treated} \times \text{Post}$  are positive and statistically significant at the 5% and 1% levels, respectively, and are similar in magnitude. For example, in column 2, the coefficient for  $\text{Treated} \times \text{Post}$  is 0.005 ( $t\text{-stat.} = 2.77$ ). These results suggest that NPOs whose auditors operate in a state allowing non-CPA ownership report a higher program ratio by 0.5 percentage points after the adoption, relative to NPOs audited in non-adopting states. In economic terms, this estimate corresponds to an increase of 5.6% ( $= 0.005/0.089$ ) relative to the pre-treatment standard deviation of *Program Ratio*.

Columns 3 and 4 report results from estimating regressions with *Zero Fundraising* as the dependent variable, estimated without and with control variables, respectively. I find that the coefficients on  $\text{Treated} \times \text{Post}$  are positive and significant at the 5% level in both columns. The coefficient of 0.048 ( $t\text{-stat.} = 2.29$ ) in column 4 indicates that treated NPOs are 4.8 percentage points more likely to report zero fundraising expenses after the adoption of the provision, relative to the change for the control NPOs. This estimated effect represents an increase of 10.9% ( $= 0.048/0.441$ ) relative to the pre-treatment standard deviation of *Zero Fundraising*.

To assess dynamic effects, I replace the post-treatment indicator variable with a series of event-time indicators for years relative to adoption. Figure 4, panel B, plots the corresponding regression coefficients for both proxies over event years spanning four years before and four years after adoption. The estimates show no differential pre-trends in audit quality between treated and control NPOs for either *Program Ratio* or *Zero Fundraising*. Following adoption, audit quality for treated NPOs declines, with the effects on both *Program Ratio* and *Zero Fundraising* becoming significant three years after adoption and persisting thereafter.

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<sup>38</sup> Descriptive statistics for the variables used in the NPO analyses are reported in section 3.2 of the online appendix.

#### 4.1.3. EBP Audit Quality

In this subsection, I corroborate the audit quality evidence from the public company and NPO audits using the EBP audit sample.<sup>39</sup> Table 8 reports the results. In column 1, I estimate equation (2) with *Deficient Filers* as the dependent variable and include  $\text{State} \times \text{Firm Type} \times \text{Cohort}$ ,  $\text{Year} \times \text{Firm Type} \times \text{Cohort}$ , and  $\text{Audit Firm} \times \text{Cohort}$  fixed effects, without time-varying controls. In columns 2 through 5, I add all my control variables and vary the fixed-effect structure. Across all specifications, the coefficients on  $\text{Treated} \times \text{Post}$  are positive, statistically significant at the 5% level or better, and similar in magnitude. For example, in column 5, which uses the most conservative fixed-effects structure, the coefficient on  $\text{Treated} \times \text{Post}$  is 0.004 ( $t\text{-stat.} = 2.84$ ).<sup>40</sup> This estimate implies that plans audited by firms operating in the adopting states experience a 0.4 percentage point increase in the likelihood of being identified by EBSA as deficient filers following the adoption, relative to the change observed for plans audited in non-adopting states.

The average probability and standard deviation of *Deficient Filers* during the pre-treatment period are 0.005 and 0.071, respectively. The coefficient in column 5 therefore implies an increase in the likelihood of a deficient filing of 80% ( $= 0.004/0.005$ ) relative to the mean value, or 5.6% ( $= 0.004/0.071$ ) of its standard deviation. Although the percentage change may appear large when scaled by the unconditional probability, this magnitude reflects the low baseline incidence of deficient filings. In a related setting, Cascino et al. (2021) document that a state's adoption of CPA mobility provisions is associated with a 61% decrease in the likelihood of deficient filings.<sup>41</sup>

In figure 4, panel C, I replace the post-treatment indicator with a set of event-time indicators. I find that audit quality for treated EBPs trends no differently from that for control EBPs in the pre-treatment period. However, I observe a general upward trend in the probability of treated EBPs

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<sup>39</sup> Descriptive statistics for the variables used in the EBP analyses are reported in section 3.3 of the online appendix.

<sup>40</sup> The coefficient is slightly larger in the within-firm specification than in the aggregate specification (0.004 in column 5 with  $\text{Audit Firm} \times \text{Cohort}$  FE, compared to 0.003 in column 2 with  $\text{State} \times \text{Cohort}$  FE). If the treatment effect were driven primarily by compositional changes in the audit market, such as firm entry following adoption, the estimate in column 5 would attenuate because absorbing firm-level variation removes the between-firm channel through which compositional effects operate (e.g., Berg et al. 2021; Breuer et al. 2025). This pattern is thus most consistent with the agency channel operating through changes in existing firms' behavior.

<sup>41</sup> The 61% figure is implied by the state-year Poisson regression coefficient of  $-0.948$  reported in column 3 of table 8, panel B, in Cascino et al. (2021), which corresponds to  $\exp(-0.948) - 1 \approx -0.61$ . Cascino et al. (2021), however, note that this effect is not statistically significant across alternative specifications.

being identified as deficient filers following adoption, with the effect becoming statistically significant three years after adoption and strengthening thereafter.

#### 4.1.4. *Partitioning by Auditor Size*

I next examine whether the effect of non-CPA ownership varies with auditor size. Both the agency and competition channels predict stronger effects among non-Big N firms, although for different reasons. The agency channel requires non-CPAs to hold equity, which weakens the alignment between decision authority and professional risk bearing. Because non-CPA ownership is essentially absent at the audit entities of Big N firms, agency-related effects should concentrate at non-Big N firms. The competition channel similarly predicts stronger effects among non-Big N firms. The increase in audit market participation documented earlier is more likely to reshape competitive conditions in local audit markets, where non-Big N auditors are concentrated. Entry following adoption increases client retention concerns in these markets, shifting auditors' incentives toward accommodating client demands. Big N firms, by comparison, face less competitive pressure from new entry due to their stronger reputations and more stable client relationships (DeAngelo 1981; Weber et al. 2008), as well as the higher switching costs faced by the larger clients they typically serve (Krishnan 1994; Guo et al. 2024). Thus, any decline in audit quality following adoption is expected to be concentrated among clients of non-Big N auditors.

To test this prediction, I partition each audit sample into clients of Big N and non-Big N auditors and re-estimate equation (2) separately for each subsample. Table 9, panels A, B, and C, report the results for public company, NPO, and EBP audits, respectively. Across all three audit settings, I find no statistically significant coefficients on  $Treated \times Post$  in the Big N subsamples. In the non-Big N subsamples, the corresponding coefficients are positive, statistically significant, and significantly larger than those in the Big N subsamples. These results suggest that the effect of non-CPA ownership on audit quality is concentrated among clients of non-Big N auditors. The absence of detectable effects among the Big N subsamples is consistent with institutional evidence that Big N audit firms have not changed their ownership structures to admit non-CPAs to their audit entities, and that discussions of non-CPA ownership primarily concern smaller auditors.

## **4.2. Results for Audit Pricing**

Allowing non-CPAs to own equity can affect not only audit quality but also other features of the audit market, particularly audit fees. My earlier analyses show that the adoption of non-CPA ownership provisions is followed by an increase in the number of audit firms operating within a state, indicating expanded market participation. A natural question is whether this increase in participation translates into changes in audit fees. Economic theory predicts that competition lowers prices because additional suppliers erode incumbents' ability to charge above marginal cost, and consistent with this prediction, prior studies document higher audit fees in more concentrated markets (e.g., Pearson and Trompeter 1994; Gerakos and Syverson 2015). Other studies, however, find no relation between concentration and audit fees (e.g., GAO 2008; Pan et al. 2023). One explanation is that audit fees are determined through two-sided bargaining over both price and reporting discretion, so an increase in client bargaining power can show up as lower fees for some clients and greater reporting latitude for others, leaving average fees unchanged (Pan et al. 2023). Accordingly, the fee implications of expanded market participation are ex ante unclear.

The effect on fees, however, should not be uniform across audit markets. New entrants following adoption are predominantly small and newly formed firms, so the fee response should be concentrated in markets where such firms actively compete for engagements. I therefore expect stronger fee responses in the NPO and EBP audit markets, which are dominated by local auditors, and weaker or no effects in the public company audit market, which remains concentrated among large auditors and offers limited scope for entry. Motivated by this prediction, I first examine audit fee responses in NPO and EBP audits, and then turn to the public company audit market.

### **4.2.1. NPO Audit Fees**

Table 10, panel A, presents descriptive statistics for the NPO audit fee samples. Following prior studies, I measure NPO audit fees using the Form 990 line item that reports fees paid for external accounting and audit services (Pearson et al. 1998; Tate 2007; Duguay et al. 2020). Mean

and median audit fees are \$148,514 and \$79,137, respectively.<sup>42</sup> Non-Big N firms account for 74.2% of NPO audit engagements, more than twice their 33.3% share in the public company sample.

I begin by estimating equation (2) using the NPO audit fee sample, replacing the audit quality proxy with the log value of audit fees as the dependent variable. Table 10, panel B, reports the results. In columns 1 and 2, which exclude and include control variables respectively, the coefficient on *Treated*  $\times$  *Post* is negative and statistically significant at the 5% level. The estimates imply that audit fees for treated NPOs decline by 5.8% following adoption, relative to control NPOs, corresponding to a reduction of approximately \$8,600 based on the average audit fee. In figure 5, panel A, I replace the post-treatment indicator with a series of indicators for years relative to the adoption of non-CPA ownership provisions.<sup>43</sup> I find that treated NPOs' audit fees trend no differently than those of control NPOs in the pre-treatment period. Following adoption, audit fees for treated NPOs decline, with the effect becoming statistically significant four years after adoption.

I further examine whether the decline in NPO audit fees varies by audit firm size. Because new entry following the adoption is likely driven by small and newly formed firms, competitive pressure should be concentrated among non-Big N auditors. To assess the heterogeneity, I partition the NPO audit fee sample into clients of Big N and non-Big N firms and re-estimate equation (2) separately for each subsample. Table 11, panel A, reports the results. I find no significant effect of *Treated*  $\times$  *Post* in the Big N subsample. In contrast, the coefficient is negative and statistically significant in the non-Big N subsample, and is significantly larger in magnitude than that for the Big N subsample, indicating that the post-adoption fee decline is concentrated among clients of non-Big N auditors.

#### 4.2.2. EBP Audit Fees

Next, I examine whether the adoption of non-CPA ownership provisions affects EBP audit fees. Following prior research, I measure EBP audit fees using compensation paid to audit service

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<sup>42</sup> For comparison, Duguay et al. (2020) report mean and median NPO audit fees of \$98,459 and \$54,758, respectively. The slightly higher mean and median fees in my sample likely reflect differences in sample periods: their analysis ends in 2009, whereas my sample extends through 2023.

<sup>43</sup> The corresponding regression results for the dynamic analyses of audit fees are reported in table OA8 in the online appendix.

providers as reported in Form 5500 Schedule C. Table 10, panel A, reports that mean and median values of EBP audit fees are \$18,251 and \$12,925, respectively. These are comparable in magnitude to those reported in Cascino et al. (2021). Similar to the NPO setting, the EBP audit market is dominated by non-Big N firms, which account for 79.1% of EBP audit engagements.

Table 10, panel C, reports the results for EBP audit fees. Column 1 presents the estimate from equation (2), using the log of audit fees as the dependent variable without time-varying controls. Column 2 keeps the same fixed-effect structure, but adds control variables following prior research (e.g., Cullinan 1997; Cascino et al. 2021). In both specifications, the coefficient on *Treated*  $\times$  *Post* is negative and statistically significant at the 5% level or better. In column 2, for example, the coefficient is  $-0.061$  ( $t$ -stat. =  $-2.36$ ), indicating that firms operating in adopting states charge 6.1% lower EBP audit fees following adoption, relative to firms in non-adopting states. Given the average audit fee in my sample, this effect corresponds to a decline of approximately \$1,100. In figure 5, panel B, I deconstruct the *Post* variable into a series of event-year indicators. The estimates show no evidence of differential pre-adoption trends between treated and control EBPs. In contrast, audit fees for treated EBPs decline steadily following adoption, with the effect becoming statistically significant four years after adoption.

Table 11, panel B, presents the parallel subsample analysis for EBP audit fees. The findings mirror those for NPO audit fees. *Treated*  $\times$  *Post* is insignificant in the Big N subsample but negative and statistically significant in the non-Big N subsample. The difference between the two subsamples is also statistically significant. These results indicate that the post-adoption decline in EBP audit fees is concentrated among clients of non-Big N auditors, consistent with the evidence from the NPO audit fee setting.

#### 4.2.3. Public Company Audit Fees

I then turn to audit pricing in the public company audit market. Unlike NPO and EBP audit settings, the public company audit market is highly concentrated among Big N firms, which account for 67% of audit engagements and around 90% of audit fees in my public company audit fee sample. This high degree of concentration substantially limits market entry and competitive

pressure from smaller auditors. Accordingly, I expect little, if any, change in public company audit fees following adoption.

Table 10, panel D, presents the results. Consistent with my expectation, the coefficients on  $Treated \times Post$  in columns 1 and 2 are small in magnitude and statistically insignificant, indicating no meaningful change in audit fees for treated companies relative to those of control companies. In figure 5, panel C, I replace the  $Post$  variable with a set of event-time indicators. The estimates show no evidence of differential pre-adoption trends or post-adoption dynamics between treated and control companies. I also examine whether the adoption of non-CPA ownership provisions affects non-audit fees. Because non-audit services are typically provided through separate legal entities that fall outside the audit entity to which the provisions apply, I expect these provisions to have no meaningful effect on non-audit fees. Column 3 of table 10, panel D, reports the result using the log of non-audit fees as the dependent variable. Consistent with this expectation, the coefficient on  $Treated \times Post$  is statistically insignificant.

I next examine whether public company audit fee responses vary by audit firm size. Table 11, panel C, presents the results from partitioning the sample into Big N and non-Big N subsamples. I find no statistically significant effect of  $Treated \times Post$  in either subsample. That said, the estimate for the non-Big N subsample in column 2 is negative and close to the 10% significance threshold (coef. = -0.057;  $t$ -stat. = -1.65), and is significantly more negative than that of the Big N subsample. These results suggest a potential fee decline among clients of non-Big N firms, although the estimate does not meet conventional significance thresholds.

The analyses of public company audit fees are subject to two caveats. First, Audit Analytics audit fee data begin in 2000. This results in the exclusion of companies audited by firms operating in states that adopted the provisions by 2000 (i.e., the always-treated group). The resulting loss of early adopters reduces statistical power and may contribute to the null results. Second, for some states, the treatment period overlaps with the implementation of SOX Section 404, during which public company audit fees increased (e.g., Ettredge et al. 2007, 2018; SEC 2009; Iliev 2010). Although I include Audit Firm  $\times$  Year  $\times$  Cohort fixed effects to absorb such confounding shocks,

it remains possible that I find insignificant results due to downward pressure on fees from non-CPA ownership being offset by contemporaneous fee-increasing forces.

## **5. Conclusion**

This paper examines whether allowing non-CPAs to own an equity stake in CPA firms affects audit quality. Ownership restrictions in professional partnerships link decision authority to professional risk bearing, which supports a reputational bond and mutual monitoring among partners. Allowing non-CPAs to hold equity alters this arrangement by separating ownership from licensure-based responsibility, while also potentially expanding access to complementary financial and human capital. At the market level, ownership reforms can reshape competitive conditions, with competition plausibly either weakening audit quality through increased client retention pressures (Koh et al. 2013) or strengthening it through discipline and differentiation (GAO 2008; Pan et al. 2023). Thus, the overall effect of non-CPA ownership on audit quality is *ex ante* ambiguous.

Exploiting the staggered adoption of non-CPA ownership provisions across U.S. states, I provide empirical evidence on this question across three audit settings that differ in market structure and audit quality demand. Across all three settings—public company audits, NPO audits, and EBP audits—I document a decline in audit quality following adoption. These effects are concentrated among clients of non-Big N auditors, where ownership reforms more meaningfully change incentives and competitive conditions.

Consistent with this mechanism, I also find that audit fees decline following adoption in the NPO and EBP markets, with fee reductions concentrated among non-Big N auditors. In contrast, audit fees in the public company market remain largely unchanged, reflecting the high concentration of Big N firms and limited competitive response, although I find suggestive evidence of fee declines among the clients of non-Big N auditors. Taken together, the evidence indicates that ownership structure in professional service firms shapes market participation and competition, with important implications for service quality and pricing.

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## Appendix A Variable Definitions

This table provides a detailed description of the procedure used to compute each variable used in my analyses. Variable names shown in parentheses in the definitions correspond to the names used in the original data sources. Data sources are listed at the end of each definition. All continuous variables are winsorized at 1% and 99% of the distribution. Within each sample, variables are listed in alphabetical order.

| Variable                           | Definition                                                                                                                                                                                                                                                                       |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>State-level Sample</b>          |                                                                                                                                                                                                                                                                                  |
| <i>CPA</i>                         | An indicator variable that equals one for establishments that are classified as NAICS code 541211 [Source: Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages (QCEW)].                                                                                    |
| <i>CPA Candidates</i>              | The number of first-time CPA exam candidates (i.e., candidates that have never written any section of the CPA exam prior) within state <i>s</i> [Source: NASBA CPA Exam Candidate Performance Books]                                                                             |
| <i>CPAEmploymentDifferential</i>   | The pre-treatment difference between employment ( <i>avg_annual_emplvl</i> ) for accounting professionals in state <i>s</i> relative to the national average, measured in the prior year [Source: BLS QCEW].                                                                     |
| <i>CPAEmploymentTrend</i>          | State-level trend in accounting professionals' employment ( <i>avg_annual_emplvl</i> ), measured over the prior three years [Source: BLS QCEW].                                                                                                                                  |
| <i>CPAWageDifferential</i>         | The pre-treatment difference between wages ( <i>avg_annual_pay</i> ) paid to accounting professionals in state <i>s</i> relative to the national average, measured in the prior year [Source: BLS QCEW].                                                                         |
| <i>CPAWageTrend</i>                | State-level trend in accounting professionals' wages ( <i>avg_annual_pay</i> ), measured over the prior three years [Source: BLS QCEW].                                                                                                                                          |
| <i>FirmBirthRate</i>               | The number of new establishments ( <i>estabs_entry</i> ) in state <i>s</i> divided by the number of total establishments ( <i>estabs</i> ) in the state, measured in the prior year [Source: Census Business Dynamics Statistics (BDS)].                                         |
| <i>Firms</i>                       | The number of establishments ( <i>estabs</i> ) in state <i>s</i> for either NAICS code 541211 (Offices of Certified Public Accountants) or 541110 (Offices of Lawyers) [Source: BLS QCEW].                                                                                       |
| <i>GDPperCapita</i>                | Real GDP per capita in state <i>s</i> , measured in the prior year [Source: Bureau of Economic Analysis (BEA)'s Regional Data].                                                                                                                                                  |
| <i>JobBirthRate</i>                | The net number of new jobs created in state <i>s</i> divided by the average number of employment ( <i>net_job_creation_rate</i> ) in the state, measured in the prior year [Source: Census BDS].                                                                                 |
| <i>UnemploymentRate</i>            | Total unemployment divided by the total labor force in state <i>s</i> , measured in the prior year [Source: BLS Local Area Unemployment Statistics (LAUS)].                                                                                                                      |
| <b>Public Company Audit Sample</b> |                                                                                                                                                                                                                                                                                  |
| <i>Absolute Accruals</i>           | Absolute value of total accruals, calculated as net income before extraordinary items ( <i>IB</i> ) less cash flow from operations ( <i>OANCF</i> ), scaled by lagged total assets ( <i>AT</i> ) [Source: Compustat].                                                            |
| <i>Audit Fees<sub>PC</sub></i>     | Sum of total fees for auditing ( <i>MATCHFY_SUM_AUDFEES</i> ) and audit-related activities ( <i>MATCHFY_SUM_AUDREL_FEES</i> ) [Source: Audit Analytics].                                                                                                                         |
| <i>Book-to-Market</i>              | Total common equity ( <i>CEQ</i> ) divided by market value ( <i>PRCC_F * CSHO</i> ) [Source: Compustat].                                                                                                                                                                         |
| <i>Busy Season</i>                 | An indicator variable that equals one if the company's fiscal year end ( <i>FYR</i> ) is in December, and zero otherwise [Source: Compustat].                                                                                                                                    |
| <i>CFO</i>                         | Cash flow from operations ( <i>OANCF</i> ) scaled by lagged total assets ( <i>AT</i> ) [Source: Compustat].                                                                                                                                                                      |
| <i>CFO Vol</i>                     | Standard deviation of cash flow from operations ( <i>OANCF</i> ) scaled by total assets ( <i>AT</i> ) from year <i>t</i> - 2 through year <i>t</i> [Source: Compustat].                                                                                                          |
| <i>Error</i>                       | An indicator variable that equals one if a company has a restatement of year <i>t</i> 's financial statements and the restatement is not regarded as an irregularity in Audit Analytics (i.e., <i>RES_FRAUD</i> and <i>RES_SEC_INVEST</i> equal zero) [Source: Audit Analytics]. |

