Submission #47

Do entry barriers to the public company audit market deter low quality audit firms?

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Abstract
Many legal jurisdictions, including the U.S. and U.K., have passed regulations to address the potential negative impacts of a lack of competition and high concentration in public company audit markets. One consequence of increased regulations, desired or not, is that they have presumably increased barriers to enter the public company audit market. An alternative view is that high barriers *prevent* the entry of low-quality entrants (von Weizsacker, 1980; Grossman and Horn, 1988). This study investigates the supply of, and demand for, first time public company audit firms in the U.S., firms that presumably overcame these barriers to enter the market. We document that since 2004, 275 unique audit firms have entered the U.S. public company audit market. We find evidence that these first time auditors provide lower quality audits as measured by a higher likelihood of client restatements, PCAOB-identified audit deficiencies, PCAOB enforcement actions, and lower auditor effort as measured by audit engagement hours. We also find evidence that these firms receive lower fees and that clients are significantly more likely to subsequently switch away from first time audit firms. Collectively, our results suggest that existing barriers to entry to the public company audit market *do not* prevent the entry of low-quality auditors, and clients do not fully infer quality based on first timers' pre-entry quality signals.

Acknowledgements

The authors acknowledge that certain limited data used in this study (specifically audit hours and PCAOB inspection results) were supplied by the PCAOB. This research was prepared while Andrew Kitto was an Economic Research Fellow at the Public Company Accounting Oversight Board (PCAOB). The PCAOB, as a matter of policy disclaims responsibility for any private publication or statements by any of its research fellows. The views expressed in this paper are the views of the authors and do not reflect the views of the PCAOB, board members or staff of the PCAOB.

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Abstract

Many legal jurisdictions, including the U.S. and U.K., have passed regulations to address the potential negative impacts of a lack of competition and high concentration in public company audit markets. One consequence of increased regulations, desired or not, is that they have presumably increased barriers to enter the public company audit market. An alternative view is that high barriers *prevent* the entry of low-quality entrants (von Weizsacker, 1980; Grossman and Horn, 1988). This study investigates the supply of, and demand for, first time public company audit firms in the U.S., firms that presumably overcame these barriers to enter the market. We document that since 2004, 275 unique audit firms have entered the U.S. public company audit market. We find evidence that these first time auditors provide lower quality audits as measured by a higher likelihood of client restatements, PCAOB-identified audit deficiencies, PCAOB enforcement actions, and lower auditor effort as measured by audit engagement hours. We also find evidence that these firms receive lower fees and that clients are significantly more likely to subsequently switch away from first time audit firms. Collectively, our results suggest that existing barriers to entry to the public company audit market *do not* prevent the entry of low-quality auditors, and clients do not fully infer quality based on first timers' pre-entry quality signals.

1. Introduction

High concentration and the dominance of the Big 4 audit firms in the public company audit market has led many observers to conclude that the public company audit market lacks sufficient competition. These criticisms exist in various legal jurisdictions including the United States and United Kingdom.[1] Critics of the current market structure allege that barriers to entry, even for small audit firms are excessively high, thus reducing incumbents' incentives to provide high quality audits. However, sufficient barriers to entry play an important economic role in preventing low quality entrants into a market, especially in service industries, (i.e., auditing), where customers have incomplete information about suppliers' quality (Grossman and Horn, 1988). In such markets, low barriers allow for the entry of low quality firms, which reduces incumbents' incentive to provide high quality. Conversely, sufficiently high barriers ensure higher overall quality and consumer surplus (von Weizsacker, 1980; Demsetz, 1982; Suzumura and Kiyono, 1987; Grossman and Horn, 1988).

For the auditing profession, high barriers to entry require new entrants to invest in developing expertise to provide audits that meet regulatory standards and market demands. In contrast, low barriers to entry may lead to low-balling of audit fees, a supply of deficient audits, increased audit failures, and ultimately a decrease in confidence in capital markets. Prior research suggests that recent regulations have increased barriers to entry to the U.S. public company audit market (DeFond and Lennox, 2011; Read, Rama and Raghunandan, 2004). For example, DeFond and Lennox (2011) document that more than 600 auditors exited the public company market immediately surrounding the passage of the Sarbanes-Oxley Act of 2002 (SOX)