|                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>InvAssets</i>                   | The inverse of lagged total assets ( <i>AT</i> ) [Source: Compustat].                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <i>Irregularity</i>                | An indicator variable that equals one if the company's restatement of year <i>t</i> 's financials is classified as subject to SEC investigation or as financial fraud, irregularities, or misrepresentations, and zero otherwise. I use variables <i>RES_FRAUD</i> and <i>RES_SEC_INVEST</i> from Audit Analytics to identify such restatements [Source: Audit Analytics].                                                                                                                                                                                                                                                                                                                                                         |
| <i>Leverage</i>                    | Debt in current liabilities ( <i>DLC</i> ) plus long-term debt ( <i>DLTT</i> ) scaled by lagged total assets ( <i>AT</i> ) [Source: Compustat].                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <i>Loss</i>                        | An indicator variable that equals one if the company reports negative earnings before interest and taxes ( <i>EBIT</i> ) for year <i>t</i> , and zero otherwise [Source: Compustat].                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <i>M&amp;A</i>                     | An indicator variable that equals one if the company reports positive acquisition cash flows ( <i>AQC</i> ), and 0 otherwise [Source: Compustat].                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <i>Net PPE</i>                     | Net property, plant, and equipment ( <i>PPENT</i> ) scaled by lagged total assets ( <i>AT</i> ) [Source: Compustat].                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <i>No Intangible</i>               | An indicator variable that equals one if there is no R&D expense ( <i>XRD</i> ) or advertising expense ( <i>XAD</i> ) for year <i>t</i> , and zero otherwise [Source: Compustat].                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <i>Non-Audit Fees</i>              | The amount of fees paid for non-audit activities ( <i>MATCHFY_SUM_NONAUD</i> ) [Source: Audit Analytics].                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <i>Overstatement Irregularity</i>  | An indicator variable that equals one if <i>Irregularity</i> equals one and the associated restatement results in a negative impact on net income, indicating that previously reported earnings were overstated. I use the variable <i>CHANGE_CUM_NET_INCOME</i> from Audit Analytics to identify such restatements [Source: Audit Analytics].                                                                                                                                                                                                                                                                                                                                                                                     |
| <i>Payables Turnover</i>           | Cost of Goods Sold ( <i>COGS</i> )/((Total Payables ( <i>AP</i> ) + Total Payables <sub><i>t-1</i></sub> )/2) [Source: Compustat].                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <i>PPE Growth</i>                  | Percentage change in gross property, plant, and equipment ( <i>PPEGT</i> ) over year <i>t-1</i> to <i>t</i> [Source: Compustat].                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <i>Receivables Turnover</i>        | Revenue ( <i>REV</i> )/((Total Receivables ( <i>RECT</i> ) + Total Receivables <sub><i>t-1</i></sub> )/2) [Source: Compustat].                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <i>Restructure</i>                 | An indicator variable that equals one if the company is involved in a restructuring (any of <i>RCA</i> , <i>RCD</i> , <i>RCEPS</i> , and <i>RCP</i> is nonzero) in year <i>t</i> , and zero otherwise [Source: Compustat].                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <i>RevAR</i>                       | The change in revenues ( <i>REV</i> ) less the change in receivables ( <i>RECT</i> ), scaled by lagged total assets ( <i>AT</i> ) [Source: Compustat].                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <i>ROA</i>                         | Income before extraordinary items ( <i>IB</i> ) scaled by lagged total assets ( <i>AT</i> ) [Source: Compustat].                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <i>Sales Growth</i>                | Percentage change in sales ( <i>SALE</i> ) over year <i>t-1</i> to <i>t</i> [Source: Compustat].                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <i>Size</i>                        | The natural logarithm of total assets ( <i>AT</i> ) [Source: Compustat].                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <i>Total Accruals</i>              | Raw value of total accruals, calculated as net income before extraordinary items ( <i>IB</i> ) less cash flow from operations ( <i>OANCF</i> ), scaled by lagged total assets ( <i>AT</i> ) [Source: Compustat].                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <i>Understatement Irregularity</i> | An indicator variable that equals one if <i>Irregularity</i> equals one and the associated restatement results in a positive impact on net income, indicating that previously reported earnings were understated. I use the variable <i>CHANGE_CUM_NET_INCOME</i> from Audit Analytics to identify such restatements [Source: Audit Analytics].                                                                                                                                                                                                                                                                                                                                                                                    |
| <i>Z-Score</i>                     | Following Altman (1968) and Altman and Hotchkiss (2005, 246), I compute the client's risk of bankruptcy in fiscal year <i>t</i> as: $0.717 \times (\text{Working Capital} / \text{Total Assets}) + 0.847 \times (\text{Retained Earnings} / \text{Total Assets}) + 3.107 \times (\text{Operating Income} / \text{Total Assets}) + 0.420 \times (\text{Total Common Equity} / \text{Total Liabilities}) + 0.998 \times (\text{Revenue} / \text{Total Assets})$ , with: Working Capital = ( <i>ACT</i> - <i>LCT</i> ); Total Assets = <i>AT</i> ; Retained Earnings = <i>RE</i> ; Operating Income = <i>OIADP</i> ; Total Common Equity = <i>CEQ</i> ; Total Liabilities = <i>LT</i> ; and Revenue = <i>REV</i> [Source: Compustat]. |

## NPO Audit Sample

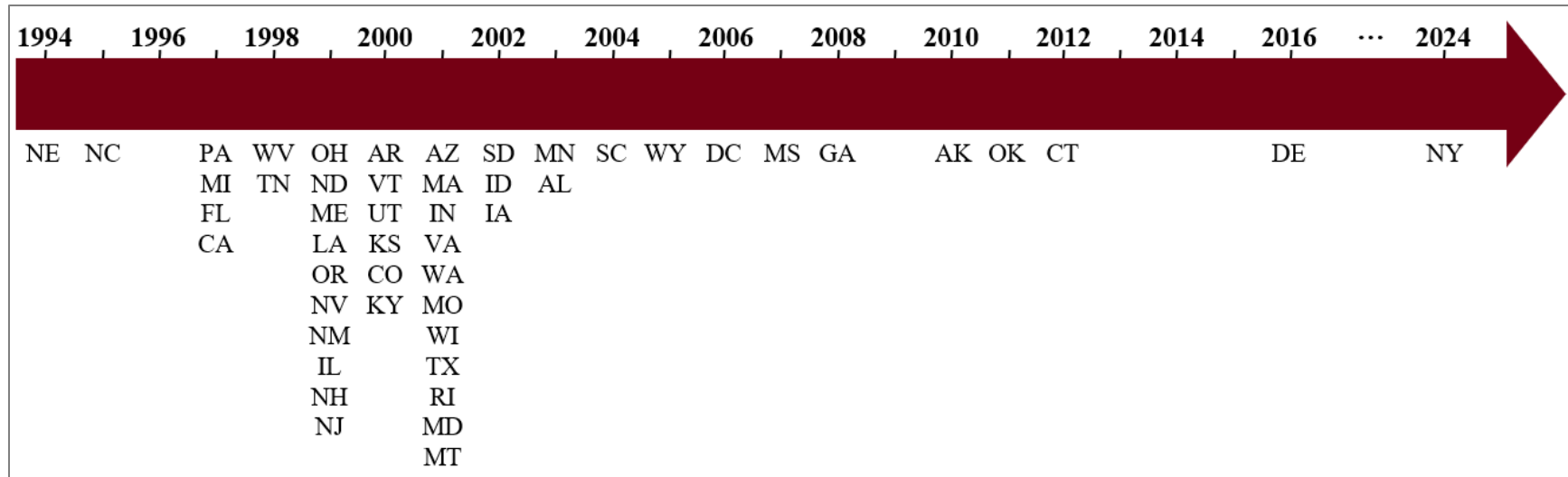
|                                 |                                                                                                                                                                    |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Asset Turnover</i>           | Total revenues (tot_rev_cy) divided by total assets (tot_ast_eoy) [Source: IRS SOI].                                                                               |
| <i>Audit Fees<sub>NPO</sub></i> | The amount of fees paid for external accounting and audit services ( <i>fee_for_srvc_acct_tot</i> ) reported on the NPO's Form 990 [Source: IRS SOI].              |
| <i>Control Weakness</i>         | Indicator variable with a value of 1 if reportable conditions over financial reporting were identified by the auditor, and 0 otherwise [Source: FAC Single Audit]. |

|                           |                                                                                                                                                                                        |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Deferred Expenses</i>  | Prepaid and deferred charges ( <i>prepaid_exp_defrd_chrgs_eoy</i> ) plus other assets ( <i>oth_astst_tot_eoy</i> ) divided by total assets ( <i>tot_astst_eoy</i> ) [Source: IRS SOI]. |
| <i>Deferred Revenue</i>   | Deferred revenues ( <i>defrd_rev_eoy</i> ) divided by total assets ( <i>tot_astst_eoy</i> ) [Source: IRS SOI].                                                                         |
| <i>Donation Growth</i>    | Annual growth in NPO's total donations (change in total donations ( <i>tot_contri</i> ) divided by total donations at the beginning of year) [Source: IRS SOI].                        |
| <i>Donation Intensity</i> | Total donations ( <i>tot_contri</i> ) divided by total revenues ( <i>tot_rev_cy</i> ) [Source: IRS SOI].                                                                               |
| <i>Feeder Donations</i>   | Indicator variable with a value of 1 if the NPO received any feeder donations during the year, and 0 otherwise [Source: IRS SOI].                                                      |
| <i>FundIntensity</i>      | Total fundraising expenses ( <i>tot_fndrsng_exp_cy</i> ) scaled by total contributions ( <i>tot_contri</i> ) [Source: IRS SOI].                                                        |
| <i>Grants</i>             | The amount of grants from local, state, or federal agencies ( <i>govt_grnts</i> ) divided by total assets ( <i>tot_astst_boy</i> ) [Source: IRS SOI].                                  |
| <i>Low Audit Risk</i>     | Indicator variable with a value of 1 if the auditor deems the organization to be a low-risk auditee, and 0 otherwise [Source: FAC Single Audit].                                       |
| <i>Municipal Bond</i>     | Indicator variable with a value of 1 if the NPO reports municipal bond liabilities ( <i>tx_exmpt_bnds_liab_eoy</i> ) on the IRS Form 990, and 0 otherwise [Source: IRS SOI].           |
| <i>Negative Equity</i>    | Indicator variable with a value of 1 if equity ( <i>net_astst_or_fund_bals_eoy</i> ) is negative, and 0 otherwise [Source: IRS SOI].                                                   |
| <i>Program Ratio</i>      | The ratio of program expenses ( <i>tot_func_expns_prg_srvcs</i> ) to total expenses ( <i>tot_expns_cy</i> ) [Source: IRS SOI].                                                         |
| <i>Size</i>               | The natural logarithm of total assets ( <i>tot_astst_eoy</i> ) [Source: IRS SOI].                                                                                                      |
| <i>Surplus Margin</i>     | The excess of total revenues ( <i>tot_rev_cy</i> ) over total expenses ( <i>tot_expns_cy</i> ), divided by total revenues ( <i>tot_rev_cy</i> ) [Source: IRS SOI].                     |
| <i>Taxable Activities</i> | Indicator variable with a value of 1 if the NPO reports a taxable activity ( <i>tot_rev_unrld_bus_rev</i> ) on the IRS Form 990, and 0 otherwise [Source: IRS SOI].                    |
| <i>Zero Fundraising</i>   | Indicator variable with a value of 1 if the NPO reports zero fundraising expenses ( <i>tot_fndrsng_exp_cy</i> ), and 0 otherwise [Source: IRS SOI].                                    |

## EBP Audit Sample

|                                 |                                                                                                                                                                                                                             |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Audit Fees<sub>EBP</sub></i> | The amount of fees paid to the audit service provider ( <i>provider_other_direct_comp_amt</i> + <i>prov_other_tot_ind_comp_amt</i> ) [Source: Form 5500 Schedule C].                                                        |
| <i>Contributions</i>            | Total contributions ( <i>tot_contrib_amt</i> ) divided by total plan assets ( <i>tot_assets_boy_amt</i> ) [Source: Form 5500 Schedule H].                                                                                   |
| <i>Deficient Filers</i>         | Indicator variable that equals one for the EBP-year(s) that EBSA classifies the plan as a deficient filer subject to penalty assessments under ERISA §502(c)(2), and zero otherwise [Source: DOL EBSA Enforcement Dataset]. |
| <i>HardtoAudit</i>              | Assets invested in joint ventures ( <i>joint_venture_boy_amt</i> ) and real estate ( <i>real_estate_boy_amt</i> ) divided by total plan assets ( <i>tot_assets_boy_amt</i> ) [Source: Form 5500 Schedule H].                |
| <i>InvestmentFees</i>           | Investment management fees ( <i>invst_mgmt_fees_amt</i> ) divided by total plan assets ( <i>tot_assets_boy_amt</i> ) [Source: Form 5500 Schedule H].                                                                        |
| <i>Participants</i>             | Plan participants ( <i>tot_partcp_boy_cnt</i> ) divided by total plan assets ( <i>tot_assets_boy_amt</i> ) [Source: Form 5500].                                                                                             |
| <i>Profitability</i>            | Plan income ( <i>net_income_amt</i> ) divided by total plan assets ( <i>tot_assets_boy_amt</i> ) [Source: Form 5500 Schedule H].                                                                                            |
| <i>Size</i>                     | Natural logarithm of total plan assets ( <i>tot_assets_boy_amt</i> ) [Source: Form 5500 Schedule H].                                                                                                                        |

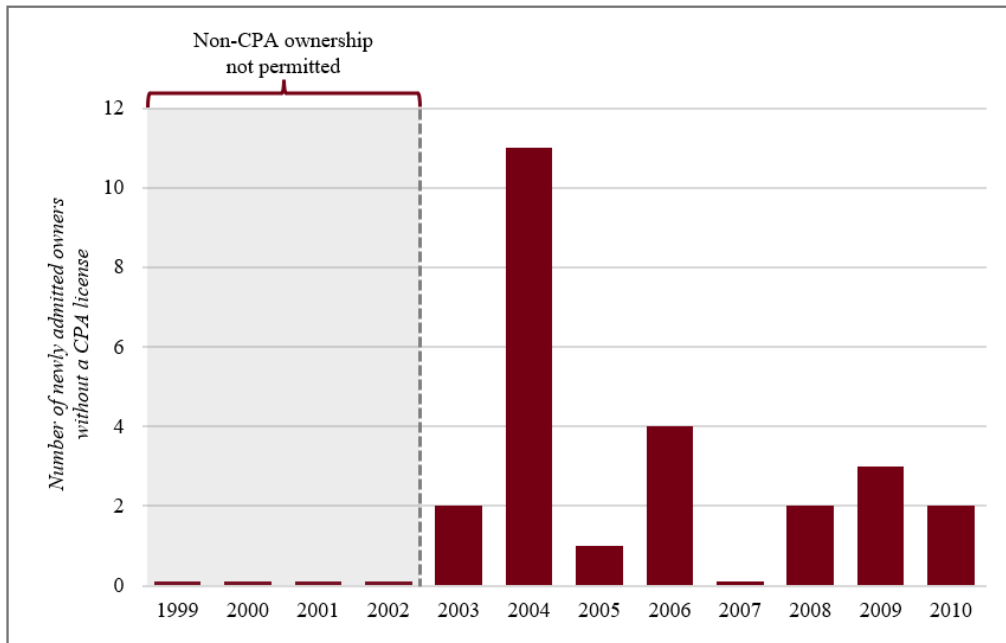
**FIGURE 1**  
*Non-CPA ownership provision adoption dates*



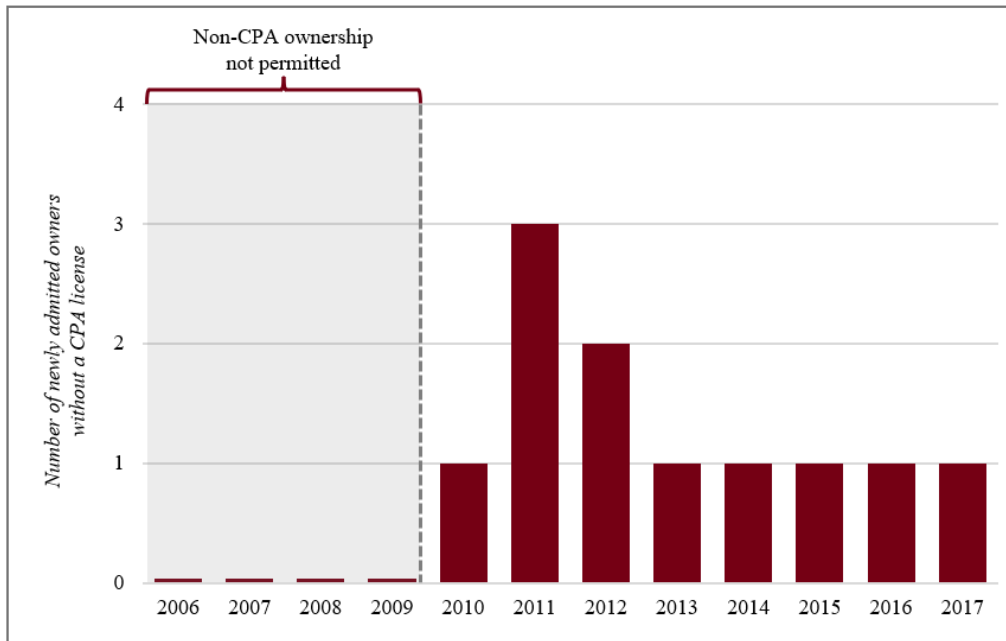
*Notes:* This figure illustrates the adoption dates of non-CPA ownership provisions across U.S. states over time. Adoption dates correspond to the statutory effective dates of each provision and are compiled from state legislature and general assembly records, Nexis Uni, and Westlaw. The effective dates are also reported in table 1, panel A. States are labeled using two-letter U.S. postal abbreviations and, within each year, are ordered by the chronological effective date of adoption. Hawaii is excluded from the figure because it has not adopted a non-CPA ownership provision yet.

**FIGURE 2**  
*Non-CPA ownership before and after provision adoption*

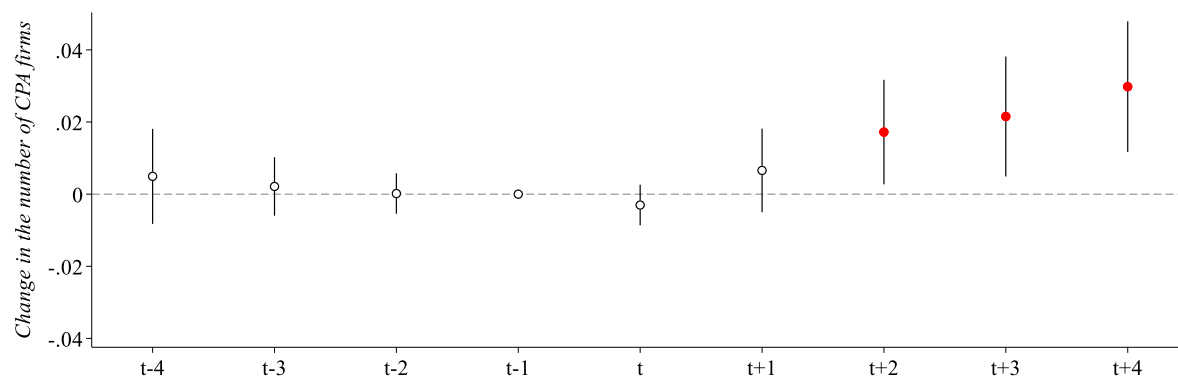
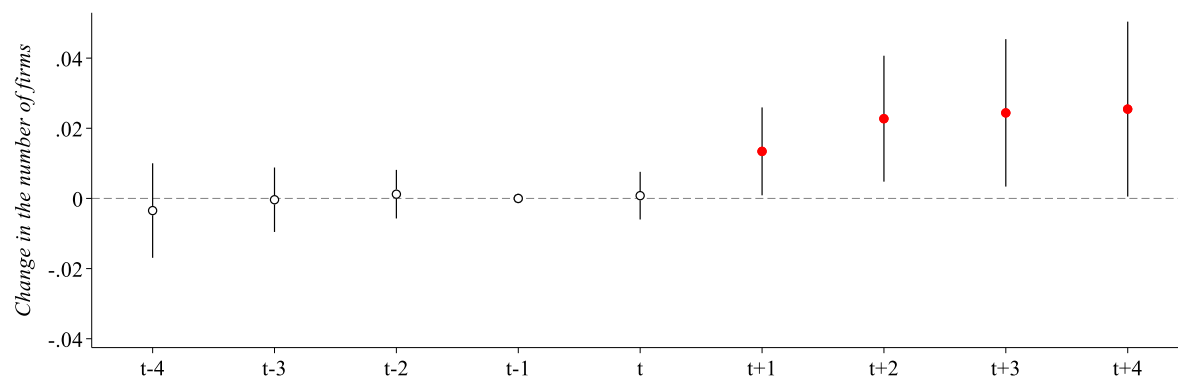
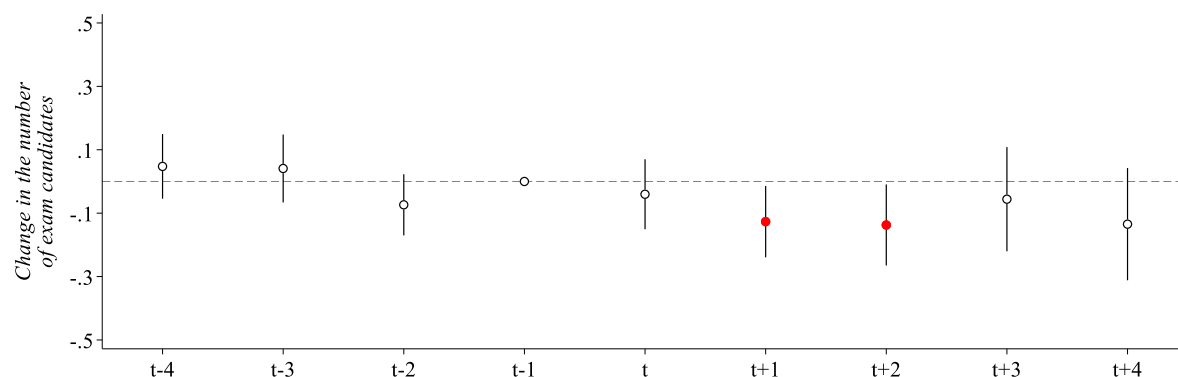
Panel A: Alabama