[1] This question is of significant interest in the United Kingdom where a mandatory 10-year auditor term has been implemented in efforts to reduce long-tenured clients in an effort to improve audit quality and increase competition. Further, recent proposals for joint audits, including participation of a non-B4 audit firm are further indication of demand for increased competition (Booth, 2019; White, 2019)

and that these firms were lower quality on average, implying that certain audit firms would rather exit the market than incur the costs imposed by new regulation. In contrast, we note that since the passage of SOX, 275 audit firms have successfully *entered* the public company audit market. This suggests that a large number of audit firms have not been deterred due to the increased regulatory oversight imposed by SOX, and that certain public companies are willing to contract with inexperienced audit firms. These audit firms have successfully overcome the barriers to entry to the public company audit market. Therefore, we investigate the audit quality and audit pricing supplied by these "first time" public company audit firms in order to evaluate the sufficiency of the barriers to entry to the public-company audit market.

Our study is motivated by two factors. First, concerns over a lack of competition and suboptimal quality in the large public company audit market has led to regulations that, desired or not, have presumably increased barriers to entry *throughout* the public company audit market (Hallman, Kartapanis, Schmidt, 2019). Further, the dichotomy of small audit firms leaving the public company audit market due to increased costs of regulation (DeFond and Lennox, 2011), followed by subsequent entry of many other audit firms is not well understood. Literature from economics suggest that if barriers are sufficiently high, then new entrants should exhibit similar quality to incumbents (Porter, 1979; Demsetz, 1982). In contrast, low barriers to entry invite lower quality entrants. With respect to the audit market, if PCAOB oversight, coupled with existing barriers to entry are not sufficient, then new entrants may provide lower quality audits relative to incumbent firms.[2]

Second, regulators in the U.S. and U.K. are independently considering regulations that

[2] On one hand, public company audits are difficult and audit firms benefit from experience in the profession. If this is the case, we would expect new entrants to display quality that increases over time and becomes comparable to their peers. We investigate this possibility in supplemental tests. On the other hand, stakeholders expect a minimum level of assurance and may be unlikely to tolerate a learning curve if a minimum standard is not met.

would effectively lower barriers to the public company audit market. Most notably, the SEC recently proposed to exclude certain, additional small issuers from Section 404(b) of the Sarbanes-Oxley Act, which would eliminate the requirement for auditor attestation of internal controls for SEC issuers not designated as large accelerated filers and with less than $100 million gross annual revenues (SEC, 2019).[3] The underlying purpose of the proposal is to lower compliance costs for small public companies and to lower the cost of becoming a public company because the number of public companies has shrunk dramatically over the past two decades (DeFond and Lennox, 2011; Gao, Ritter, Zhu, 2013; Leuz, 2007). Providing audits of SOX 404(b) compliance represents a significant investment for smaller audit firms (GAO, 2008). Thus, the SEC's proposal to remove this requirement expands the number of clients who can credibly hire presumably less experienced first time auditors.[4] Therefore, it is important to understand the quality of first time auditors as an additional consideration when weighing the costs and benefits of the SEC's proposal. Related, the U.K. Competition and Markets Authority (CMA) has recently proposed mandatory joint audits with smaller audit firms with the intent to promote competition and increase auditor choice by requiring all but the largest companies to include at least one non-Big 4 audit firm (Trentmann, 2019). These regulations effectively lower barriers to entry to a segment of the market not previously served by smaller audit firms.

Using publicly available data complemented by proprietary data available from the PCAOB, we investigate the audit quality of first time auditors relative to various sets of benchmark firms. Because audit quality is difficult to measure (DeFond and Zhang, 2014), we

[3] The Dodd-Frank of 2010 permanently exempted non-accelerated filers (i.e., companies with less than $75 million in public equity float), from the 404(b) requirement. The JOBS Act of 2012 also exempted emerging growth companies from 404(b) for their first four filings. The SEC's new proposal would exempt an incremental group of companies from 404(b).

[4] To this point, we note that 92% of clients audited by first time auditors are non-accelerated filers exempt from 404(b) internal control opinion requirements. At time of the commenting period, 358 additional companies would become exempt (https://www.sec.gov/comments/s7-06-19/s70619-5802113-187069.pdf)

use audit quality proxies based upon inputs and outputs from the audit process. Our analysis includes the following measures of audit quality: (1) client restatements, which is a proxy for relatively egregious audit failures (DeFond and Zhang 2014, p. 277), (2) client-specific audit deficiencies as identified by the PCAOB, which is a determination that the audit evidence was insufficient to support the auditor's opinion, (3) the likelihood of an enforcement action against the audit firm by the PCAOB, and (4) auditor effort as measured by hours incurred by the audit engagement team.