Panel B: Alaska



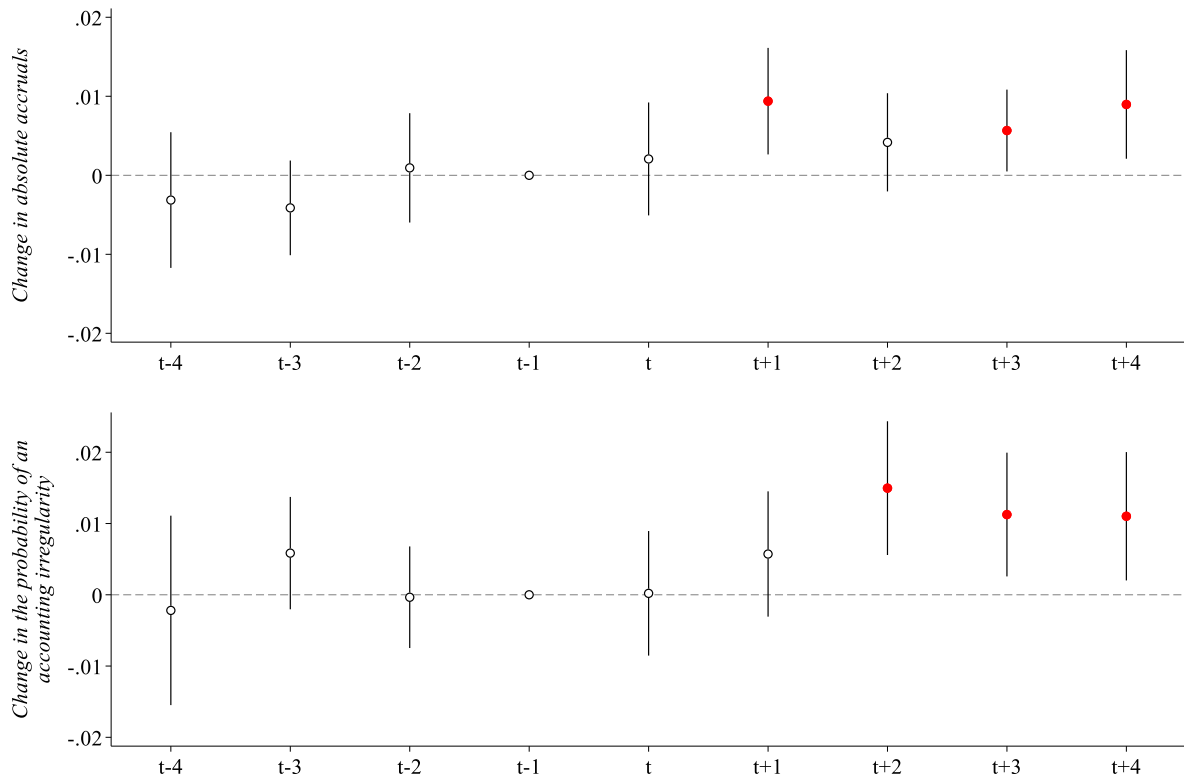
*Notes:* This figure plots the yearly number of newly admitted owners without a CPA license in Alabama (Panel A) and Alaska (Panel B) before and after each state's adoption of non-CPA ownership provisions. Each bar reflects new admissions in that year and is not a cumulative total. The Alabama State Board of Public Accountancy partially discloses a list of non-licensee owners of CPA firms operating in the state. The Alaska Department of Commerce, Community, and Economic Development partially discloses the owners of CPA firms operating in the state through the biennial reports these firms file. I use these public records to identify owners without a CPA license and to track their number around Alabama's adoption in 2003 and Alaska's in 2010. The process of constructing Alabama and Alaska non-CPA ownership data is described in detail in section 1 of the online appendix.

**FIGURE 3***Dynamic effects of non-CPA ownership on the number of CPA firms and exam candidates***Panel A: Number of CPA firms****Panel B: Number of CPA firms relative to legal firms****Panel C: Number of first-time CPA exam candidates**

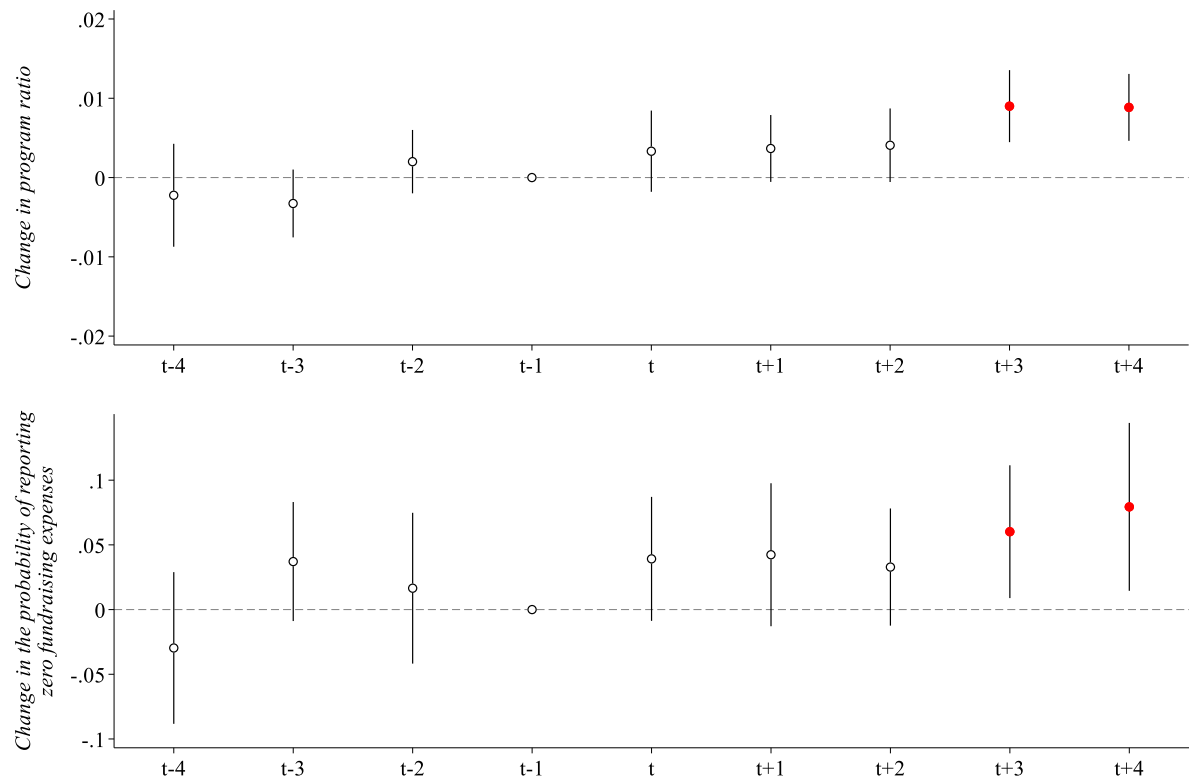
*Notes:* In the figures above, the x-axis represents time relative to the year in which a state adopts non-CPA ownership provisions, and the y-axis in Panel A [B, C] represents the change in the number of CPA firms, defined as establishments classified under NAICS code 541211—Offices of Certified Public Accountants [the change in the number of CPA firms (NAICS 541211) relative to legal firms (NAICS 541110), the change in the number of first-time CPA exam candidates]. All effects are measured relative to year t-1. This figure plots coefficient estimates and two-tailed 90 percent confidence intervals from the dynamic analyses on the number of CPA firms and CPA exam candidates. The corresponding regression results are reported in table OA5 in the online appendix.

**FIGURE 4**  
*Dynamic effects of non-CPA ownership on audit quality*

Panel A: Public Company Audit Quality - Absolute Accruals (top) and Accounting Irregularity (bottom)



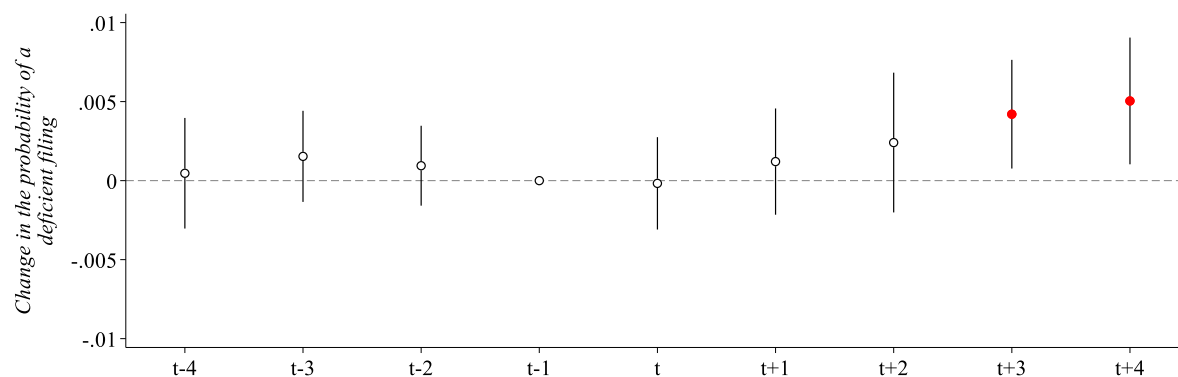
Panel B: NPO Audit Quality – Program Ratio (top) and Zero Fundraising Expenses (bottom)



*(continued on next page)*

**FIGURE 4 - continued**

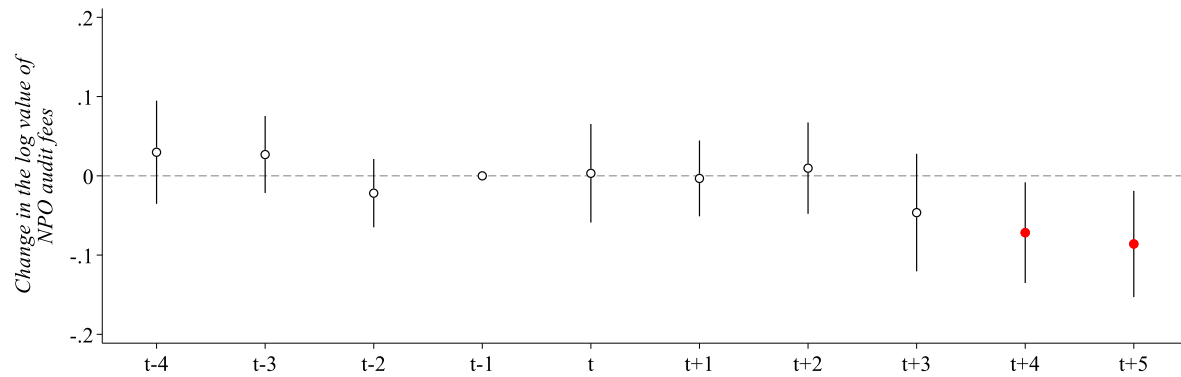
**Panel C: EBP Audit Quality – Deficient Filing**



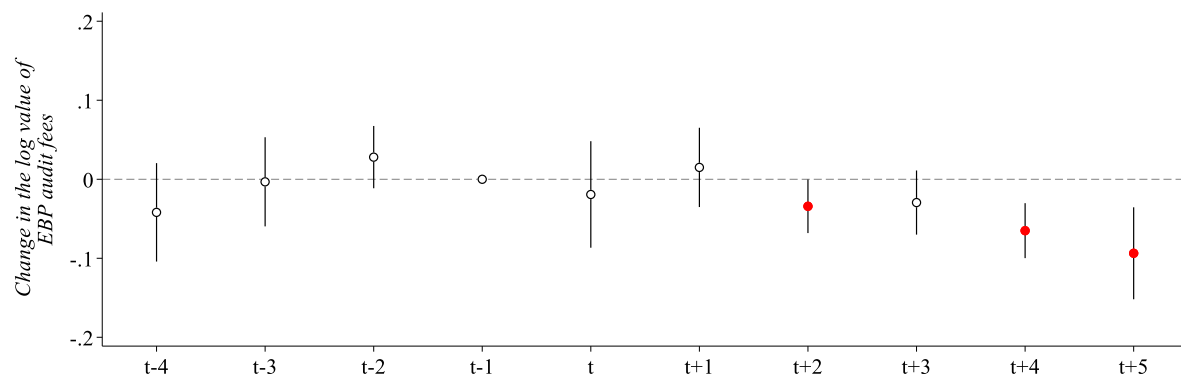
*Notes:* In the figures above, the x-axis represents time relative to the year in which a state adopts non-CPA ownership provisions, and the y-axis in Panel A [B, C] represents the change in the absolute accruals (top) and the change in the average probability of an accounting irregularity (bottom) [the change in the program ratio (top) and the change in the average probability of reporting zero fundraising expenses (bottom), the change in the average probability of a deficient Form 5500 filing]. All effects are measured relative to year t-1. This figure plots coefficient estimates and two-tailed 90 percent confidence intervals from the dynamic analyses of audit quality. The corresponding regression results are reported in table OA7 in the online appendix.

**FIGURE 5**  
*Dynamic effects of non-CPA ownership on audit fees*

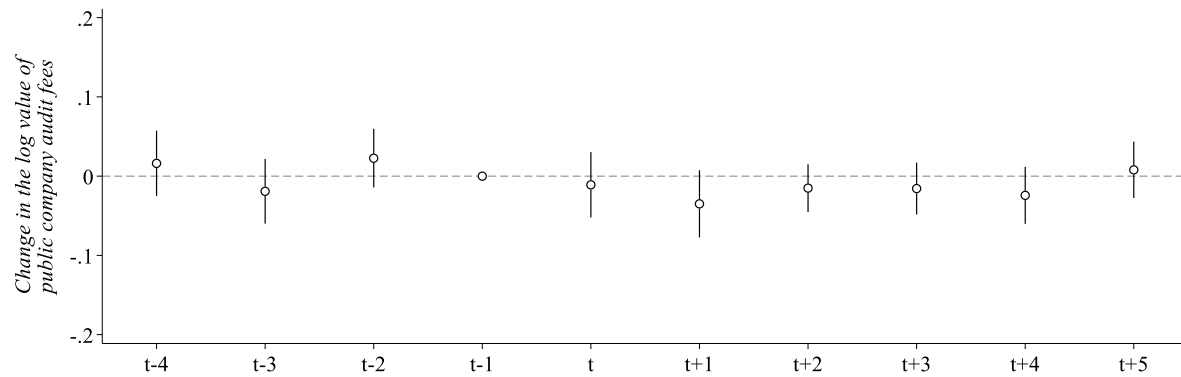
Panel A: NPO Audit Fees



Panel B: EBP Audit Fees



Panel C: Public Company Audit Fees



*Notes:* In the figures above, the x-axis represents time relative to the year in which a state adopts non-CPA ownership provisions, and the y-axis in Panel A [B, C] represents the change in the log value of NPO audit fees [the change in the log value of EBP audit fees, the change in the log value of public company audit fees]. All effects are measured relative to year t-1. This figure plots coefficient estimates and two-tailed 90 percent confidence intervals from the dynamic analyses of audit fees. The corresponding regression results are reported in table OA8 in the online appendix.

**TABLE 1**  
*Adoption of non-CPA ownership provisions*

Panel A: Adoption dates of non-CPA ownership provisions

| State # | State          | Effective Date | State # | State                | Effective Date |
|---------|----------------|----------------|---------|----------------------|----------------|
| 1       | Nebraska       | Jul-94         | 26      | Massachusetts        | Jun-01         |
| 2       | North Carolina | Aug-95         | 27      | Indiana              | Jul-01         |
| 3       | Pennsylvania   | Feb-97         | 28      | Virginia             | Jul-01         |
| 4       | Michigan       | Mar-97         | 29      | Washington           | Jul-01         |
| 5       | Florida        | Oct-97         | 30      | Missouri             | Aug-01         |
| 6       | California     | Oct-97         | 31      | Wisconsin            | Aug-01         |
| 7       | West Virginia  | Jun-98         | 32      | Texas                | Sep-01         |
| 8       | Tennessee      | Oct-98         | 33      | Rhode Island         | Sep-01         |
| 9       | Ohio           | Mar-99         | 34      | Maryland             | Oct-01         |
| 10      | North Dakota   | Apr-99         | 35      | Montana              | Oct-01         |
| 11      | Maine          | Apr-99         | 36      | South Dakota         | Jul-02         |
| 12      | Louisiana      | Jun-99         | 37      | Idaho                | Jul-02         |
| 13      | Oregon         | Jun-99         | 38      | Iowa                 | Jul-02         |
| 14      | Nevada         | Jul-99         | 39      | Minnesota            | Jan-03         |
| 15      | New Mexico     | Jul-99         | 40      | Alabama              | Oct-03         |
| 16      | Illinois       | Aug-99         | 41      | South Carolina       | Jul-04         |
| 17      | New Hampshire  | Sep-99         | 42      | Wyoming              | Jul-05         |
| 18      | New Jersey     | Sep-99         | 43      | District of Columbia | Jun-06         |
| 19      | Arkansas       | Jan-00         | 44      | Mississippi          | Jul-07         |
| 20      | Vermont        | Jan-00         | 45      | Georgia              | Jul-08         |
| 21      | Utah           | May-00         | 46      | Alaska               | Jun-10         |
| 22      | Kansas         | Jul-00         | 47      | Oklahoma             | May-11         |
| 23      | Colorado       | Jul-00         | 48      | Connecticut          | Jul-12         |
| 24      | Kentucky       | Jul-00         | 49      | Delaware             | May-16         |
| 25      | Arizona        | Jan-01         | 50      | New York             | Jun-24         |
|         |                |                | 51      | Hawaii               | N/A            |

*(continued on next page)*

TABLE 1 - *continued*

Panel B: Determinants of adoption - Cox proportional hazards model

| Dependent Variables (y):         | <i>Non-CPA Ownership Provisions Adoption</i> |                                    |                                    |
|----------------------------------|----------------------------------------------|------------------------------------|------------------------------------|
|                                  | (1)<br>Hazard Ratio<br>z-Statistic           | (2)<br>Hazard Ratio<br>z-Statistic | (3)<br>Hazard Ratio<br>z-Statistic |
| <b>CPA macro factors:</b>        |                                              |                                    |                                    |
| <i>CPAWageTrend</i>              | 2.329<br>(0.48)                              |                                    | 2.541<br>(0.49)                    |
| <i>CPAEmploymentTrend</i>        | 0.759<br>(-0.16)                             |                                    | 1.018<br>(0.01)                    |
| <i>CPAWageDifferential</i>       | 0.389<br>(-1.21)                             |                                    | 0.404<br>(-1.24)                   |
| <i>CPAEmploymentDifferential</i> | 1.205<br>(0.98)                              |                                    | 1.500<br>(0.90)                    |
| <b>General macro factors:</b>    |                                              |                                    |                                    |
| <i>GDPperCapita</i>              |                                              | 1.000<br>(-0.17)                   | 1.000<br>(-0.64)                   |
| <i>UnemploymentRate</i>          |                                              | 1.064<br>(0.43)                    | 1.102<br>(0.69)                    |
| <i>FirmBirthRate</i>             |                                              | 6.310<br>(0.14)                    | 1.471<br>(0.03)                    |
| <i>JobBirthRate</i>              |                                              | 0.967<br>(-0.22)                   | 0.992<br>(-0.05)                   |
| Observations                     | 443                                          | 443                                | 443                                |
| Pseudo R-squared                 | 0.005                                        | 0.001                              | 0.009                              |

*Notes:* This table reports non-CPA ownership provision adoption dates as well as my analysis of adoption determinants. Panel A reports the effective dates of non-CPA ownership provisions obtained from state legislature and general assembly records, Nexis Uni, and Westlaw. States and the District of Columbia are listed in chronological order by effective date. Panel B reports the results of a Cox proportional hazards model analyzing the hazard of a state adopting a non-CPA ownership provision. I report hazard ratios and (in parentheses) robust z-statistics. States are excluded from the sample after they adopt the provision. Detailed definitions of all variables are presented in Appendix A. Standard errors are clustered at the state level. \*\*\*, \*\*, and \* denote statistical significance at the two-tailed 1%, 5%, and 10% levels, respectively.