Results from the various audit quality tests provide consistent evidence that first time auditors provide lower quality audits relative to benchmark incumbent firms. First, we find that clients of first time audit firms are significantly more likely to restate their financial statements, and these client companies are *not* associated with higher restatement rates in the three years prior to engaging a first time auditor. In practical terms, clients of first time auditors are 1.87 times as likely to have a restatement as other clients in the initial year after an auditor appointment.

Next, we find that, conditional on being selected for a PCAOB inspection, audits performed by first time auditors are significantly more likely to have a deficiency identified and reported in Part I of a PCAOB inspection report. Importantly, we are able to track deficiencies directly to individual engagements and control for client characteristics that could influence the likelihood of a PCAOB identified deficiency in an audit. Our findings imply that PCAOB inspectors are approximately 2.67 times more likely to conclude that the auditor's work is insufficient when the audit is conducted by a first time audit firm. We also find that higher deficiency rates by first time auditors are not limited to the audit firm's first PCAOB inspection. Higher deficiency rates continue in subsequent inspections suggesting that audit quality issues do

not simply reflect a "learning curve" for first year audits, or that the learning horizon is rather long for new entrants to the public company audit market.

We next investigate the likelihood of a first time audit firm receiving a PCAOB enforcement action in any year after its entry to the market. PCAOB enforcement for low quality audits is an indicator of egregious audit failure, or disregard for PCAOB rules and standards (Lamoreaux, Mowchan and Zhang, 2019). We find that first time auditors are approximately three times more likely than other triennially inspected firms to receive a PCAOB enforcement action.

Lastly, we investigate a direct audit input measure: audit effort as captured by total hours incurred by an audit engagement team on a client engagement (Deis and Giroux, 1992; Caramanis and Lennox, 2008). We find that first time auditors incur approximately 24% fewer audit hours relative to audits performed by incumbent auditors for clients of a similar size. A deeper analysis of labor mix suggests that this difference in audit effort is driven by fewer non-partner hours.[5]

Collectively, our tests suggest that first time auditors provide lower audit quality relative to incumbent audit firms.[6] This finding may be due to prospective clients' inability to infer first timers' quality *ex ante* due to a lack of observable information on the private client audit market, and because auditing exhibits characteristics of both credence and experience goods (Causholli and Knechel, 2012). Alternatively, some clients may demand lower quality and seek out first

[5] We note that differences in sample size for engagement-level audit quality tests are driven by data availability. Restatement tests have the largest available sample because they include all engagements involving triennially inspected auditors. Audit hours tests have a smaller sample because data on audit hours are only available for engagements involving an auditor that is *subject* to PCAOB inspection. Because our analysis is restricted to triennially inspected auditors, clients will only appear in the sample for audit hours tests once in every three years, on average. Audit deficiency tests have the smallest sample because data on inspection results are only available for the sample of engagements that are ultimately *selected* for PCAOB inspection.

[6] We cannot observe, nor do our results speak to, the relative quality of these first time audit firms prior to entering the public company audit market.

time audit firms in anticipation of lower quality. Accordingly, we conduct supplemental analyses investigating the demand for first time auditors.

We begin our supplemental analyses by investigating audit fees charged by first time auditors relative to incumbents. If entry barriers are a deterrent to low quality auditors, then prospective clients should expect no difference in quality between first time auditors and incumbents and would be willing to accept similar audit fees. Conversely, if prospective clients are uncertain about first timers' quality ex-ante, or can infer lower quality prior to entry, then they are only likely to engage first time auditors offering lower fees. We find that clients of first time auditors pay 17-25% less in audit fees than any meaningful comparison group. Taken together with the audit quality tests, these findings suggest first time auditors provide a service that is lower both in terms of quality and cost compared to incumbents.

Next, we investigate whether first time auditors are: (1) fulfilling a demand for low-cost, low-quality audits, or (2) clients are unable to infer quality but are willing to accept uncertainty accompanied by lower audit fees. To do this we investigate the likelihood that clients subsequently switch *away* from first time auditors in the years following their initial appointment. If auditing exhibits characteristics of an experience good, then consumers will adjust their expectations about quality after the initial engagement. Therefore, if low quality audits are consistent with clients' ex-ante expectations then we expect first time auditors to be associated with lower, or at least no significant difference in, switching rates. In contrast, our results suggest that clients engaging first time auditors are approximately 2.0-2.4 times more likely to switch auditors in the three years following their initial appointment relative to control firms that also recently switched auditors. These findings are consistent with first time auditors providing a misleading signal of quality prior to entering the market.

In our main tests, we compare clients of first time auditors to first-year clients of other triennially inspected auditors. We select this control group because clients of first time auditors are, by definition, first-year engagements. Prior literature suggests first-year engagements are associated with greater effort, lower audit fees, and lower audit quality (Johnson, Khurana, Reynolds, 2002; Geiger and Raghunandan, 2002; Myers, Myers and Omer, 2003; Caramanis and Lennox, 2008; Ghosh and Lustgarten, 2006). However, the decision to appoint a first time auditor may be driven by correlated client attributes. To attenuate the concern that our results may be driven by client characteristics or the benchmark selected for comparison, we employ two alternative control groups including a propensity score matched sample, and the full sample of clients of triennially inspected auditors. Results are robust to these alternative research designs.

Taken as a whole, our findings are consistent with a pooling equilibrium between relatively lower quality (first time auditors) and higher quality (incumbents) audit firms, consistent with the predictions of Grossman and Horn (1988). To the extent such a pooling equilibrium exists, it reduces the incentive for suppliers (audit firms) to invest in providing high quality services (audits). Ultimately, maintaining low, or lowering, barriers to entry may increase the availability of low quality auditors and may decrease confidence in capital markets.

To the best of our knowledge, this study is the first to identify and examine the large population of audit firms that have entered the public company audit market since the passage of SOX. The results suggest that these firms are, on average, of significantly lower quality compared to incumbent auditors. Therefore, this study should be of interest to regulators and stakeholders interested in competition and concentration in the audit market. Prior research suggests that SOX raised the costs of compliance, forcing the lowest quality firms out of the

market (DeFond and Lennox, 2011). In contrast, the results in this study suggest that increases in regulatory oversight have not *prevented* the entry of low-quality audit firms. While many interested parties suggest that concentration and barriers to entry are detrimental to audit quality and the profession, this study provides an alternative view, which suggests existing barriers to entry, at least for the smallest audit firms, may be insufficient to prevent low quality entrants. Therefore, our results also speak to the SEC's recent proposal to expand the 404(b) exemption of the Sarbanes-Oxley Act, as first time auditors play a significant role in the market for non-integrated audits and this proposal would effectively decrease entry barriers to this segment of the audit market. Exempting issuers from 404(b) requirements is likely to increase the number of issuers audited by low quality firms.

2. Institutional Details and Prior Literature

2.1 Institutional Details

Congress established the PCAOB, as part of the Sarbanes-Oxley Act of 2002 (SOX), to oversee the audits of SEC issuers. In order to issue an audit report for any publicly traded company, or to play a substantial role in such an audit, an audit firm must register with the PCAOB. Audit firms often "voluntarily" register with the PCAOB long before engaging an issuer client (Williams, 2019). Once an audit firm issues (or plays a "substantial role" in the issuance of) an audit opinion for a public company client, it becomes subject to PCAOB inspection. The distinction between PCAOB registration and inspection is important for two reasons: (1) the relative costs of registration versus inspection, and (2) the incremental information (relative to other sources) provided by registration versus inspection.

Voluntary registration represents a nominal cost to the auditor: the PCAOB's fee structure is tiered based on the size of the audit firm and the smallest firms must pay a $500

registration fee and an annual fee of $500. In contrast, inspections represents a significant cost to public company auditors. The PCAOB inspects firms to assess compliance with professional auditing standards as well as the rules of the SEC and PCAOB. The costs of remediating deficiencies and ensuring ongoing compliance is non-trivial, especially for small audit firms (DeFond and Lennox, 2011). These costs related to inspections represent barriers to entry, and are described in greater detail in Section 2.2.