**TABLE 2**  
*Effect of non-CPA ownership on CPA firm entry*

Panel A: Descriptive statistics prior to stacking the data

| Variables               | Mean   | SD     | P25    | P50    | P75    | N     |
|-------------------------|--------|--------|--------|--------|--------|-------|
| <i>Firms</i>            | 1,083  | 1,253  | 322    | 742    | 1,219  | 1,679 |
| <i>UnemploymentRate</i> | 0.054  | 0.019  | 0.041  | 0.051  | 0.065  | 1,679 |
| <i>GDPperCapita</i>     | 52,425 | 21,936 | 41,559 | 49,159 | 57,801 | 1,679 |
| <i>FirmBirthRate</i>    | 0.105  | 0.018  | 0.091  | 0.104  | 0.116  | 1,679 |
| <i>JobBirthRate</i>     | 0.012  | 0.026  | 0.001  | 0.015  | 0.027  | 1,679 |

Panel B: Stacked DiD analyses

| Dependent Variables (y):                     | <i>Firms</i>                      |                                   |
|----------------------------------------------|-----------------------------------|-----------------------------------|
|                                              | (1)<br>Coefficient<br>z-Statistic | (2)<br>Coefficient<br>z-Statistic |
| <i>Treated × Post</i>                        | 0.055***<br>(3.37)                | 0.046***<br>(2.73)                |
| <i>UnemploymentRate</i>                      |                                   | -0.726***<br>(-2.97)              |
| <i>GDPperCapita</i>                          |                                   | -0.000**<br>(-2.32)               |
| <i>FirmBirthRate</i>                         |                                   | -0.165<br>(-0.31)                 |
| <i>JobBirthRate</i>                          |                                   | -0.593***<br>(-6.06)              |
| State x Cohort FE                            | Yes                               | Yes                               |
| Year x Cohort FE                             | Yes                               | Yes                               |
| Observations                                 | 6,472                             | 6,472                             |
| Pseudo R-squared                             | 0.978                             | 0.978                             |
| Pre-treatment Mean / Standard Deviation of y | 1,033 / 1,185                     |                                   |

Panel C: DiDiD analyses using legal professions as within-state control group

| Dependent Variables (y):       | <i>Firms</i>                      |                                   |                                   |
|--------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
|                                | (1)<br>Coefficient<br>z-Statistic | (2)<br>Coefficient<br>z-Statistic | (3)<br>Coefficient<br>z-Statistic |
| <i>Treated × Post × CPA</i>    | 0.046**<br>(2.36)                 | 0.053***<br>(2.94)                | 0.056***<br>(3.14)                |
| <i>Treated × Post</i>          | 0.009<br>(0.38)                   | -0.007<br>(-0.37)                 |                                   |
| Control Variables              | No                                | Yes                               | No                                |
| Control Variables × <i>CPA</i> | No                                | Yes                               | Yes                               |
| State x <i>CPA</i> x Cohort FE | Yes                               | Yes                               | Yes                               |
| <i>CPA</i> x Year x Cohort FE  | Yes                               | Yes                               | Yes                               |
| State x Year x Cohort FE       | No                                | No                                | Yes                               |
| Observations                   | 12,944                            | 12,944                            | 12,944                            |
| Pseudo R-squared               | 0.989                             | 0.989                             | 0.992                             |

*Notes:* This table presents the results of state-level stacked DiD analysis of the effect of non-CPA ownership on the number of CPA firms, using data from the BLS QCEW. Panel A presents summary statistics for the sample used in panel B, prior to stacking the data. Panel B presents the results from stacked DiD Poisson regressions of the number of firms on an indicator variable that equals one for the adopting states (*Treated*), an indicator that equals one for the post-treatment period (*Post*), the interaction between these variables, and control variables. Panel C presents the results from stacked DiDiD Poisson regressions that use legal professions (NAICS code 541110) as a within-state control group. *CPA* is an indicator that equals one for firms that are classified as accounting professions (NAICS code 541211). Regressions are weighted by the inverse establishment share within year to estimate the average effect across state-level markets. I report coefficients and (in parentheses) robust z-statistics. Detailed definitions for all variables are provided in Appendix A. Standard errors are clustered at state-cohort level. \*\*\*, \*\*, and \* denote statistical significance at the two-tailed 1, 5, and 10 percent levels, respectively.

**TABLE 3**  
*Effect of non-CPA ownership on CPA exam candidates*

Panel A: Descriptive statistics prior to stacking the data

| Variables             | Mean | SD    | P25 | P50 | P75 | N   |
|-----------------------|------|-------|-----|-----|-----|-----|
| <i>CPA Candidates</i> | 857  | 1,186 | 166 | 472 | 983 | 714 |

Panel B: Stacked DiD analyses

| Dependent Variable (y):                      | <i>CPA Candidates</i> |             |
|----------------------------------------------|-----------------------|-------------|
|                                              | Coefficient           | z-Statistic |
| <i>Treated</i> × <i>Post</i>                 | -0.128*               | (-1.81)     |
| Control for 150-Hour Rule                    | Yes                   |             |
| State x Cohort FE                            | Yes                   |             |
| Year x Cohort FE                             | Yes                   |             |
| Observations                                 | 3,704                 |             |
| Pseudo R-squared                             | 0.885                 |             |
| Pre-treatment Mean / Standard Deviation of y | 899 / 1,247           |             |

*Notes:* This table presents the results of state-level stacked DiD analysis of the effect of non-CPA ownership on CPA exam candidates, using data from the NASBA CPA Exam Candidate Performance Books. Panel A presents summary statistics for the sample used in panel B prior to stacking the data. Detailed definitions for all variables are provided in Appendix A. Panel B presents the results from stacked DiD Poisson regressions of the number of first-time CPA exam candidates on an indicator variable that equals one for states that adopt non-CPA ownership provisions (*Treated*), an indicator variable that equals one for the post-treatment period (*Post*), the interaction terms between these variables, and a control for the 150-hour rule. Regressions are weighted by the inverse candidate share within year to estimate the average effect across state-level markets. I report coefficients and (in parentheses) robust z-statistics. Standard errors are clustered at state-cohort level. \*\*\*, \*\*, and \* denote statistical significance at the two-tailed 1, 5, and 10 percent levels, respectively.

**TABLE 4**  
*Sample composition*

Panel A: Public company audit

| No. | Sample Selection Procedure                                                                                                                           | Number of<br>Observations<br>Added/Dropped | Number of<br>Observations<br>Retained |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|---------------------------------------|
| (1) | Client-year observations in Compustat from 1994 to 2024 with historical CIK available from WRDS SEC Linking Table                                    |                                            | 243,019                               |
| (2) | <i>Less:</i> Observations missing auditor information from Audit Analytics                                                                           | (70,914)                                   | 172,105                               |
| (3) | <i>Add:</i> Observations with auditor information available from 10-K filings downloaded from WRDS SEC Analytics Suite                               | 35,327                                     | 207,432                               |
| (4) | <i>Less:</i> Clients with foreign auditors and missing auditor location information                                                                  | (24,633)                                   | 182,799                               |
| (5) | <i>Less:</i> Observations missing data to construct accruals and control variables                                                                   | (71,762)                                   | 111,037                               |
| (6) | <i>Less:</i> Observations in states that adopted non-CPA ownership provisions by 1994 (i.e., always-treated group in <i>Absolute Accrual</i> sample) | (454)                                      | 110,583                               |
|     | <b>Final stacked sample for <i>Absolute Accrual</i> analysis</b>                                                                                     |                                            | <b>304,794</b>                        |
| (7) | <i>Less:</i> Observations missing accounting restatement data                                                                                        | (14,138)                                   | 96,445                                |
| (8) | <i>Less:</i> Observations after 2022 to account for delayed restatement detection                                                                    | (5,737)                                    | 90,708                                |
| (9) | <i>Less:</i> Observations in states that adopted non-CPA ownership provisions by 1998 (i.e., always-treated group in <i>Irregularity</i> sample)     | (29,736)                                   | 60,972                                |
|     | <b>Final stacked sample for <i>Irregularity</i> analysis</b>                                                                                         |                                            | <b>149,514</b>                        |

Panel B: NPO audit

| No. | Sample Selection Procedure                                                                                                             | Number of<br>Observations<br>Dropped | Number of<br>Observations<br>Retained |
|-----|----------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------|
| (1) | NPO-year observations in IRS SOI dataset from 1997 to 2023                                                                             |                                      | 415,085                               |
| (2) | <i>Less:</i> Observations missing auditor information from FAC Single Audit database                                                   | (329,045)                            | 86,040                                |
| (3) | <i>Less:</i> Observations with less than \$1,000 in total assets, total revenues, program expenses, or total expenses.                 | (311)                                | 85,729                                |
| (4) | <i>Less:</i> Observations with less than \$10,000 in private donations                                                                 | (16,950)                             | 68,779                                |
| (5) | <i>Less:</i> NPOs whose primary purpose is fundraising                                                                                 | (935)                                | 67,844                                |
| (6) | <i>Less:</i> NPOs affiliated to other organizations                                                                                    | (159)                                | 67,685                                |
| (7) | <i>Less:</i> Observations missing data to construct control variables                                                                  | (6,468)                              | 61,217                                |
| (8) | <i>Less:</i> Observations in states that adopted non-CPA ownership provisions by 1997 (i.e., always-treated group in NPO audit sample) | (15,925)                             | 45,292                                |
|     | <b>Final stacked sample for NPO audit quality analysis</b>                                                                             |                                      | <b>128,326</b>                        |

Panel C: EBP audit

| No. | Sample Selection Procedure                                                                                                             | Number of<br>Observations<br>Dropped | Number of<br>Observations<br>Retained |
|-----|----------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------|
| (1) | EBP-year observations in EBSA Form 5500 dataset from 1999 to 2023                                                                      |                                      | 265,414                               |
| (2) | <i>Less:</i> Observations not classified as limited-scope EBP audits                                                                   | (139,041)                            | 126,373                               |
| (3) | <i>Less:</i> Observations with less than 120 participants                                                                              | (4,026)                              | 122,347                               |
| (4) | <i>Less:</i> Observations missing data to construct control variables                                                                  | (37,985)                             | 84,362                                |
| (5) | <i>Less:</i> Observations in states that adopted non-CPA ownership provisions by 1999 (i.e., always-treated group in EBP audit sample) | (39,118)                             | 45,244                                |
|     | <b>Final stacked sample for EBP audit quality analysis</b>                                                                             |                                      | <b>104,436</b>                        |

*Notes:* This table describes the sample selection procedure for each audit sample used in the analyses. Panel A describes the process for public company financial statement audit sample. Panel B describes the process for NPO financial statement audit sample. Panel C describes the process for EBP audit sample.

**TABLE 5**  
*Effect of non-CPA ownership on public company audit quality*

Panel A: Descriptive statistics prior to stacking the data

| Variables                | Mean  | SD    | P25   | P50   | P75   | N       |
|--------------------------|-------|-------|-------|-------|-------|---------|
| <i>Absolute Accruals</i> | 0.159 | 0.313 | 0.038 | 0.076 | 0.149 | 110,583 |
| <i>Irregularity</i>      | 0.018 | 0.134 | 0.000 | 0.000 | 0.000 | 60,972  |

Panel B: Stacked DiD analyses

| Dependent Variables (y):                     | <i>Absolute Accruals</i>                  |                                           |                                           | <i>Irregularity</i>                       |                                           |                                           |
|----------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|
|                                              | (1)<br>Coefficient<br><i>t</i> -Statistic | (2)<br>Coefficient<br><i>t</i> -Statistic | (3)<br>Coefficient<br><i>t</i> -Statistic | (4)<br>Coefficient<br><i>t</i> -Statistic | (5)<br>Coefficient<br><i>t</i> -Statistic | (6)<br>Coefficient<br><i>t</i> -Statistic |
| <i>Treated × Post</i>                        | 0.004**<br>(2.05)                         | 0.006**<br>(2.60)                         | 0.006***<br>(2.61)                        | 0.009**<br>(2.26)                         | 0.007**<br>(2.08)                         | 0.009***<br>(2.89)                        |
| <i>Size</i>                                  |                                           | 0.004***<br>(3.54)                        | 0.001<br>(0.84)                           |                                           | 0.009***<br>(7.71)                        | 0.009***<br>(8.92)                        |
| <i>Leverage</i>                              |                                           | 0.048***<br>(24.03)                       | 0.049***<br>(23.02)                       |                                           | 0.005***<br>(10.34)                       | 0.005***<br>(6.81)                        |
| <i>ROA</i>                                   |                                           | -0.007***<br>(-3.64)                      | -0.008***<br>(-3.55)                      |                                           | 0.003***<br>(7.19)                        | 0.003***<br>(9.54)                        |
| <i>Book-to-Market</i>                        |                                           | -0.003***<br>(-9.38)                      | -0.003***<br>(-9.23)                      |                                           | 0.002***<br>(8.01)                        | 0.002***<br>(7.05)                        |
| <i>CFO</i>                                   |                                           | 0.347***<br>(40.66)                       | 0.365***<br>(41.50)                       |                                           | -0.001<br>(-0.76)                         | 0.000<br>(0.34)                           |
| <i>Z-Score</i>                               |                                           | 0.000*<br>(1.91)                          | 0.001***<br>(6.83)                        |                                           | -0.000***<br>(-5.77)                      | -0.000***<br>(-6.70)                      |
| <i>Sales Growth</i>                          |                                           | 0.012***<br>(10.24)                       | 0.011***<br>(8.85)                        |                                           | 0.002***<br>(5.72)                        | 0.002***<br>(6.60)                        |
| <i>CFO Vol</i>                               |                                           | 0.141***<br>(33.89)                       | 0.120***<br>(17.77)                       |                                           | 0.004***<br>(3.31)                        | 0.005***<br>(3.26)                        |
| <i>Loss</i>                                  |                                           | -0.024***<br>(-7.94)                      | -0.023***<br>(-7.48)                      |                                           | 0.006***<br>(6.78)                        | 0.005***<br>(8.17)                        |
| <i>Restructure</i>                           |                                           | 0.009***<br>(7.75)                        | 0.009***<br>(8.58)                        |                                           | -0.008***<br>(-3.52)                      | -0.006***<br>(-2.83)                      |
| <i>PPE Growth</i>                            |                                           | -0.013***<br>(-6.35)                      | -0.014***<br>(-6.10)                      |                                           | -0.002***<br>(-3.10)                      | -0.002***<br>(-2.80)                      |
| <i>M&amp;A</i>                               |                                           | -0.003***<br>(-6.29)                      | -0.003***<br>(-5.12)                      |                                           | 0.001<br>(1.04)                           | 0.000<br>(0.74)                           |
| <i>No Intangible</i>                         |                                           | 0.004**<br>(2.20)                         | 0.006***<br>(3.48)                        |                                           | 0.002<br>(1.47)                           | 0.004**<br>(2.26)                         |
| <i>Busy Season</i>                           |                                           | 0.006***<br>(3.04)                        | 0.004*<br>(1.77)                          |                                           | 0.021***<br>(5.08)                        | 0.023***<br>(6.59)                        |
| Jones Model Regressors                       | Yes                                       | Yes                                       | Yes                                       | No                                        | No                                        | No                                        |
| Client x Cohort FE                           | Yes                                       | Yes                                       | Yes                                       | Yes                                       | Yes                                       | Yes                                       |
| State x Cohort FE                            | Yes                                       | Yes                                       | Yes                                       | Yes                                       | Yes                                       | Yes                                       |
| Audit Firm x Year x Cohort FE                | Yes                                       | No                                        | Yes                                       | Yes                                       | No                                        | Yes                                       |
| Audit Firm x Cohort FE                       | No                                        | Yes                                       | No                                        | No                                        | Yes                                       | No                                        |
| Year x Cohort FE                             | No                                        | Yes                                       | No                                        | No                                        | Yes                                       | No                                        |
| Observations                                 | 304,794                                   | 304,794                                   | 304,794                                   | 149,514                                   | 149,514                                   | 149,514                                   |
| Adjusted R-squared                           | 0.774                                     | 0.781                                     | 0.801                                     | 0.324                                     | 0.417                                     | 0.426                                     |
| Pre-treatment Mean / Standard Deviation of y |                                           | 0.122 / 0.213                             |                                           |                                           | 0.020 / 0.140                             |                                           |

*Notes:* This table presents the results from regressions of public company audit quality proxies on an indicator variable that equals one for companies whose auditors operate in the states that adopt non-CPA ownership provisions (*Treated*), an indicator that equals one for the post-treatment period (*Post*), interaction terms between these variables, and control variables. Panel A presents summary statistics of audit quality proxies prior to stacking the data. Panel B presents the results from stacked DiD regressions. For columns 1 to 3, I add the Jones model regressors (e.g., inverse of lagged total assets; the change in revenues less the change in receivables, scaled by lagged total assets; and net PP&E over lagged total assets), as well as lagged turnover ratio of accounts receivables and payables. I report coefficients and (in parentheses) robust *t*-statistics. Detailed definitions for all variables are provided in Appendix A. Standard errors are clustered at state-cohort level. \*\*\*, \*\*, and \* denote statistical significance at the two-tailed 1, 5, and 10 percent levels, respectively.

**TABLE 6**  
*Additional analyses of public company audit quality*

Panel A: Unintentional accounting errors

| Dependent Variables (y):                     | <i>Error</i>                       |                                    |                                    |
|----------------------------------------------|------------------------------------|------------------------------------|------------------------------------|
|                                              | (1)                                | (2)                                | (3)                                |
|                                              | Coefficient<br><i>t</i> -Statistic | Coefficient<br><i>t</i> -Statistic | Coefficient<br><i>t</i> -Statistic |
| <i>Treated</i> × <i>Post</i>                 | -0.006<br>(-0.50)                  | -0.010<br>(-0.66)                  | -0.008<br>(-0.62)                  |
| Control Variables                            | No                                 | Yes                                | Yes                                |
| Client x Cohort FE                           | Yes                                | Yes                                | Yes                                |
| State x Cohort FE                            | Yes                                | Yes                                | Yes                                |
| Audit Firm x Year x Cohort FE                | Yes                                | No                                 | Yes                                |
| Audit Firm x Cohort FE                       | No                                 | Yes                                | No                                 |
| Year x Cohort FE                             | No                                 | Yes                                | No                                 |
| Observations                                 | 149,514                            | 149,514                            | 149,514                            |
| Adjusted R-squared                           | 0.280                              | 0.291                              | 0.283                              |
| Pre-treatment Mean / Standard Deviation of y | 0.117 / 0.321                      |                                    |                                    |

Panel B: Income overstatement and income understatement irregularity

| Dependent Variables (y):                     | <i>Overstatement Irregularity</i>  |                                    |                                    | <i>Understatement Irregularity</i> |                                    |                                    |
|----------------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
|                                              | (1)                                | (2)                                | (3)                                | (4)                                | (5)                                | (6)                                |
|                                              | Coefficient<br><i>t</i> -Statistic | Coefficient<br><i>t</i> -Statistic | Coefficient<br><i>t</i> -Statistic | Coefficient<br><i>t</i> -Statistic | Coefficient<br><i>t</i> -Statistic | Coefficient<br><i>t</i> -Statistic |
| <i>Treated</i> × <i>Post</i>                 | 0.011***<br>(3.36)                 | 0.008**<br>(2.48)                  | 0.010***<br>(3.08)                 | -0.001<br>(-0.53)                  | -0.001<br>(-0.62)                  | -0.001<br>(-0.54)                  |
| Control Variables                            | No                                 | Yes                                | Yes                                | No                                 | Yes                                | Yes                                |
| Client x Cohort FE                           | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                |
| State x Cohort FE                            | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                |
| Audit Firm x Year x Cohort FE                | Yes                                | No                                 | Yes                                | Yes                                | No                                 | Yes                                |
| Audit Firm x Cohort FE                       | No                                 | Yes                                | No                                 | No                                 | Yes                                | No                                 |
| Year x Cohort FE                             | No                                 | Yes                                | No                                 | No                                 | Yes                                | No                                 |
| Observations                                 | 149,514                            | 149,514                            | 149,514                            | 149,514                            | 149,514                            | 149,514                            |
| Adjusted R-squared                           | 0.433                              | 0.426                              | 0.435                              | 0.343                              | 0.333                              | 0.344                              |
| Pre-treatment Mean / Standard Deviation of y | 0.016 / 0.127                      |                                    |                                    | 0.004 / 0.061                      |                                    |                                    |

*Notes:* This table presents the results of additional analyses on the effect of non-CPA ownership on public company audit quality. Panel A presents the results from stacked DiD regressions of the existence of unintentional accounting errors on an indicator variable that equals one for clients whose auditors operate in states that adopt non-CPA ownership provisions (*Treated*), an indicator variable that equals one for the post-treatment period (*Post*), interaction terms between these variables, and control variables. Panel B presents the results from stacked DiD regressions of the existence of accounting irregularities that correct income overstatements (*Overstatement Irregularity*) and those that correct income understatements (*Understatement Irregularity*) on *Treated*, *Post*, interaction terms between these variables and control variables. I report coefficients and (in parentheses) robust *t*-statistics. Detailed definitions for all variables are provided in Appendix A. Standard errors are clustered at state-cohort level. \*\*\*, \*\*, and \* denote statistical significance at the two-tailed 1, 5, and 10 percent levels, respectively.