In terms of information content, PCAOB registration (by itself) provides little, if any, incremental evidence of audit firm quality to the market. The PCAOB does not have jurisdiction over the audits of privately held companies. As such, audit firms' registration forms do not contain information on its privately-held audit clients and are restricted to general information about the audit firm (name, contact information, office locations, etc.). One consequence of the information asymmetry surrounding potential entrants (first timers) is that it serves as an additional entry barrier. These firms must convince prospective clients to hire them despite a lack of observable information on prior public company audit engagements, audit outcomes, and audit quality indicators. In contrast, PCAOB inspections provide an additional signal of auditor quality vis-à-vis public inspection reports published on the PCAOB's website. These reports include a summary of PCAOB-identified audit deficiencies among the firm's SEC issuer engagements as well as deficiencies in the firm's overall quality control system.[7] While these signals can take years to reach the public, audit firm clients can obtain other, more efficient, signals of client-specific audit quality for auditors that already audit public companies.

2.2 Prior Literature

[7] The audit firm has one year to satisfactorily "remediate" quality control criticisms identified by the PCAOB (CAQ, 2012). These criticisms are publicly disclosed in the inspection report only if the audit firm fails to adequately address the PCAOB's concerns within this time period.

Our study relates to two streams of literature: competition in the audit market and barriers to entry. Various stakeholders have voiced concerns over entry barriers to the U.S. public company audit market for the past several decades. Although this debate focuses primarily on the audit market for large public companies, many of these barriers persist *throughout* the public company audit market. In interviews with various stakeholders the Government Accountability Office (GAO) identified several significant barriers facing smaller firms, including: reputation, staffing capacity, technical expertise, capital limitations, litigation risk, and the costs of insurance premiums (GAO, 2003; 2008).

Concerns over entry barriers facing small firms were exacerbated by the increasing costs of compliance associated with SOX. For example, Read et al. (2004) examine 8-Ks issued for all auditor resignations in the years immediately surrounding SOX and note an increasing trend of audit firms disclosing that they were ceasing all SEC audits. Interviews with audit partners confirmed that the costs of PCAOB regulation were the primary reason for their actions. Similarly, DeFond and Lennox (2011) document that more than 600 audit firms voluntarily exited the market for public company audits in the years surrounding the Sarbanes-Oxley Act and the introduction of PCAOB oversight. They find evidence that exiting firms are more likely to receive unfavorable peer reviews and inspection reports and less likely to issue going concern opinions relative to those that remained in the market. The authors interpret these findings as evidence that PCAOB inspections "improve audit quality by incentivizing the lower quality auditors to exit the market" (p. 6), implying that added regulations disproportionately raised entry barriers for low quality firms.

The economics literature posits that barriers to entry can take many forms (Porter 1979, 2008) and have wide variation in definition (Demsetz, 1982). A major stream of literature

examines the consequences of market distortions due to increasing entry barriers across many industries. For example, Covarrubias, Guiterrez and Philippon (2019) examine variation in barriers to entry across industries over the past 30 years and find evidence that increasing barriers have a significant impact on profits, entry, exit, turnover, prices, productivity and investment. They conclude that increasing barriers to entry explain a paradigm shift in the relation between concentration, productivity growth, and prices during the past 15 years, implying that barriers have led to negative consequences in recent years.

In contrast, a second stream of literature contends that sufficient entry barriers play an important role by preventing low-quality entrants in markets for experience or credence goods (von Weizsacker, 1980; Demsetz, 1982; Suzumura and Kiyono, 1987; Grossman and Horn, 1988). When buyers have imperfect information about supplier quality, low barriers may lead to a pooling equilibrium between high quality and low quality producers; high quality producers are driven out the market, thereby reducing consumer surplus. This problem is particularly relevant in markets for professional services such as auditing (Grossman and Horn, 1988). Reputational barriers are likely amplified for first time audit firms because they have limited ability to provide ex ante evidence of high audit quality to prospective clients. Therefore, low barriers may leave prospective clients unable to differentiate between high- and low- quality first time audit firms. Higher barriers, in contrast, ensure a minimum level of quality, which is especially relevant to the auditing profession as audit quality is difficult to measure and audits display many characteristics of a credence good (Causholli and Knechel, 2012).

3. Hypothesis Development

The creation of the PCAOB unarguably increased regulatory uncertainty and the cost of participating in the public company audit market. This increase in regulatory uncertainty and cost

also represents an increase in barriers to entry for audit firms wishing to audit public companies. While barriers to entry can take many forms (Porter 1979; 2008; Demsetz 1982), an audit firm that issues an audit opinion for the first time for a public client has, by definition, successfully overcome the barriers to entry (high or low).