**TABLE 7**  
*Effect of non-CPA ownership on NPO audit quality*

| Dependent Variables (y):                            | Program Ratio                             |                                           | Zero Fundraising                          |                                           |
|-----------------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|
|                                                     | (1)<br>Coefficient<br><i>t</i> -Statistic | (2)<br>Coefficient<br><i>t</i> -Statistic | (3)<br>Coefficient<br><i>t</i> -Statistic | (4)<br>Coefficient<br><i>t</i> -Statistic |
| <i>Treated</i> × <i>Post</i>                        | 0.005**<br>(2.19)                         | 0.005***<br>(2.77)                        | 0.047**<br>(2.30)                         | 0.048**<br>(2.29)                         |
| <i>Size</i>                                         |                                           | -0.000<br>(-0.04)                         |                                           | -0.043***<br>(-4.27)                      |
| <i>Surplus Margin</i>                               |                                           | -0.035***<br>(-5.16)                      |                                           | -0.017<br>(-1.09)                         |
| <i>Asset Turnover</i>                               |                                           | 0.006<br>(1.44)                           |                                           | -0.030***<br>(-3.60)                      |
| <i>Negative Equity</i>                              |                                           | 0.009**<br>(2.53)                         |                                           | 0.001<br>(0.07)                           |
| <i>Donation Growth</i>                              |                                           | -0.001*<br>(-1.66)                        |                                           | 0.002***<br>(2.75)                        |
| <i>Deferred Expenses</i>                            |                                           | 0.007<br>(0.85)                           |                                           | 0.051<br>(1.59)                           |
| <i>Donation Intensity</i>                           |                                           | -0.000<br>(-0.04)                         |                                           | -0.091***<br>(-4.96)                      |
| <i>Deferred Revenue</i>                             |                                           | 0.008<br>(0.62)                           |                                           | -0.085***<br>(-3.23)                      |
| <i>Control Weakness</i>                             |                                           | -0.000<br>(-0.11)                         |                                           | 0.015***<br>(3.46)                        |
| <i>Low Audit Risk</i>                               |                                           | -0.001<br>(-0.97)                         |                                           | 0.003<br>(0.98)                           |
| <i>Taxable Activities</i>                           |                                           | -0.001<br>(-0.77)                         |                                           | 0.014***<br>(2.85)                        |
| <i>Municipal Bond</i>                               |                                           | 0.004**<br>(2.53)                         |                                           | -0.011**<br>(-2.40)                       |
| <i>Feeder Donations</i>                             |                                           | -0.002<br>(-1.03)                         |                                           | -0.017***<br>(-2.67)                      |
| <i>Grants</i>                                       |                                           | 0.005*<br>(1.65)                          |                                           | -0.016<br>(-1.52)                         |
| First-Stage Regressors                              | Yes                                       | Yes                                       | No                                        | No                                        |
| NPO x Audit Firm x Cohort FE                        | Yes                                       | Yes                                       | Yes                                       | Yes                                       |
| Activity Type x Year x Cohort FE                    | Yes                                       | Yes                                       | Yes                                       | Yes                                       |
| State x Cohort FE                                   | Yes                                       | Yes                                       | Yes                                       | Yes                                       |
| Observations                                        | 128,326                                   | 128,326                                   | 128,326                                   | 128,326                                   |
| Adjusted R-squared                                  | 0.812                                     | 0.814                                     | 0.864                                     | 0.865                                     |
| Pre-treatment Mean / Standard Deviation of <i>y</i> | 0.839 / 0.089                             |                                           | 0.264 / 0.441                             |                                           |

*Notes:* This table presents the results from stacked DiD regressions of NPOs' program ratio and an indicator for zero reported fundraising expenses on an indicator variable that equals one for clients whose auditors operate in states that adopt non-CPA ownership provisions (*Treated*), an indicator variable that equals one for the post-treatment period (*Post*), interaction terms between these variables and control variables. For columns 1 and 2, I include the first-stage regressors relevant to the program ratio model—professional fundraising expense ratio, fundraising intensity, and the log value of total revenues. I weight the zero fundraising regressions by SOI sampling weights to estimate population-average effects, since the probability of reporting zero fundraising varies sharply with organization size. Activity type is based on the National Taxonomy of Exempt Entities (NTEE) Core Codes. Detailed definitions for all variables are provided in Appendix A. I report coefficients and (in parentheses) robust *t*-statistics. Standard errors are clustered at state-cohort level. \*\*\*, \*\*, and \* denote statistical significance at the two-tailed 1, 5, and 10 percent levels, respectively.

**TABLE 8**  
*Effect of non-CPA ownership on EBP audit quality*

| Dependent Variables (y):                     | <i>Deficient Filers</i>                   |                                           |                                           |                                           |                                           |
|----------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|
|                                              | (1)<br>Coefficient<br><i>t</i> -Statistic | (2)<br>Coefficient<br><i>t</i> -Statistic | (3)<br>Coefficient<br><i>t</i> -Statistic | (4)<br>Coefficient<br><i>t</i> -Statistic | (5)<br>Coefficient<br><i>t</i> -Statistic |
| <i>Treated</i> × <i>Post</i>                 | 0.004**<br>(2.25)                         | 0.003***<br>(2.81)                        | 0.003**<br>(2.13)                         | 0.004**<br>(2.01)                         | 0.004***<br>(2.84)                        |
| <i>Contributions</i>                         |                                           | -0.000***<br>(-6.06)                      | -0.000***<br>(-5.81)                      | -0.000***<br>(-4.75)                      | -0.000**<br>(-2.37)                       |
| <i>Profitability</i>                         |                                           | -0.001***<br>(-2.73)                      | -0.001***<br>(-2.72)                      | -0.001***<br>(-2.67)                      | -0.001<br>(-0.76)                         |
| <i>HardtoAudit</i>                           |                                           | -0.010***<br>(-12.09)                     | -0.010***<br>(-9.35)                      | -0.011***<br>(-9.55)                      | -0.012***<br>(-2.62)                      |
| <i>Size</i>                                  |                                           | -0.000***<br>(-14.07)                     | -0.000***<br>(-12.96)                     | -0.000***<br>(-7.82)                      | -0.000<br>(-1.10)                         |
| <i>InvestmentFees</i>                        |                                           | -0.122**<br>(-2.27)                       | -0.120**<br>(-2.26)                       | -0.123*<br>(-1.72)                        | -0.128<br>(-0.64)                         |
| <i>Participants</i>                          |                                           | -0.392***<br>(-4.59)                      | -0.327***<br>(-4.82)                      | -0.183***<br>(-3.27)                      | -0.188<br>(-0.77)                         |
| State x Firm Type x Cohort FE                | Yes                                       | No                                        | Yes                                       | Yes                                       | Yes                                       |
| Firm Type x Year x Cohort FE                 | Yes                                       | No                                        | No                                        | No                                        | Yes                                       |
| Audit Firm x Cohort FE                       | Yes                                       | No                                        | No                                        | Yes                                       | Yes                                       |
| State x Cohort FE                            | No                                        | Yes                                       | No                                        | No                                        | No                                        |
| Firm Type x Cohort FE                        | No                                        | Yes                                       | No                                        | No                                        | No                                        |
| Year x Cohort FE                             | No                                        | Yes                                       | Yes                                       | Yes                                       | No                                        |
| Observations                                 | 104,436                                   | 104,436                                   | 104,436                                   | 104,436                                   | 104,436                                   |
| Adjusted R-squared                           | 0.006                                     | 0.001                                     | 0.001                                     | 0.005                                     | 0.006                                     |
| Pre-treatment Mean / Standard Deviation of y |                                           |                                           | 0.005 / 0.071                             |                                           |                                           |

*Notes:* This table reports the results from stacked DiD regressions of an indicator that equals one for EBP-year(s) being classified as deficient filers by EBSA on an indicator variable that equals one for clients whose auditors operate in states that adopt non-CPA ownership provisions (*Treated*), an indicator variable that equals one for the post-treatment period (*Post*), interaction terms between these variables and control variables. Detailed definitions for all variables are provided in Appendix A. I report coefficients and (in parentheses) robust *t*-statistics. Standard errors are clustered at state-cohort level. \*\*\*, \*\*, and \* denote statistical significance at the two-tailed 1, 5, and 10 percent levels, respectively.

**TABLE 9**  
*Subsample analyses of audit quality*

Panel A: Public company audit

| Dependent Variables:                                                      | <i>Absolute Accruals</i>           |                                    | <i>Irregularity</i>                |                                    |
|---------------------------------------------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
|                                                                           | Big N                              | Non-Big N                          | Big N                              | Non-Big N                          |
|                                                                           | (1)                                | (2)                                | (3)                                | (4)                                |
|                                                                           | Coefficient<br><i>t</i> -Statistic | Coefficient<br><i>t</i> -Statistic | Coefficient<br><i>t</i> -Statistic | Coefficient<br><i>t</i> -Statistic |
| <i>Treated</i> × <i>Post</i>                                              | 0.002<br>(0.91)                    | 0.023***<br>(2.66)                 | 0.003<br>(0.60)                    | 0.014**<br>(2.04)                  |
| <i>p</i> -value for $\beta_{\text{Big N}} - \beta_{\text{Non-Big N}} < 0$ | 0.008                              |                                    | 0.001                              |                                    |
| Control Variables                                                         | Yes                                | Yes                                | Yes                                | Yes                                |
| Jones Model Regressors                                                    | Yes                                | Yes                                | No                                 | No                                 |
| Fixed Effects                                                             | Yes                                | Yes                                | Yes                                | Yes                                |
| Observations                                                              | 208,865                            | 95,929                             | 104,677                            | 44,837                             |
| Adjusted R-squared                                                        | 0.693                              | 0.778                              | 0.394                              | 0.386                              |

Panel B: NPO audit

| Dependent Variables:                                                      | <i>Program Ratio</i>               |                                    | <i>Zero Fundraising</i>            |                                    |
|---------------------------------------------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
|                                                                           | Big N                              | Non-Big N                          | Big N                              | Non-Big N                          |
|                                                                           | (1)                                | (2)                                | (3)                                | (4)                                |
|                                                                           | Coefficient<br><i>t</i> -Statistic | Coefficient<br><i>t</i> -Statistic | Coefficient<br><i>t</i> -Statistic | Coefficient<br><i>t</i> -Statistic |
| <i>Treated</i> × <i>Post</i>                                              | 0.002<br>(0.74)                    | 0.008***<br>(2.90)                 | 0.005<br>(0.27)                    | 0.048**<br>(2.03)                  |
| <i>p</i> -value for $\beta_{\text{Big N}} - \beta_{\text{Non-Big N}} < 0$ | 0.038                              |                                    | 0.042                              |                                    |
| Control Variables                                                         | Yes                                | Yes                                | Yes                                | Yes                                |
| First-Stage Regressors                                                    | Yes                                | Yes                                | No                                 | No                                 |
| Fixed Effects                                                             | Yes                                | Yes                                | Yes                                | Yes                                |
| Observations                                                              | 45,567                             | 82,759                             | 45,567                             | 82,759                             |
| Adjusted R-squared                                                        | 0.823                              | 0.813                              | 0.865                              | 0.864                              |

Panel C: EBP audit

| Dependent Variables:                                                      | <i>Deficient Filers</i>            |                                    |
|---------------------------------------------------------------------------|------------------------------------|------------------------------------|
|                                                                           | Big N                              | Non-Big N                          |
|                                                                           | (1)                                | (2)                                |
|                                                                           | Coefficient<br><i>t</i> -Statistic | Coefficient<br><i>t</i> -Statistic |
| <i>Treated</i> × <i>Post</i>                                              | -0.001<br>(-0.43)                  | 0.006***<br>(2.76)                 |
| <i>p</i> -value for $\beta_{\text{Big N}} - \beta_{\text{Non-Big N}} < 0$ | 0.003                              |                                    |
| Control Variables                                                         | Yes                                | Yes                                |
| Fixed Effects                                                             | Yes                                | Yes                                |
| Observations                                                              | 24,950                             | 79,486                             |
| Adjusted R-squared                                                        | 0.011                              | 0.093                              |

*Notes:* This table presents the results of my subsample analyses on the effect of non-CPA ownership on audit quality partitioned by auditor size. Panel A (B, C) presents results for public company (NPO, EBP) audit quality, with each panel presenting results separately for Big N and non-Big N subsamples. Panel A includes Client × Cohort, State × Cohort, and Audit Firm × Year × Cohort fixed effects. Panel B includes NPO × Audit Firm × Cohort, State × Cohort, and Activity Type × Year × Cohort fixed effects. Panel C includes State × Firm Type × Cohort, Firm Type × Year × Cohort, and Audit Firm × Cohort fixed effects. I report coefficients and (in parentheses) robust *t*-statistics. Standard errors are clustered at state-cohort level. \*\*\*, \*\*, and \* denote statistical significance at the two-tailed 1, 5, and 10 percent levels, respectively.

**TABLE 10**  
*Effect of non-CPA ownership on audit pricing*

Panel A: Descriptive statistics prior to stacking the data

| Variables                          | Mean    | SD      | P25    | P50    | P75     | N      |
|------------------------------------|---------|---------|--------|--------|---------|--------|
| <b><u>NPO Audit</u></b>            |         |         |        |        |         |        |
| <i>Audit Fees</i>                  | 148,514 | 230,455 | 39,883 | 79,137 | 153,206 | 36,924 |
| <i>Ln(Audit Fees)</i>              | 11.207  | 1.249   | 10.594 | 11.279 | 11.940  | 36,924 |
| <i>Big N</i>                       | 0.258   | 0.438   | 0.000  | 0.000  | 1.000   | 36,924 |
| <b><u>EBP Audit</u></b>            |         |         |        |        |         |        |
| <i>Audit Fees</i>                  | 18,251  | 18,225  | 8,663  | 12,925 | 20,250  | 44,756 |
| <i>Ln(Audit Fees)</i>              | 9.550   | 0.662   | 9.067  | 9.467  | 9.916   | 44,756 |
| <i>Big N</i>                       | 0.209   | 0.406   | 0.000  | 0.000  | 0.000   | 44,756 |
| <b><u>Public Company Audit</u></b> |         |         |        |        |         |        |
| <i>Audit Fees</i> (\$000s)         | 2,214   | 4,926   | 240    | 784    | 2,129   | 39,399 |
| <i>Ln(Audit Fees)</i>              | 13.516  | 1.489   | 12.390 | 13.572 | 14.571  | 39,399 |
| <i>Non-Audit Fees</i> (\$000s)     | 494     | 1,924   | 26     | 96     | 340     | 30,536 |
| <i>Ln(Non-Audit Fees)</i>          | 11.429  | 1.853   | 10.166 | 11.472 | 12.737  | 30,536 |
| <i>Big N</i>                       | 0.667   | 0.471   | 0.000  | 1.000  | 1.000   | 39,399 |

Panel B: NPO audit fees

| Dependent Variables:  | <i>Ln(Audit Fees<sub>NPO</sub>)</i> |                     |             |                     |
|-----------------------|-------------------------------------|---------------------|-------------|---------------------|
|                       | (1)                                 |                     | (2)         |                     |
|                       | Coefficient                         | <i>t</i> -Statistic | Coefficient | <i>t</i> -Statistic |
| <i>Treated × Post</i> | -0.058**                            | -2.06               | -0.058**    | -2.17               |
| Control Variables     | No                                  |                     | Yes         |                     |
| Fixed Effects         | Yes                                 |                     | Yes         |                     |
| Observations          | 108,499                             |                     | 108,499     |                     |
| Adjusted R-squared    | 0.809                               |                     | 0.810       |                     |

Panel C: EBP audit fees

| Dependent Variables:  | <i>Ln(Audit Fees<sub>EBP</sub>)</i> |                     |             |                     |
|-----------------------|-------------------------------------|---------------------|-------------|---------------------|
|                       | (1)                                 |                     | (2)         |                     |
|                       | Coefficient                         | <i>t</i> -Statistic | Coefficient | <i>t</i> -Statistic |
| <i>Treated × Post</i> | -0.077***                           | -2.78               | -0.061**    | -2.36               |
| Control Variables     | No                                  |                     | Yes         |                     |
| Fixed Effects         | Yes                                 |                     | Yes         |                     |
| Observations          | 103,252                             |                     | 103,252     |                     |
| Adjusted R-squared    | 0.422                               |                     | 0.496       |                     |

Panel D: Public company audit fees

| Dependent Variables:  | <i>Ln(Audit Fees<sub>PC</sub>)</i> |                     |             |                     | <i>Ln(Non-Audit Fees)</i> |                     |
|-----------------------|------------------------------------|---------------------|-------------|---------------------|---------------------------|---------------------|
|                       | (1)                                |                     | (2)         |                     | (3)                       |                     |
|                       | Coefficient                        | <i>t</i> -Statistic | Coefficient | <i>t</i> -Statistic | Coefficient               | <i>t</i> -Statistic |
| <i>Treated × Post</i> | 0.015                              | 0.65                | 0.002       | 0.14                | -0.030                    | -0.63               |
| Control Variables     | No                                 |                     | Yes         |                     | Yes                       |                     |
| Fixed Effects         | Yes                                |                     | Yes         |                     | Yes                       |                     |
| Observations          | 96,426                             |                     | 96,426      |                     | 70,312                    |                     |
| Adjusted R-squared    | 0.949                              |                     | 0.963       |                     | 0.754                     |                     |

*Notes:* This table reports the results of the analyses assessing the effect of non-CPA ownership on audit fees. Panel A presents summary statistics for all three audit fee samples prior to stacking. Panel B presents NPO audit fee results from stacked DiD regressions of log value of audit fees on an indicator variable that equals one for NPOs whose auditors operate in the adopting states (*Treated*), an indicator that equals one for the post-treatment period (*Post*), interaction terms between these variables, and control variables. All regressions include the most conservative fixed-effects structure used in audit quality analyses. Panels C and D present the same set of results using the EBP and public company samples. I report coefficients and robust *t*-statistics. Standard errors are clustered at state-cohort level. \*\*\*, \*\*, and \* denote statistical significance at the two-tailed 1, 5, and 10 percent levels, respectively.

**TABLE 11**  
*Subsample analyses of audit fees*

Panel A: NPO audit fees

| Dependent Variables:                                                      | <i>Ln(Audit Fees<sub>NPO</sub>)</i> |                     |             |                     |
|---------------------------------------------------------------------------|-------------------------------------|---------------------|-------------|---------------------|
|                                                                           | Big N                               |                     | Non-Big N   |                     |
|                                                                           | (1)                                 |                     | (2)         |                     |
|                                                                           | Coefficient                         | <i>t</i> -Statistic | Coefficient | <i>t</i> -Statistic |
| <i>Treated</i> × <i>Post</i>                                              | -0.011                              | -0.23               | -0.091**    | -2.58               |
| <i>p</i> -value for $\beta_{\text{Big N}} - \beta_{\text{Non-Big N}} > 0$ | 0.087                               |                     |             |                     |
| Control Variables                                                         | Yes                                 |                     | Yes         |                     |
| Fixed Effects                                                             | Yes                                 |                     | Yes         |                     |
| Observations                                                              | 42,247                              |                     | 66,252      |                     |
| Adjusted R-squared                                                        | 0.753                               |                     | 0.799       |                     |

Panel B: EBP audit fees

| Dependent Variables:                                                      | <i>Ln(Audit Fees<sub>EBP</sub>)</i> |                     |             |                     |
|---------------------------------------------------------------------------|-------------------------------------|---------------------|-------------|---------------------|
|                                                                           | Big N                               |                     | Non-Big N   |                     |
|                                                                           | (1)                                 |                     | (2)         |                     |
|                                                                           | Coefficient                         | <i>t</i> -Statistic | Coefficient | <i>t</i> -Statistic |
| <i>Treated</i> × <i>Post</i>                                              | -0.015                              | -0.28               | -0.082***   | -3.58               |
| <i>p</i> -value for $\beta_{\text{Big N}} - \beta_{\text{Non-Big N}} > 0$ | 0.090                               |                     |             |                     |
| Control Variables                                                         | Yes                                 |                     | Yes         |                     |
| Fixed Effects                                                             | Yes                                 |                     | Yes         |                     |
| Observations                                                              | 24,799                              |                     | 78,453      |                     |
| Adjusted R-squared                                                        | 0.428                               |                     | 0.480       |                     |

Panel C: Public company audit fees

| Dependent Variables:                                                      | <i>Ln(Audit Fees<sub>PC</sub>)</i> |                     |                     |                     |
|---------------------------------------------------------------------------|------------------------------------|---------------------|---------------------|---------------------|
|                                                                           | Big N                              |                     | Big N               |                     |
|                                                                           | (1)                                |                     | (2)                 |                     |
|                                                                           | Coefficient                        | <i>t</i> -Statistic | Coefficient         | <i>t</i> -Statistic |
| <i>Treated</i> × <i>Post</i>                                              | 0.012                              | 0.73                | -0.057 <sup>†</sup> | -1.65               |
| <i>p</i> -value for $\beta_{\text{Big N}} - \beta_{\text{Non-Big N}} > 0$ | 0.032                              |                     |                     |                     |
| Control Variables                                                         | Yes                                |                     | Yes                 |                     |
| Fixed Effects                                                             | Yes                                |                     | Yes                 |                     |
| Observations                                                              | 56,239                             |                     | 40,187              |                     |
| Adjusted R-squared                                                        | 0.955                              |                     | 0.933               |                     |

*Notes:* This table presents the results of my subsample analyses on the effect of non-CPA ownership on audit fees partitioned by auditor size. Panel A presents results for NPO audit fees, panel B presents results for EBP audit fees, and panel C presents results for public company audit fees, with each panel presenting results separately for the subsamples of clients of Big N and non-Big N auditors. Each panel includes the same set of control variables and fixed effects as those used in table 10. I report coefficients and robust *t*-statistics. Standard errors are clustered at state-cohort level. \*\*\*, \*\*, \*, and <sup>†</sup> denote statistical significance at the two-tailed 1, 5, 10, and 15 percent levels, respectively.

Supplementary Material

**Online Appendix to**

**“Does Ownership Structure Affect Audit Quality?  
Evidence from Non-CPA Ownership Provisions”**

## **1. Historical CPA Firm Ownership Data**

### ***1.1. State Accountancy Board Responses to Historical Ownership Data Inquiries***

To assess the availability of historical CPA firm ownership data, I directly contacted the boards of accountancy in all 50 U.S. states and the District of Columbia. Inquiry emails were sent to each board between December 1 and December 12, 2025, using contact information obtained from the NASBA public directory (<https://nasba.org/stateboards/>). Figure OA1 illustrates this inquiry process. Panel A presents the standardized inquiry email sent to each board. Panel B provides an example of a response to a public records request, specifically from the Massachusetts Division of Occupational Licensure, which confirms that historical CPA firm ownership rosters or ownership interest data are not maintained by the state agency. Consistent with this response, most responding boards indicated that historical ownership information is either not maintained or treated as confidential under state law, limiting the feasibility of constructing comprehensive historical ownership data from state regulatory sources. Table OA1 summarizes responses from all state boards.

### ***1.2. Construction of the Alabama and Alaska Non-CPA Ownership Data***

While historical ownership data is not available for most states, Alabama and Alaska make owner information partially available, which I use to identify owners without a CPA license in each state. First, to construct the Alabama non-CPA ownership data, I manually obtain the records of all non-licensee owners from the Alabama State Board of Public Accountancy. The Board maintains a public registry of CPAs licensed in the state and a public registry of non-licensee owners. The non-licensee owner registry covers individuals who hold an ownership interest in a CPA firm but do not hold a CPA license.<sup>1</sup> Each record reports the owner's name, the CPA firm in which the owner holds an interest, and a certification date. The Board indicates that a non-licensee owner's certification date is the date on which the owner first registered upon acquiring an ownership interest. Because the registry retains discontinued as well as active non-licensee owners,

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<sup>1</sup> The CPA registry, by contrast, does not distinguish CPAs who own a firm from those who do not.

I observe the owners admitted in earlier years even after they leave the firm, so the data extends back to the provision's 2003 adoption. To focus on ownership within Alabama, I retain the owners located in the state. This leaves 98 non-licensee owners across 81 firms. I plot the number of newly admitted owners without a CPA license by year in figure 2, panel A.

Second, to construct the Alaska non-CPA ownership data, I begin by obtaining the list of Alaska CPA firms from the Alaska State Board of Public Accountancy. I then manually obtain the biennial reports that these firms file with the Alaska Department of Commerce, Community, and Economic Development, which are available from the early 2000s to the present. The reports list owners regardless of license status but do not record which owners hold a CPA license. I therefore match each owner's name on the biennial reports against the registry of licensed CPAs that I obtain from the Board. I treat those who do not match the CPA registry as non-licensee owners. Because the biennial reports do not record when ownership was acquired, I date each owner's entry by the date of the first report in which the owner appears. The coverage remains partial because some firms disclose only a single representative owner rather than their full ownership. I retain firm-years in which the firm holds an active CPA firm permit in the state. This process yields 27 owners without a CPA license across 22 firms. I plot the number of newly admitted owners without a CPA license by year in figure 2, panel B.

## **2. Descriptive Characteristics of CPAs and Non-CPA Specialists in Audit Entities**

### ***2.1. Identification of CPAs and Non-CPA Specialists in Audit Entities***

I define non-CPA specialists as employees working within audit entities of accounting firms who do not hold CPA positions and who are not employed in administrative or support roles. To identify non-CPA specialists, I begin with WRDS Revelio's COMPANY\_MAPPING data to identify the set of accounting-firm entities. For each accounting firm of interest, I obtain its *ultimate\_parent\_rcid* and then collect all affiliate *rcids* linked to that ultimate parent.<sup>2</sup> This

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<sup>2</sup> Following prior accounting labor studies that rely on Revelio data, I restrict my analyses of non-CPA specialists to national accounting firms for which Revelio provides reasonably comprehensive coverage (e.g., Fedyk et al. 2022, 2025; Ahn et al. 2025).

procedure produces a list of affiliated entities that may include both the audit entity and consulting/advisory affiliates. To isolate audit entities, I apply firm-level filters using NAICS and industry classifications in Revelio. I primarily retain entities with NAICS 5412 (Accounting, Tax Preparation, Bookkeeping, and Payroll Services) and *rics\_k400* equal to “Accounting and Auditing Services.” I add two exceptions. I include entities with NAICS 5416 (Management, Scientific, and Technical Consulting Services) but with *rics\_k400* = “Accounting and Auditing Services”, and entities with NAICS 5412 but *rics\_k400* = “Accounting and Consulting Services” when they correspond to audit-practice entities. I then manually review company names to remove remaining consulting affiliates that pass these filters (e.g., entities explicitly labeled as consulting partnerships). This process yields a final set of 30 audit-entity *rcids*.

Using the audit-entity *rcids*, I retrieve individual position records from Revelio’s INDIVIDUAL\_POSITIONS data. Because individuals may be mapped to audit entities even when they are employed in affiliated consulting or advisory arms, I further refine the sample using Revelio’s role classifications. Specifically, I exclude positions classified as consulting or advisory roles and those corresponding to operational or support functions based on *role\_k500\_v3*. I then restrict the sample to non-entry-level positions by excluding observations with *seniority* less than or equal to one. These steps ensure that the remaining sample captures individuals employed within audit entities rather than consulting affiliates or back-office administrative functions. Using the resulting set of individuals employed in audit entities, I classify positions as held by CPAs or non-CPAs based on O\*NET-SOC occupations, job titles, role classifications, and education histories. Specifically, I identify CPAs by flagging individuals i) whose O\*NET-SOC occupations correspond to “Accountants and Auditors”, ii) whose LinkedIn job titles explicitly reference CPA status, iii) whose role classifications (*role\_k500\_v3*) indicate accounting, audit, or assurance responsibilities, or iv) whose educational background includes a master’s degree in accounting. Individuals who do not meet any of these criteria are classified as non-CPA specialists.

## ***2.2. Descriptive Characteristics of Role, Educational Background, and Seniority***

Using the individual-position records constructed in the preceding steps, I retain each individual's most recent observed position and associated educational background, which reflect the individual's highest attained seniority and primary functional role within the audit entity. I then examine differences in role composition, educational background, and seniority between CPAs and non-CPA specialists employed by audit entities.

Table OA2, panel A, reports the most common role titles held by CPAs and non-CPA specialists within audit entities. Among CPAs, the most prevalent titles are directly related to audit and assurance activities, including Financial Auditor, Tax Accountant, Compliance Auditor, and Accountant, consistent with CPAs' primary responsibilities in financial reporting and assurance. Managerial roles such as Senior Manager and Managing Director also appear frequently among CPAs, reflecting their substantial presence in team managing positions within audit entities. In contrast, the most common titles held by non-CPA specialists are concentrated in technical and analytical functions, including Information Security, Software Engineer, IT Operations, Solutions Architect, and Data Analyst. These roles indicate that non-CPA specialists primarily contribute specialized technical, information-systems, and analytical expertise rather than performing traditional audit or assurance functions. Overall, the role distributions highlight clear functional specialization between CPAs and non-CPA specialists within audit entities.

Table OA2, panel B, presents descriptive statistics on education characteristics for individuals employed by audit entities. CPAs constitute approximately 80% of the workforce in these entities. Approximately 85% of individuals hold a bachelor's degree, 27% hold a master's degree, and 3% hold a doctoral degree.<sup>3</sup> In terms of educational background, 47% of individuals have training in accounting, 56% have backgrounds in business, economics, or finance, 10% have degrees in engineering or information technology, and 2% have degrees in the natural sciences.

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<sup>3</sup> Some LinkedIn users report certain degrees while omitting others (e.g., reporting an MBA, master's, or doctoral degree without reporting a bachelor's degree). Consequently, the reported statistics should be interpreted as lower bounds on degree attainment across all education categories. In addition, the degree indicators are not mutually exclusive. Individuals holding multiple degrees are counted in each applicable category.

Table OA2, panel C compares characteristics between CPAs and non-CPA specialists. CPAs are more likely to hold a master's degree than non-CPA specialists, consistent with professional certification that requires graduate-level accounting education. In contrast, non-CPA specialists are more likely to hold an MBA. The incidence of doctoral degrees is similar across the two groups. Non-CPA specialists are disproportionately drawn from engineering, information technology, and natural science backgrounds, underscoring systematic differences in human-capital composition between CPAs and non-CPA specialists.

To examine career progression, I expand individuals' position histories into an individual-year panel by assigning each job to the years it spans and collapsing overlapping positions within a year to the highest observed seniority. Using this panel, I analyze differences in career advancement between CPAs and non-CPA specialists based on Revelio's seniority classification. I define senior positions as those with a seniority score of five or higher and examine both the likelihood of ever reaching senior level and the duration of time spent at senior level. Approximately 31.7% of individuals are classified as senior during the sample period. CPAs are more likely to reach senior positions than non-CPA specialists: 32.2% of CPAs ever attain senior level, compared with 29.7% of non-CPA specialists. Differences also emerge in senior-level tenure. On average, CPAs spend more years at senior level than non-CPA specialists, reflecting both a higher likelihood of reaching senior positions and longer tenure once senior. Conditioning on individuals who ever reach senior level, CPAs continue to exhibit longer senior-level tenure, spending an average of approximately 7.7 years at senior level compared with 5.8 years for non-CPA specialists.

### **3. Research Design Details for Public Company, NPO and EBP Audits**

#### ***3.1. Public Company Audits***

##### ***3.1.1. Sample Construction***

To construct the public company audit sample, I begin with a panel of U.S. public companies from Compustat for fiscal years 1994 through 2024. Using the WRDS SEC Linking

Table, which provides historical mappings between GVKEY and CIK identifiers, I create a panel of GVKEY–fiscal year–historical CIK observations and use this panel to link companies to auditor information. Auditor information comes from two sources. For fiscal years 2000 to 2024, I use Audit Analytics, which provides standardized data on audit firms for SEC registrants that disclose their auditor’s report on financial statements filed after January 1, 2000. Audit Analytics also provides limited coverage for earlier years. Accordingly, for fiscal years 1994 through 1999, I use auditor identity information from Audit Analytics when available. For observations with missing auditor identities, I retrieve the relevant 10-K filings from the WRDS SEC Analytics Suite and identify the auditor from the auditor’s report in each filing.

I then merge the auditor data with company-level financial statement information from Compustat for the accrual analyses. Requiring data for the accruals and control variables leaves me with 111,037 client-year observations. Before stacking, I exclude observations in states that adopted non-CPA ownership provisions by 1994, which form the always-treated group. This restriction reduces the sample by 454 observations. Stacking the remaining client-year observations by cohorts results in a final sample of 304,794 cohort-client-year observations. For the irregularity analyses, I additionally require restatement data from Audit Analytics, which provides reliable coverage beginning in 1998 based on the fiscal year of the restated reports. To mitigate concerns related to delayed detection of misstatements, I further end the sample in 2022 to allow a three-year look-ahead window for restatement identification (e.g., Aobdia and Petacchi 2023; Yang and Zhu 2025). Stacking the remaining observations by cohorts produces a final sample of 149,514 cohort-client-year observations. Table 4, panel A, summarizes the sample selection procedures for the public company audit analyses.

### **3.2. NPO Audits**

#### *3.2.1. Institutional Setting and Sample Construction*

NPOs control over \$8.4 trillion in assets as of 2021 (Urban Institute 2024). Audits serve as a critical contracting and monitoring mechanism over much of these assets, making NPO audits

economically important settings alongside public company audits (Duguay 2022, 2024). Not all NPOs are required to obtain an audit. A major source of audit requirements arises when an NPO receives more than \$750,000 in annual federal awards, which triggers a “Single Audit” under the Uniform Guidance 2 CFR§200 Subpart F.<sup>4</sup> In a Single Audit, auditors issue an opinion on the NPO’s financial statements, the Schedule of Expenditures of Federal Awards (SEFA), and the NPO’s compliance with applicable federal requirements. Completed audit reports are submitted to the Federal Audit Clearinghouse (FAC), which makes them publicly accessible. The Single Audit framework provides uniform audit requirements, standardized reporting, and broad coverage across industries and states (Feng et al. 2014). For these reasons, my NPO audit sample begins with NPOs subject to the Single Audit requirement.

I construct a panel of NPOs from the FAC Single Audit database, which includes identifiers for both auditees and auditors, allowing me to identify the audit firm for each NPO-year beginning in 1997. However, Single Audit filers submit only the audit report package, not the underlying financial statements. To obtain financial statement information, I link the FAC database to the Internal Revenue Service (IRS) Statistics of Income (SOI) database (e.g., Petrovits et al. 2011; Harris et al. 2015; Yetman 2024).<sup>5</sup> The SOI data files provide balance sheet and income statement information derived from Form 990 for a stratified random sample of NPOs that are required to file the form to maintain their tax-exempt status. The stratification is based on end-of-year asset size, with smaller sampling rates for lower asset strata and up to full coverage of filers with total assets of \$50 million or more. This asset-stratified design provides a good coverage over 90% of aggregate nonprofit assets and revenues (Yetman and Yetman [YY] 2013).<sup>6</sup>

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<sup>4</sup> The Single Audit was formerly known as the A-133 Audit as it was governed by the Office of Management and Budget’s Circular No. A-133. The expenditure threshold for requiring a Single Audit was \$300,000 at the start of my sample period, increased to \$500,000 for fiscal years ending after December 31, 2003, to \$750,000 for fiscal years beginning on or after December 26, 2014, and to \$1,000,000 for fiscal years beginning on or after October 1, 2024, which is outside my sample window.

<sup>5</sup> Some studies use GuideStar (now Candid) to obtain NPO-level financial data (e.g., Keating et al. 2008; Duguay et al. 2020; Duguay 2022, 2024). However, based on my discussions with Candid, comprehensive coverage of their Form 990 data becomes available only around 2008, which postdates most states’ non-CPA ownership adoption and covers only the latter part of my sample period. I therefore rely on the SOI database for NPO financial information.

<sup>6</sup> One potential limitation is size bias—smaller organizations are less likely to appear in consecutive years—but evidence in Feng et al. (2014) suggests that such bias is less pronounced than simple sample-selection logic would imply and is attenuated over long panels.

Some entities appearing in the FAC Single Audit database are not Form 990 filers (e.g., state, local, and Indian tribal governments), and not all NPOs receive federal awards. Thus, my NPO audit sample is the intersection of the FAC Single Audit and IRS SOI databases, yielding 86,040 NPO-year observations. Consistent with prior research, I apply several sample screens to focus the analysis on NPOs whose donations are more likely to be influenced by reported program ratios and to remove observations with unusable or erroneous data. First, I drop observations with less than \$1,000 in assets, program expenses, total expenses, or total revenues. Next, I exclude NPOs that report less than \$10,000 in private donations. Their donors are likely less responsive to the program ratio, thus giving these NPOs less incentive to manage their program ratios (YY 2013; Garven et al. 2018). Lastly, I further remove NPOs that face systematically different incentives for expense reporting, including affiliated organizations and NPOs whose primary purpose is fundraising.<sup>7</sup> After imposing these screens and requiring non-missing values for the necessary variables, I obtain 61,217 NPO-year observations. I then remove observations from states that adopted non-CPA ownership provisions by 1997, which form the always-treated group. Stacking the remaining observations by treatment cohorts yields a final sample of 128,326 cohort-NPO-year observations. Table 4, panel B, summarizes the sample selection procedure.

### 3.2.2. Control Variables and Fixed Effects

To mitigate concerns that differences in NPOs' financial performance, organizational and governance characteristics confound the effect of non-CPA ownership on audit quality, I include a set of control variables commonly used in NPO literature. Specifically, I control for organizational size (*Size*), surplus margin (*Surplus Margin*), financial health (*Negative Equity* and *Asset Turnover*), donation growth (*Donation Growth*), deferred expense ratio (*Deferred Expenses*), donation intensity (*Donation Intensity*), deferred revenues (*Deferred Revenue*), internal control quality (*Control Weakness*), and audit risk (*Low Audit Risk*). I also control for governance-related variables,

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<sup>7</sup> I exclude affiliated NPOs, as it is possible that one organization could provide fundraising services on behalf of another, resulting in low or zero fundraising expenses. I also remove NPOs whose primary purpose is fundraising, as they may classify fundraising activities as program services (Yetman and Yetman 2012).

including regulatory oversight by the federal government (*Taxable Activities*) and monitoring by capital providers (*Municipal Bond* and *Feeder Donations*). For the program ratio model, since I combine two stages of estimating abnormal program ratio, I further control for the first-stage regressors, which are professional fundraising expense ratio, fundraising intensity, and the log value of total revenues. See Appendix A for detailed variable definitions.

I include a comprehensive set of fixed effects. I use  $\text{NPO} \times \text{Audit Firm} \times \text{Cohort}$  fixed effects to control for unobservable characteristics of auditor-client matching, since the factors that shape an NPO's auditor choice may also influence audit quality. I also include  $\text{Activity Type} \times \text{Year} \times \text{Cohort}$  fixed effects, based on the National Taxonomy of Exempt Entities (NTEE) Core Code, which is the standard classification system for NPOs (Urban Institute 2019; Duguay et al. 2020). This captures time-varying differences across NPO activity types and absorbs any type-specific effects. Lastly,  $\text{State} \times \text{Cohort}$  fixed effects control for time-invariant differences across states within cohorts.

### 3.2.3. Descriptive Statistics

Descriptive statistics for the variables used in NPO audit quality analysis, prior to stacking the data, are reported in Table OA3, panel B. The mean values of my outcome variables, *Program Ratio* and *Zero Fundraising*, are 0.839 and 0.240, respectively, similar to those reported in prior research (e.g., YY 2012, 2013). These statistics indicate that NPOs allocate, on average, 84% of total expenses to mission-related activities and that 24% of NPO-year observations in my sample report zero fundraising expenditures when they plausibly should be reporting nonzero amounts. Descriptive statistics for the remaining variables are also largely consistent with prior research. For example, the average values for size, surplus margin, and annual donation growth are comparable to those reported in Garven et al. (2018).

## 3.3. EBP Audits

### 3.3.1. Institutional Setting and Sample Construction

As of 2021, EBP's hold over \$13.1 trillion in assets that fund the retirement income of millions of U.S. workers (DOL 2024). Following a series of pension plan failures in the 1960-70s, Congress enacted ERISA in 1974 to strengthen oversight of EBP's. ERISA mandates audits of these plans, making EBP audits a primary mechanism for verifying that plan sponsors meet their fiduciary obligations (Stockbridge 2024). ERISA requires plan sponsors to publicly file annual reports detailing financial information about their retirement plans. These reports, known as Form 5500 filings, are intended to “provide employees with enough information regarding [their] plans so that they could monitor their plans to prevent mismanagement and abuse of plan funds” (DOL 2025). Form 5500 reports key plan characteristics, including the types of benefits offered and the number of active, retired, and total participants. Accompanying schedules provide detailed financial information, the auditor’s opinion, and disclosures on the identity and compensation of service providers.

I obtain data on Form 5500 filings and related schedules from the EBSA Form 5500 dataset. This dataset provides structured data on operations, funding and investments of EBP's directly sourced from the Form 5500 Annual Reports filed by plans. From these files, I select Form 5500, Schedule C – Part 1, and Schedule H. Schedule H provides plan-level financial information and information on the auditor’s opinion. I identify EBP auditors based on Employer Identification Numbers (EIN) provided on Schedule H. I then obtain audit fee information from Schedule C, which discloses the compensation paid to all service providers, including auditors. I merge Schedule H and C using EBSA filing identifiers and EINs to construct EBP-level audit fees and then link these data to the main Form 5500 files to obtain additional information on plan administrators. Then, I merge it with the EBSA Enforcement Dataset provided by DOL’s Office of the Chief Accountant Case Tracking System (OCATS), yielding 265,414 EBP-year observations.

To ensure comparability between national and local audit firms, I require a standardized service provided by both types of audit firms. Thus, I follow prior research (e.g., Cascino et al. 2021) and focus on *limited-scope* EBP audits, which are relatively homogeneous in engagement

complexity (AICPA 2018). This process reduces my sample to 126,373 EBP-year observations. I next exclude plans with fewer than 120 participants since ERISA’s “80 to 120 Participant Rule” allows plans with 100 to 120 participants to continue filing unaudited Form 5500s if they previously filed without an audit. Plans with fewer than 100 participants are required only to submit summary financial information and typically do not obtain an audit (Stockbridge 2024). To avoid mixing audited and unaudited engagements, I therefore drop plans with fewer than 120 participants, reducing the sample to 122,347 observations. Finally, requiring observations to have non-missing values for the control variables leaves me with 84,362 observations. Before stacking, I delete observations whose auditors operate in states that adopted the provisions by 1999, which constitute the always-treated group. Stacking the remaining observations by treatment cohorts yields a final sample of 104,436 cohort-EBP-year observations. Table 4, panel C, presents the sample selection procedure.

### *3.3.2. Control Variables and Fixed Effects*

To address concerns that differences in plan characteristics might obscure the relation between non-CPA ownership and audit quality, I include control variables that reflect economic features of EBPs. Specifically, I control for the ratio of total contributions to plan assets (*Contributions*), plan profitability (*Profitability*), plan size (*Size*), investment management fee (*InvestmentFees*), the number of plan participants (*Participants*), and the share of assets invested in joint ventures and real estate (*HardtoAudit*), which captures assets requiring greater audit effort.

I include State  $\times$  Firm Type  $\times$  Cohort, Year  $\times$  Firm Type  $\times$  Cohort, and Audit Firm  $\times$  Cohort fixed effects. Firm Type indicates whether the auditor is part of a nationwide network or a small local audit-service provider. I define national firms using the list of large and midsize accounting firms reported in the GAO-03-864 report, which was published midway through my EBP audit sample period.<sup>8</sup> State  $\times$  Firm Type  $\times$  Cohort fixed effects control for audit firm type heterogeneity

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<sup>8</sup> National firms include Big N and midsize auditors. I classify midsize auditors as the next ten largest firms in revenue after the Big N, based on the GAO-03-864 report, including their legacy predecessors. Specific firm names are provided in table OA4. Small local auditors are all other audit firms not classified as Big N or midsize auditors.

across states. Year  $\times$  Firm Type  $\times$  Cohort fixed effects account for time-varying audit firm type characteristics. Audit Firm  $\times$  Cohort fixed effects control for time-invariant characteristics of each firm within cohort.

### *3.3.3. Descriptive Statistics*

Table OA3, panel C, reports descriptive statistics for the variables used in EBP audit quality analysis, prior to stacking the data. The mean value of the primary outcome variable, Deficient Filers, is 0.005, indicating that approximately 0.5% of EBP filings in the sample are identified by EBSA as noncompliant with ERISA's Form 5500 annual reporting requirements. The descriptive statistics for the remaining variables are largely consistent with prior research. For example, the mean values of plan size, investment fees, and the number of participants are comparable to those reported in Cascino et al. (2021).

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## FIGURE OA1

### *State accountancy board responses to historical ownership data inquiries*

#### Panel A. Template of inquiry email sent to state accountancy boards

Dear Members of the [State Name] State Board of Accountancy,

I hope this message finds you well.

My name is [REDACTED], and I am [REDACTED] at [REDACTED]. I am currently conducting an academic research project that examines how changes in ownership rules affect audit firms and audit outcomes. As part of this project, I am seeking to understand whether state accountancy boards maintain historical or current records related to CPA firm ownership structures.

In particular, I would like to inquire whether the [State Name] State Board of Accountancy maintains **any data or filings that identify the equity owners of registered CPA firms and their respective ownership interests, such as ownership rosters, partner listings, or similar records**, and whether such information is available to the public or obtainable through a public records request under [State Name] public records law.

If such data exist, I would greatly appreciate any guidance on the appropriate process for requesting access, including whether a formal public records request is required, as well as any applicable scope limitations or fees.

I understand that record retention practices and disclosure policies vary across states, and **I would be grateful for any clarification you are able to provide, even if the answer is simply that such information is not maintained or not publicly accessible.**

Thank you very much for your time and assistance. I appreciate the Board's work in overseeing the profession and maintaining the integrity of accounting practice.

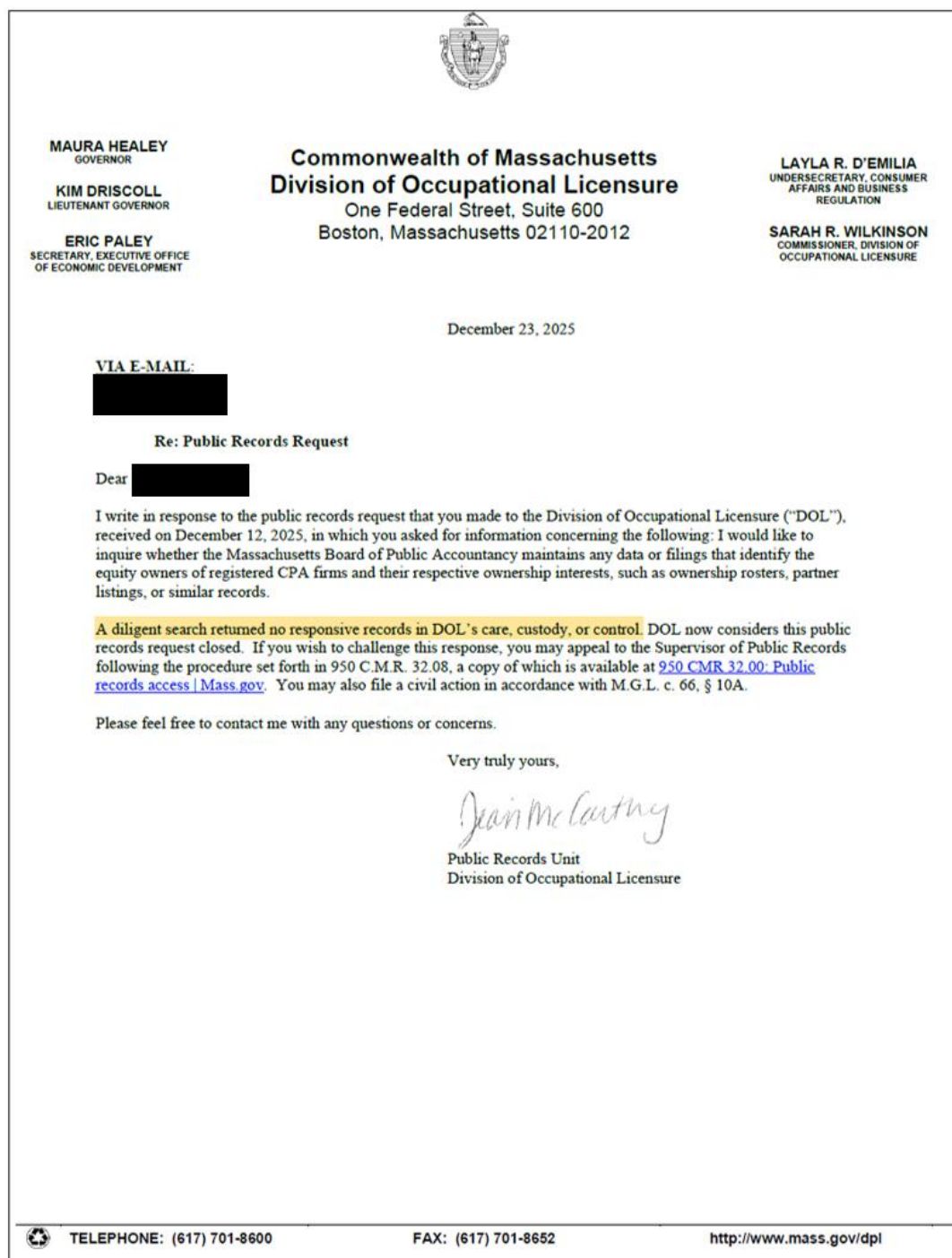
Sincerely,

[REDACTED]

*(continued on next page)*

FIGURE OA1 – continued

Panel B. State accountancy board responses to public records requests



*Notes:* This figure presents the inquiry email template sent to the boards of accountancy in all 50 U.S. states and the District of Columbia, along with a sample of responses to public records requests. Panel A shows the standardized inquiry email sent to state accountancy boards. Panel B presents a response received from the Massachusetts Division of Occupational Licensure following a public records request, confirming that historical CPA firm ownership interest data are not maintained. Names and institutional affiliations in the inquiry email and response are redacted for anonymity.

**TABLE OA1***State accountancy board responses to historical ownership data inquiries*

This table summarizes responses from 50 U.S. states and the District of Columbia accountancy boards regarding CPA firm ownership records. Inquiry emails were sent to each board between December 1 and December 12, 2025, using contact information obtained from the NASBA public directory (<https://nasba.org/stateboards/>). For each state, the table lists the board's response and classifies states according to whether 1) historical CPA firm ownership rosters or ownership interest information are not maintained (even if current ownership information may be maintained), 2) ownership records are treated as confidential under state law, 3) owner information is partially available, from which non-CPA ownership can be indirectly observed, or 4) no response has been received. Across most states, boards indicate that historical ownership records are either not maintained or are treated as confidential and therefore not publicly available, including through public records requests.

| <b>1) Historical firm ownership records not maintained</b>                                                                                      |                | <b>4) No response received</b> |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------------------------------|
| Arizona                                                                                                                                         | North Dakota   | Arkansas                       |
| Connecticut                                                                                                                                     | Ohio           | California                     |
| Delaware                                                                                                                                        | Oklahoma       | Colorado                       |
| Florida                                                                                                                                         | South Carolina | District of Columbia           |
| Louisiana                                                                                                                                       | South Dakota   | Hawaii                         |
| Massachusetts                                                                                                                                   | Tennessee      | Idaho                          |
| Michigan                                                                                                                                        | Texas          | Indiana                        |
| Minnesota                                                                                                                                       | Utah           | Iowa                           |
| Nevada                                                                                                                                          | Virginia       | Kansas                         |
| New Hampshire                                                                                                                                   | Washington     | Kentucky                       |
| New Jersey                                                                                                                                      | West Virginia  | Maine                          |
| New York                                                                                                                                        |                | Maryland                       |
| <b>2) Ownership records treated as confidential under state law and therefore not publicly available nor subject to public records requests</b> |                | Montana                        |
| Georgia                                                                                                                                         | North Carolina | Nebraska                       |
| Illinois                                                                                                                                        | Pennsylvania   | New Mexico                     |
| Mississippi                                                                                                                                     | Rhode Island   | Oregon                         |
| Missouri                                                                                                                                        |                | Vermont                        |
| <b>3) Non-CPA ownership information partially observable</b>                                                                                    |                | Wisconsin                      |
| Alabama                                                                                                                                         | Alaska         | Wyoming                        |

**TABLE OA2**  
*Descriptive statistics*

Panel A: Top 7 job titles for CPAs and non-CPA specialists

| # | CPAs               |                       | Non-CPAs             |                       |
|---|--------------------|-----------------------|----------------------|-----------------------|
|   | Job Title          | Number of Individuals | Job Title            | Number of Individuals |
| 1 | Financial Auditor  | 88,428                | Information Security | 7,663                 |
| 2 | Tax Accountant     | 78,910                | Software Engineer    | 4,444                 |
| 3 | Compliance Auditor | 59,682                | Business Analyst     | 3,668                 |
| 4 | Accountant         | 50,953                | IT Operations        | 3,482                 |
| 5 | Managing Director  | 7,429                 | Solutions Architect  | 3,404                 |
| 6 | Senior Manager     | 6,254                 | Systems Analyst      | 3,364                 |
| 7 | Finance Clerk      | 5,182                 | Data Analyst         | 3,283                 |

Panel B: Descriptive statistics for individual characteristics

| Variables                     | Mean  | SD    | P25   | P50   | P75   | N       |
|-------------------------------|-------|-------|-------|-------|-------|---------|
| <i>CPA</i>                    | 0.805 | 0.396 | 1.000 | 1.000 | 1.000 | 311,099 |
| <b><u>Degree</u></b>          |       |       |       |       |       |         |
| <i>Bachelor</i>               | 0.852 | 0.355 | 1.000 | 1.000 | 1.000 | 311,099 |
| <i>MBA</i>                    | 0.165 | 0.371 | 0.000 | 0.000 | 0.000 | 311,099 |
| <i>Masters</i>                | 0.269 | 0.444 | 0.000 | 0.000 | 1.000 | 311,099 |
| <i>PhD</i>                    | 0.032 | 0.175 | 0.000 | 0.000 | 0.000 | 311,099 |
| <b><u>Major</u></b>           |       |       |       |       |       |         |
| <i>Accounting</i>             | 0.469 | 0.499 | 0.000 | 0.000 | 1.000 | 311,099 |
| <i>Business and Economics</i> | 0.561 | 0.496 | 0.000 | 1.000 | 1.000 | 311,099 |
| <i>Engineering and IT</i>     | 0.099 | 0.298 | 0.000 | 0.000 | 0.000 | 311,099 |
| <i>Natural Sciences</i>       | 0.019 | 0.137 | 0.000 | 0.000 | 0.000 | 311,099 |
| <b><u>Seniority</u></b>       |       |       |       |       |       |         |
| <i>Senior</i>                 | 0.317 | 0.465 | 0.000 | 0.000 | 1.000 | 311,099 |
| <i>Senior Years</i>           | 7.322 | 6.563 | 3.000 | 5.000 | 9.000 | 98,618  |

Panel C: Mean comparisons between CPAs and non-CPA specialists

| Variables                     | CPAs [A]   | Non-CPAs [B] | [A] - [B] | <i>p</i> value |
|-------------------------------|------------|--------------|-----------|----------------|
|                               | Mean value |              |           |                |
| <b><u>Degree</u></b>          |            |              |           |                |
| <i>Bachelor</i>               | 0.862      | 0.810        | 0.052***  | < 0.01         |
| <i>MBA</i>                    | 0.158      | 0.194        | -0.036*** | < 0.01         |
| <i>Masters</i>                | 0.280      | 0.224        | 0.056***  | < 0.01         |
| <i>PhD</i>                    | 0.032      | 0.031        | 0.001     | 0.51           |
| <b><u>Major</u></b>           |            |              |           |                |
| <i>Accounting</i>             | 0.564      | 0.076        | 0.488***  | < 0.01         |
| <i>Business and Economics</i> | 0.558      | 0.573        | -0.015*** | < 0.01         |
| <i>Engineering and IT</i>     | 0.029      | 0.389        | -0.360*** | < 0.01         |
| <i>Natural Sciences</i>       | 0.012      | 0.050        | -0.039*** | < 0.01         |
| <b><u>Seniority</u></b>       |            |              |           |                |
| <i>Senior</i>                 | 0.322      | 0.297        | 0.025***  | < 0.01         |
| <i>Senior Years</i>           | 7.682      | 5.793        | 1.889***  | < 0.01         |

*(continued on next page)*

TABLE OA2 - continued

## Panel D: Variable definitions

| Variable                      | Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Accounting</i>             | An indicator variable equal to one if the individual's field of study is Accounting for any recorded degree, and zero otherwise. [Source: Revelio]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <i>Bachelor</i>               | An indicator variable equal to one if the individual has ever obtained a Bachelor's degree, and zero otherwise. [Source: Revelio]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <i>Business and Economics</i> | An indicator variable equal to one if the individual's field of study is Business, Economics, or Finance for any recorded degree, and zero otherwise. [Source: Revelio]                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <i>CPA</i>                    | An indicator variable equal to one if an individual is classified as a CPA professional, and zero otherwise. An individual is classified as a CPA if any of the following conditions are met: (i) the individual's O*NET occupation title is "Accountants and Auditors"; or (ii) LinkedIn job title contains the term "CPA"; or (iii) primary role ( <i>role_k500_v3</i> ) corresponds to accounting or auditing functions (e.g., Accountant, Tax Accountant, Financial Auditor, Assurance Manager, Senior Manager, or Managing Director as mapped in the code); or (iv) the individual holds a master's degree in accounting. [Source: Revelio] |
| <i>Engineering and IT</i>     | An indicator variable equal to one if the individual's field of study is Engineering, Information Technology, or Architecture for any recorded degree, and zero otherwise. [Source: Revelio]                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <i>Masters</i>                | An indicator variable equal to one if the individual has ever obtained a Master's degree (excluding MBA), and zero otherwise. [Source: Revelio]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <i>MBA</i>                    | An indicator variable equal to one if the individual has ever obtained a Master of Business Administration (MBA) degree, and zero otherwise. [Source: Revelio]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <i>Natural Sciences</i>       | An indicator variable equal to one if the individual's field of study is in the natural sciences, including Biology, Statistics, Physics, Chemistry, or Mathematics, and zero otherwise. [Source: Revelio]                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <i>PhD</i>                    | An indicator variable equal to one if the individual has ever obtained a doctoral degree, and zero otherwise. [Source: Revelio]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <i>Senior</i>                 | An indicator variable equal to one if an individual is observed at least once in a senior-level position ( <i>seniority</i> $\geq 5$ ) during their observed career in Revelio, and zero otherwise. [Source: Revelio]                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <i>Senior Years</i>           | The total number of years an individual is observed in senior-level positions, calculated as the sum of annual indicators for senior-level employment across all observed person-year records. [Source: Revelio]                                                                                                                                                                                                                                                                                                                                                                                                                                 |

*Notes:* This table presents summary statistics for the individual characteristics of CPAs and non-CPA specialists in audit entities of national accounting firms. Panel A lists top 7 job titles for CPAs and non-CPA specialists based on Revelio's role classification (*role\_k500\_v3*). Panel B reports descriptive statistics for the individual characteristics. Panel C presents the mean comparisons of individual characteristics between CPAs and non-CPA specialists. Panel D provides detailed definitions of all variables. Variables are listed in alphabetical order. Data sources are listed at the end of each definition.

**TABLE OA3***Descriptive statistics for public company, NPO, and EBP audit samples*

Panel A: Descriptive statistics for the public company audit quality samples

| <b>Variables</b>      | <b>Mean</b> | <b>SD</b> | <b>P25</b> | <b>P50</b> | <b>P75</b> | <b>N</b> |
|-----------------------|-------------|-----------|------------|------------|------------|----------|
| <i>Size</i>           | 5.468       | 2.481     | 3.741      | 5.508      | 7.239      | 110,583  |
| <i>Leverage</i>       | 0.319       | 0.438     | 0.036      | 0.218      | 0.418      | 110,583  |
| <i>ROA</i>            | -0.129      | 0.549     | -0.113     | 0.022      | 0.076      | 110,583  |
| <i>Book-to-Market</i> | 0.384       | 1.431     | 0.183      | 0.410      | 0.739      | 110,583  |
| <i>CFO</i>            | -0.010      | 0.329     | -0.029     | 0.067      | 0.133      | 110,583  |
| <i>Z-Score</i>        | -0.009      | 8.526     | 0.534      | 1.710      | 2.826      | 110,583  |
| <i>Sales Growth</i>   | 0.202       | 0.743     | -0.046     | 0.072      | 0.231      | 110,583  |
| <i>CFO Vol</i>        | 0.110       | 0.213     | 0.023      | 0.047      | 0.101      | 110,583  |
| <i>Loss</i>           | 0.343       | 0.475     | 0.000      | 0.000      | 1.000      | 110,583  |
| <i>Restructure</i>    | 0.228       | 0.420     | 0.000      | 0.000      | 0.000      | 110,583  |
| <i>PPE Growth</i>     | 0.167       | 0.476     | 0.006      | 0.069      | 0.190      | 110,583  |
| <i>M&amp;A</i>        | 0.325       | 0.469     | 0.000      | 0.000      | 1.000      | 110,583  |
| <i>No Intangible</i>  | 0.322       | 0.467     | 0.000      | 0.000      | 1.000      | 110,583  |
| <i>Busy Season</i>    | 0.671       | 0.470     | 0.000      | 1.000      | 1.000      | 110,583  |

Panel B: Descriptive statistics for the NPO audit quality samples

| <b>Variables</b>          | <b>Mean</b> | <b>SD</b> | <b>P25</b> | <b>P50</b> | <b>P75</b> | <b>N</b> |
|---------------------------|-------------|-----------|------------|------------|------------|----------|
| <i>Program Ratio</i>      | 0.839       | 0.087     | 0.798      | 0.854      | 0.897      | 45,292   |
| <i>Zero Fundraising</i>   | 0.240       | 0.427     | 0.000      | 0.000      | 0.000      | 45,292   |
| <i>Size</i>               | 18.192      | 1.683     | 17.186     | 18.193     | 19.209     | 45,292   |
| <i>Surplus Margin</i>     | 0.053       | 0.145     | -0.006     | 0.038      | 0.106      | 45,292   |
| <i>Asset Turnover</i>     | 0.823       | 0.746     | 0.352      | 0.589      | 1.020      | 45,292   |
| <i>Negative Equity</i>    | 0.023       | 0.149     | 0.000      | 0.000      | 0.000      | 45,292   |
| <i>Donation Growth</i>    | 0.294       | 1.240     | -0.145     | 0.045      | 0.290      | 45,292   |
| <i>Deferred Expenses</i>  | 0.060       | 0.103     | 0.008      | 0.021      | 0.059      | 45,292   |
| <i>Donation Intensity</i> | 0.354       | 0.336     | 0.079      | 0.204      | 0.624      | 45,292   |
| <i>Deferred Revenue</i>   | 0.028       | 0.062     | 0.000      | 0.006      | 0.024      | 45,292   |
| <i>Control Weakness</i>   | 0.125       | 0.330     | 0.000      | 0.000      | 0.000      | 45,292   |
| <i>Low Audit Risk</i>     | 0.716       | 0.451     | 0.000      | 1.000      | 1.000      | 45,292   |
| <i>Taxable Activities</i> | 0.342       | 0.474     | 0.000      | 0.000      | 1.000      | 45,292   |
| <i>Municipal Bond</i>     | 0.445       | 0.497     | 0.000      | 0.000      | 1.000      | 45,292   |
| <i>Feeder Donations</i>   | 0.292       | 0.455     | 0.000      | 0.000      | 1.000      | 45,292   |
| <i>Grants</i>             | 0.229       | 0.517     | 0.004      | 0.025      | 0.171      | 45,292   |

Panel C: Descriptive statistics for the EBP audit quality samples

| <b>Variables</b>        | <b>Mean</b> | <b>SD</b> | <b>P25</b> | <b>P50</b> | <b>P75</b> | <b>N</b> |
|-------------------------|-------------|-----------|------------|------------|------------|----------|
| <i>Deficient Filers</i> | 0.005       | 0.067     | 0.000      | 0.000      | 0.000      | 45,244   |
| <i>Contributions</i>    | 0.230       | 1.193     | 0.040      | 0.077      | 0.124      | 45,244   |
| <i>Profitability</i>    | 0.044       | 0.212     | -0.038     | 0.069      | 0.156      | 45,244   |
| <i>HardtoAudit</i>      | 0.006       | 0.035     | 0.000      | 0.000      | 0.000      | 45,244   |
| <i>Size</i>             | 17.342      | 1.782     | 16.093     | 17.238     | 18.530     | 45,244   |
| <i>InvestmentFees</i>   | 0.002       | 0.003     | 0.000      | 0.001      | 0.003      | 45,244   |
| <i>Participants</i>     | 0.000       | 0.001     | 0.000      | 0.000      | 0.000      | 45,244   |

Notes: This table presents summary statistics for the public company audit sample in panel A, the NPO audit sample in panel B, and the EBP audit sample in panel C, prior to stacking the data.

**TABLE OA4**  
*Classification of audit firms by size*

| <b>Audit Firm Name</b>                                        | <b>Ranking in GAO-03-864 report</b> |
|---------------------------------------------------------------|-------------------------------------|
| <b><u>Big N Audit Firms</u></b>                               |                                     |
| Deloitte & Touche                                             | 1                                   |
| Ernst & Young                                                 | 2                                   |
| PricewaterhouseCoopers                                        | 3                                   |
| KPMG                                                          | 4                                   |
| Arthur Andersen                                               | x                                   |
| <b><u>Midsized Audit Firms</u></b>                            |                                     |
| Grant Thornton                                                | 5                                   |
| BDO USA                                                       | 6                                   |
| <i>BDO Seidman</i>                                            |                                     |
| Forvis Mazars                                                 | 7                                   |
| <i>BKD; Dixon Hughes Goodman</i>                              |                                     |
| Crowe Horwath                                                 | 8                                   |
| <i>Crowe Chizek &amp; Company</i>                             |                                     |
| RSM                                                           | 9                                   |
| <i>McGladrey &amp; Pullen</i>                                 |                                     |
| Moss Adams                                                    | 10                                  |
| Plante & Moran                                                | 11                                  |
| CliftonLarsonAllen                                            | 12, 14                              |
| <i>Clifton Gunderson; Larson Allen Weishair &amp; Company</i> |                                     |
| CBIZ CPAs                                                     | *                                   |
| <i>Mayer Hoffman McCann</i>                                   |                                     |
| Baker Tilly                                                   | 13                                  |
| <i>Virchow Krause &amp; Company</i>                           |                                     |

*Notes:* This table reports the audit firm classifications used in the analyses. National firms include Big N and midsized audit firms, defined based on revenue rankings reported in the GAO-03-864 report. In classifying midsized audit firms, I include legacy predecessor firms to ensure consistent identification over time. In addition, I supplement the GAO list by including large audit firms that rank among the top 10 U.S. accounting firms by revenue in the 2010 Accounting Today rankings but are not listed in the GAO report (denoted by \* above). Firm names appearing in the GAO report reflect historical naming conventions at the time of publication. Where applicable, current firm names are shown with predecessor firms listed in italics to indicate continuity of firm identity over time. Small local auditors are defined as all other audit firms not classified as Big N or midsized firms.

TABLE OA5

*Dynamic effect of non-CPA ownership on CPA firm entry and CPA exam candidates*

## Panel A: Dynamic analyses on CPA firm entry

| Dependent Variables:              | Firms       |             |
|-----------------------------------|-------------|-------------|
|                                   | Coefficient | z-Statistic |
| <i>Treated</i> × <i>Post</i> [-4] | 0.005       | 0.62        |
| <i>Treated</i> × <i>Post</i> [-3] | 0.002       | 0.43        |
| <i>Treated</i> × <i>Post</i> [-2] | 0.000       | 0.05        |
| <i>Treated</i> × <i>Post</i> [0]  | -0.003      | -0.88       |
| <i>Treated</i> × <i>Post</i> [1]  | 0.007       | 0.93        |
| <i>Treated</i> × <i>Post</i> [2]  | 0.017*      | 1.95        |
| <i>Treated</i> × <i>Post</i> [3]  | 0.022**     | 2.13        |
| <i>Treated</i> × <i>Post</i> [4]  | 0.030***    | 2.71        |
| Control Variables                 | Yes         |             |
| State x Cohort FE                 | Yes         |             |
| Year x Cohort FE                  | Yes         |             |
| Observations                      | 6,472       |             |
| Pseudo R-squared                  | 0.979       |             |

## Panel B: Dynamic DiDiD analyses using legal professions as a within-state control group

| Dependent Variables:                           | Firms       |             |
|------------------------------------------------|-------------|-------------|
|                                                | Coefficient | z-Statistic |
| <i>Treated</i> × <i>Post</i> [-4] × <i>CPA</i> | -0.003      | -0.42       |
| <i>Treated</i> × <i>Post</i> [-3] × <i>CPA</i> | -0.000      | -0.07       |
| <i>Treated</i> × <i>Post</i> [-2] × <i>CPA</i> | 0.001       | 0.29        |
| <i>Treated</i> × <i>Post</i> [0] × <i>CPA</i>  | 0.001       | 0.19        |
| <i>Treated</i> × <i>Post</i> [1] × <i>CPA</i>  | 0.013*      | 1.76        |
| <i>Treated</i> × <i>Post</i> [2] × <i>CPA</i>  | 0.023**     | 2.08        |
| <i>Treated</i> × <i>Post</i> [3] × <i>CPA</i>  | 0.024*      | 1.91        |
| <i>Treated</i> × <i>Post</i> [4] × <i>CPA</i>  | 0.025*      | 1.68        |
| Control Variables × <i>CPA</i>                 | Yes         |             |
| State x <i>CPA</i> x Cohort FE                 | Yes         |             |
| <i>CPA</i> x Year x Cohort FE                  | Yes         |             |
| State x Year x Cohort FE                       | Yes         |             |
| Observations                                   | 12,944      |             |
| Pseudo R-squared                               | 0.992       |             |

## Panel C: Dynamic analyses on CPA exam candidates

| Dependent Variables:              | CPA Candidates |             |
|-----------------------------------|----------------|-------------|
|                                   | Coefficient    | z-Statistic |
| <i>Treated</i> × <i>Post</i> [-4] | 0.048          | 0.77        |
| <i>Treated</i> × <i>Post</i> [-3] | 0.041          | 0.63        |
| <i>Treated</i> × <i>Post</i> [-2] | -0.074         | -1.26       |
| <i>Treated</i> × <i>Post</i> [0]  | -0.040         | -0.60       |
| <i>Treated</i> × <i>Post</i> [1]  | -0.127*        | -1.85       |
| <i>Treated</i> × <i>Post</i> [2]  | -0.137*        | -1.77       |
| <i>Treated</i> × <i>Post</i> [3]  | -0.056         | -0.56       |
| <i>Treated</i> × <i>Post</i> [4]  | -0.135         | -1.25       |
| Control for 150-Hour Rule         | Yes            |             |
| State x Cohort FE                 | Yes            |             |
| Year x Cohort FE                  | Yes            |             |
| Observations                      | 3,704          |             |
| Pseudo R-squared                  | 0.886          |             |

Notes: This table reports results from dynamic analyses of the effects of non-CPA ownership on CPA firm entry and CPA exam candidates. Panel A [B; C] extends the static analyses in table 2, panel B [table 2, Panel C; table 3, panel B] by reporting estimates from a Poisson regression that includes separate coefficients for each event year relative to adoption. For brevity, the table reports coefficients for event years -4 through +4. Figure 3 shows these dynamic responses to adoption graphically by plotting the coefficients. I report coefficients and robust z-statistics. Standard errors are clustered at state-cohort level. \*\*\*, \*\*, and \* denote statistical significance at the two-tailed 1, 5, and 10 percent levels, respectively.

TABLE OA6

Robustness of the public company audit quality results to alternative accrual specifications

Panel A: Quantile regressions of signed total accruals

| Dependent Variables:<br>Quantile: | Total Accruals                     |                                    |                                    |                                    |                                    |                                    |                                    |                                    |                                    |                                    |
|-----------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
|                                   | 0.05                               | 0.1                                | 0.15                               | 0.2                                | 0.4                                | 0.6                                | 0.8                                | 0.85                               | 0.9                                | 0.95                               |
|                                   | (1)                                | (2)                                | (3)                                | (4)                                | (5)                                | (6)                                | (7)                                | (8)                                | (9)                                | (10)                               |
|                                   | Coefficient<br><i>t</i> -Statistic | Coefficient<br><i>t</i> -Statistic | Coefficient<br><i>t</i> -Statistic | Coefficient<br><i>t</i> -Statistic | Coefficient<br><i>t</i> -Statistic | Coefficient<br><i>t</i> -Statistic | Coefficient<br><i>t</i> -Statistic | Coefficient<br><i>t</i> -Statistic | Coefficient<br><i>t</i> -Statistic | Coefficient<br><i>t</i> -Statistic |
| <i>Treated</i> × <i>Post</i>      | -0.005***<br>(-3.18)               | -0.004***<br>(-3.38)               | -0.004***<br>(-3.45)               | -0.004***<br>(-3.46)               | -0.003***<br>(-3.27)               | -0.001<br>(-1.27)                  | 0.000<br>(0.38)                    | 0.001<br>(0.82)                    | 0.002<br>(1.37)                    | 0.004**<br>(2.17)                  |
| Control Variables                 | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                |
| Jones Model Regressors            | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                |
| Client x Cohort FE                | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                |
| State x Cohort FE                 | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                |
| Audit Firm x Year x Cohort FE     | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                |
| Observations                      | 304,794                            |                                    |                                    |                                    |                                    |                                    |                                    |                                    |                                    |                                    |

Panel B: Jones model regressors interacted with year-cohort and industry-cohort fixed effects

| Dependent Variables:                                                                | Absolute Accruals  |                     |             |                     |             |                     |
|-------------------------------------------------------------------------------------|--------------------|---------------------|-------------|---------------------|-------------|---------------------|
|                                                                                     | (1)                |                     | (2)         |                     | (3)         |                     |
|                                                                                     | Coefficient        | <i>t</i> -Statistic | Coefficient | <i>t</i> -Statistic | Coefficient | <i>t</i> -Statistic |
| <i>Treated</i> × <i>Post</i>                                                        | 0.004 <sup>†</sup> | 1.51                | 0.006***    | 2.72                | 0.005**     | 2.25                |
| Control Variables                                                                   | No                 |                     | Yes         |                     | Yes         |                     |
| Jones Model Regressors interacted with Year<br>x Cohort FE and Industry x Cohort FE | Yes                |                     | Yes         |                     | Yes         |                     |
| Client x Cohort FE                                                                  | Yes                |                     | Yes         |                     | Yes         |                     |
| State x Cohort FE                                                                   | Yes                |                     | Yes         |                     | Yes         |                     |
| Audit Firm x Year x Cohort FE                                                       | Yes                |                     | No          |                     | Yes         |                     |
| Audit Firm x Cohort FE                                                              | No                 |                     | Yes         |                     | No          |                     |
| Year x Cohort FE                                                                    | No                 |                     | Yes         |                     | No          |                     |
| Observations                                                                        | 304,794            |                     | 304,794     |                     | 304,794     |                     |
| Adjusted R-squared                                                                  | 0.795              |                     | 0.805       |                     | 0.820       |                     |

Notes: This table reports robustness analyses of the public company audit quality results to alternative accrual specifications. Panel A reports the results of the additional analyses using quantile regressions of signed total accruals (*Total Accruals*) on an indicator variable that equals one for clients whose auditors operate in states that adopt non-CPA ownership provisions (*Treated*), an indicator variable that equals one for the post-treatment period (*Post*), interaction terms between these variables, control variables, and Jones model regressors. Specifically, I estimate quantile regressions at ten points ranging from the 5th to the 95th percentile, using signed total accruals as the dependent variable. Observations in the lower quantile of the conditional accrual distribution correspond to lower-than-expected accruals and are interpreted as

reflecting downward earnings management, while observations in the upper quantile correspond to higher-than-expected accruals and upward earnings management. I find that non-CPA ownership is associated with significantly more negative accruals across the lower tail of the distribution and more positive accruals at the upper quantile, which indicates that the effect of non-CPA ownership on accrual outcomes is present at both ends of the distribution. Panel B reports the results of re-estimating the baseline specifications for *Absolute Accruals* in table 5, interacting the Jones model regressors with year-cohort and with industry-cohort fixed effects. The interactions allow the Jones model coefficients to vary across industries and years (Chen et al. 2018, 2022). Industries are defined using two-digit SIC codes. I report coefficients and robust t-statistics. Standard errors are clustered at state-cohort level. \*\*\*, \*\*, \*, and <sup>†</sup> denote statistical significance at the two-tailed 1, 5, 10, and 15 percent levels, respectively.

**TABLE OA7**  
*Dynamic effect of non-CPA ownership on audit quality*

Panel A: Dynamic analyses on public company audit quality

| Dependent Variables:              | <i>Absolute Accruals</i> |             | <i>Irregularity</i> |             |
|-----------------------------------|--------------------------|-------------|---------------------|-------------|
|                                   | (1)                      |             | (2)                 |             |
|                                   | Coefficient              | t-Statistic | Coefficient         | t-Statistic |
| <i>Treated</i> × <i>Post</i> [-4] | -0.003                   | -0.60       | -0.002              | -0.27       |
| <i>Treated</i> × <i>Post</i> [-3] | -0.004                   | -1.13       | 0.006               | 1.22        |
| <i>Treated</i> × <i>Post</i> [-2] | 0.001                    | 0.23        | -0.000              | -0.08       |
| <i>Treated</i> × <i>Post</i> [0]  | 0.002                    | 0.48        | 0.000               | 0.04        |
| <i>Treated</i> × <i>Post</i> [1]  | 0.009**                  | 2.31        | 0.006               | 1.07        |
| <i>Treated</i> × <i>Post</i> [2]  | 0.004                    | 1.12        | 0.015***            | 2.63        |
| <i>Treated</i> × <i>Post</i> [3]  | 0.006*                   | 1.82        | 0.011**             | 2.13        |
| <i>Treated</i> × <i>Post</i> [4]  | 0.009**                  | 2.16        | 0.011**             | 2.01        |
| Control Variables                 | Yes                      |             | Yes                 |             |
| Jones Model Regressors            | Yes                      |             | No                  |             |
| Client x Cohort FE                | Yes                      |             | Yes                 |             |
| State x Cohort FE                 | Yes                      |             | Yes                 |             |
| Audit Firm x Year x Cohort FE     | Yes                      |             | Yes                 |             |
| Observations                      | 304,794                  |             | 149,514             |             |
| Adjusted R-squared                | 0.801                    |             | 0.426               |             |

Panel B: Dynamic analyses on NPO audit quality

| Dependent Variables:              | <i>Program Ratio</i> |             | <i>Zero Fundraising</i> |             |
|-----------------------------------|----------------------|-------------|-------------------------|-------------|
|                                   | (1)                  |             | (2)                     |             |
|                                   | Coefficient          | t-Statistic | Coefficient             | t-Statistic |
| <i>Treated</i> × <i>Post</i> [-4] | -0.002               | -0.57       | -0.030                  | -0.84       |
| <i>Treated</i> × <i>Post</i> [-3] | -0.003               | -1.27       | 0.037                   | 1.34        |
| <i>Treated</i> × <i>Post</i> [-2] | 0.002                | 0.83        | 0.017                   | 0.47        |
| <i>Treated</i> × <i>Post</i> [0]  | 0.003                | 1.08        | 0.039                   | 1.36        |
| <i>Treated</i> × <i>Post</i> [1]  | 0.004                | 1.44        | 0.042                   | 1.27        |
| <i>Treated</i> × <i>Post</i> [2]  | 0.004                | 1.46        | 0.033                   | 1.20        |
| <i>Treated</i> × <i>Post</i> [3]  | 0.009***             | 3.29        | 0.060*                  | 1.95        |
| <i>Treated</i> × <i>Post</i> [4]  | 0.009***             | 3.48        | 0.079**                 | 2.03        |
| Control Variables                 | Yes                  |             | Yes                     |             |
| First-Stage Regressors            | Yes                  |             | No                      |             |
| NPO x Audit Firm x Cohort FE      | Yes                  |             | Yes                     |             |
| Activity Type x Year x Cohort FE  | Yes                  |             | Yes                     |             |
| State x Cohort FE                 | Yes                  |             | Yes                     |             |
| Observations                      | 128,326              |             | 128,326                 |             |
| Adjusted R-squared                | 0.814                |             | 0.865                   |             |

(continued on next page)

TABLE OA7 - continued

Panel C: Dynamic analyses on EBP audit quality

| Dependent Variables:              | Deficient Filers |             |
|-----------------------------------|------------------|-------------|
|                                   | Coefficient      | t-Statistic |
| <i>Treated</i> × <i>Post</i> [-4] | 0.000            | 0.22        |
| <i>Treated</i> × <i>Post</i> [-3] | 0.002            | 0.88        |
| <i>Treated</i> × <i>Post</i> [-2] | 0.001            | 0.62        |
| <i>Treated</i> × <i>Post</i> [0]  | -0.000           | -0.10       |
| <i>Treated</i> × <i>Post</i> [1]  | 0.001            | 0.59        |
| <i>Treated</i> × <i>Post</i> [2]  | 0.002            | 0.90        |
| <i>Treated</i> × <i>Post</i> [3]  | 0.004**          | 2.02        |
| <i>Treated</i> × <i>Post</i> [4]  | 0.005**          | 2.07        |
| Control Variables                 | Yes              |             |
| State x Firm Type x Cohort FE     | Yes              |             |
| Firm Type x Year x Cohort FE      | Yes              |             |
| Audit Firm x Cohort FE            | Yes              |             |
| Observations                      | 104,436          |             |
| Adjusted R-squared                | 0.006            |             |

*Notes:* This table reports results from dynamic analyses of the effects of non-CPA ownership on audit quality. Panel A extends the static analyses in table 5 and presents public company audit quality results from a regression that estimates separate coefficients for four years preceding and four years following the adoption. Panel B extends the static analyses in table 7 and presents NPO audit quality results from a regression that estimates separate coefficients for four years preceding and four years following the adoption. Panel C extends the static analyses in table 8 and presents EBP audit quality results from a regression that estimates separate coefficients for four years preceding and four years following the adoption. Figure 4 shows these dynamic responses to adoption graphically by plotting the regression coefficients for all proxies. I report coefficients and robust t-statistics. Standard errors are clustered at state-cohort level. \*\*\*, \*\*, and \* denote statistical significance at the two-tailed 1, 5, and 10 percent levels, respectively.

**TABLE OA8**  
*Dynamic effect of non-CPA ownership on audit pricing*

Panel A: Dynamic analyses on NPO audit fees

| Dependent Variables:              | <i>Ln(Audit Fees<sub>NPO</sub>)</i> |                     |
|-----------------------------------|-------------------------------------|---------------------|
|                                   | Coefficient                         | <i>t</i> -Statistic |
| <i>Treated</i> × <i>Post</i> [-4] | 0.030                               | 0.76                |
| <i>Treated</i> × <i>Post</i> [-3] | 0.027                               | 0.92                |
| <i>Treated</i> × <i>Post</i> [-2] | -0.022                              | -0.84               |
| <i>Treated</i> × <i>Post</i> [0]  | 0.003                               | 0.08                |
| <i>Treated</i> × <i>Post</i> [1]  | -0.003                              | -0.11               |
| <i>Treated</i> × <i>Post</i> [2]  | 0.010                               | 0.28                |
| <i>Treated</i> × <i>Post</i> [3]  | -0.046                              | -1.04               |
| <i>Treated</i> × <i>Post</i> [4]  | -0.072*                             | -1.87               |
| <i>Treated</i> × <i>Post</i> [5]  | -0.086**                            | -2.13               |
| Control Variables                 | Yes                                 |                     |
| NPO x Audit Firm x Cohort FE      | Yes                                 |                     |
| Activity Type x Year x Cohort FE  | Yes                                 |                     |
| State x Cohort FE                 | Yes                                 |                     |
| Observations                      | 108,499                             |                     |
| Adjusted R-squared                | 0.810                               |                     |

Panel B: Dynamic analyses on EBP audit fees

| Dependent Variables:              | <i>Ln(Audit Fees<sub>EBP</sub>)</i> |                     |
|-----------------------------------|-------------------------------------|---------------------|
|                                   | Coefficient                         | <i>t</i> -Statistic |
| <i>Treated</i> × <i>Post</i> [-4] | -0.042                              | -1.12               |
| <i>Treated</i> × <i>Post</i> [-3] | -0.003                              | -0.10               |
| <i>Treated</i> × <i>Post</i> [-2] | 0.028                               | 1.19                |
| <i>Treated</i> × <i>Post</i> [0]  | -0.019                              | -0.48               |
| <i>Treated</i> × <i>Post</i> [1]  | 0.015                               | 0.50                |
| <i>Treated</i> × <i>Post</i> [2]  | -0.034*                             | -1.68               |
| <i>Treated</i> × <i>Post</i> [3]  | -0.029                              | -1.21               |
| <i>Treated</i> × <i>Post</i> [4]  | -0.065***                           | -3.12               |
| <i>Treated</i> × <i>Post</i> [5]  | -0.094***                           | -2.68               |
| Control Variables                 | Yes                                 |                     |
| State x Firm Type x Cohort FE     | Yes                                 |                     |
| Firm Type x Year x Cohort FE      | Yes                                 |                     |
| Audit Firm x Cohort FE            | Yes                                 |                     |
| Observations                      | 103,252                             |                     |
| Adjusted R-squared                | 0.496                               |                     |

(continued on next page)

TABLE OA8 - continued

Panel C: Dynamic analyses on public company audit fees

| Dependent Variables:              | <i>Ln(Audit Fees<sub>PC</sub>)</i> |                     |
|-----------------------------------|------------------------------------|---------------------|
|                                   | Coefficient                        | <i>t</i> -Statistic |
| <i>Treated</i> × <i>Post</i> [-4] | 0.016                              | 0.66                |
| <i>Treated</i> × <i>Post</i> [-3] | -0.019                             | -0.78               |
| <i>Treated</i> × <i>Post</i> [-2] | 0.023                              | 1.03                |
| <i>Treated</i> × <i>Post</i> [0]  | -0.011                             | -0.45               |
| <i>Treated</i> × <i>Post</i> [1]  | -0.035                             | -1.38               |
| <i>Treated</i> × <i>Post</i> [2]  | -0.015                             | -0.84               |
| <i>Treated</i> × <i>Post</i> [3]  | -0.016                             | -0.80               |
| <i>Treated</i> × <i>Post</i> [4]  | -0.024                             | -1.13               |
| <i>Treated</i> × <i>Post</i> [5]  | 0.008                              | 0.37                |
| Control Variables                 | Yes                                |                     |
| Client x Cohort FE                | Yes                                |                     |
| State x Cohort FE                 | Yes                                |                     |
| Audit Firm x Year x Cohort FE     | Yes                                |                     |
| Observations                      | 96,426                             |                     |
| Adjusted R-squared                | 0.963                              |                     |

*Notes:* This table reports results from dynamic analyses of the effects of non-CPA ownership on audit fees. Panel A extends the static analyses in table 10, panel B, and presents NPO audit fee results from a regression that estimates separate coefficients for four years preceding and five years following the adoption. Panel B extends the static analyses in table 10, panel C, and presents EBP audit fee results from a regression that estimates separate coefficients for four years preceding and five years following the adoption. Panel C extends the static analyses in table 10, panel D, and presents public company audit fee results from a regression that estimates separate coefficients for four years preceding and five years following the adoption. Figure 5 shows these dynamic responses to adoption graphically by plotting the regression coefficients. I report coefficients and robust *t*-statistics. Standard errors are clustered at state-cohort level. \*\*\*, \*\*, and \* denote statistical significance at the two-tailed 1, 5, and 10 percent levels, respectively.