In our view, some of the primary barriers to entry for first time audit firms include, but are not limited to: costs of registering with the PCAOB, costs of becoming subject to PCAOB oversight including inspections and potential enforcement, reputational risks that come with higher profile public clients (e.g., publicly available audit reports and client financial statements), increased insurance premiums, and lack of expertise and training costs for auditing public companies. Barriers to entry can also take the form of information costs (Demsetz, 1982, p. 50). One potent information cost is the inability for first time audit firms to signal the quality of their service prior to obtaining a client. This is consistent with the notion of audits being a credence or experience good as quality is determined ex post (Causholli and Knechel, 2012).

High barriers to entry should yield high quality entrants to a market, while low barriers to entry seemingly allow low quality entrants (Demsetz, 1982).[8] Given that a first time audit firm has overcome the existing barriers to entry, their initial audit quality relative to incumbents allows us to investigate whether the barriers are sufficient to prevent low quality auditors from entering the market.[9] If the audit quality of first time audit firms is comparable to that for incumbent auditors of similar clients, then we would not expect differences in observable measures of audit quality for first timers relative to incumbents. This would suggest that barriers

[8] For example, Demsetz (1982) provides an example of the taxi industry and the city licensed taxi medallion. If the requirements to obtain a taxi medallion are lowered, i.e. no required safety restraints or bumpers on a car, then low cost and low-quality taxis would seemingly enter the market. In contrast, with a high medallion cost and high safety requirements to obtain the medallion, only high-quality taxis would enter the market.

[9] The discussion and predictions made in relation to quality are of a relative nature. Quantifying absolute levels of assurance quality is not possible. We use "low quality" and "high quality" to describe new entrant firms relative to the quality of incumbent audit firms, not in an absolute sense.

to entry are sufficient to prevent low-quality entrants. In contrast, if the audit quality of first time audit firms is lower than incumbents, then barriers to entry for the small audit market would be low; this despite the barriers from increased regulatory oversight of the PCAOB. This discussion is formalized into our hypothesis, stated in the null form, as follows:

H1: Audit quality of first time public company auditors is no different than incumbent auditors of similar size

3. Research Design and Sample Selection

To test our hypothesis, we employ several proxies for audit quality that capture outputs and inputs from the audit process. Our audit quality proxies are measured at both the individual engagement level and audit firm level in an attempt to capture the multi-faceted nature of audit quality. At the engagement level our proxies for audit quality include: client restatements, PCAOB-identified audit deficiencies, and audit hours. At the audit firm-level we investigate the likelihood of PCAOB enforcement against an audit firm.

For our engagement-level (e.g., client-year) audit quality tests, we estimate the following regression:

$$Audit\ Quality = \beta_1 First\ Time + \beta_2 Controls + Year\ \&\ Industry\ fixed\ effects \quad (1)$$

where *First Time* is equal to one for all clients that engage a first time auditor, and zero otherwise, *Controls* follow prior literature and vary based upon the dependent variable, *Year* and *Industry* fixed effects are included to difference out variation in audit quality across time and industry. We discuss each of these models below. Detailed variable definitions are included in Appendix A.

Restatements

Prior literature has used restatements to capture relatively egregious audit failures because they indicate the auditor issued an unqualified audit opinion when the financial

statements were, in fact, materially misstated (DeFond and Zhang, 2014). We identify restatements from the non-reliance file in the Audit Analytics database. We expect the coefficient on *First Time* to be positive if financial statements audited by first time auditors are more likely to be materially misstated.[10]

PCAOB Identified audit deficiencies

We use the PCAOB's proprietary dataset of inspected engagements to identify audit deficiencies and match them to clients. This database contains inspection results for all engagements that the PCAOB selected for inspection, including details on any identified audit deficiencies (Aobdia, 2018). When inspectors conclude that audit evidence is insufficient to support the auditor's opinion, the PCAOB discloses the deficiency in "Part I" of the audit firm's publicly available inspection report (Gipper, Hail, Leuz, 2019). While inspection findings are reported in the publicly available inspection report for each audit firm, the client's identity is anonymized in the report. We utilize the PCAOB's proprietary database on inspection results to link inspection deficiencies to the individual issuers and control for client-level characteristics in our regression models. One advantage of using inspection deficiencies as a proxy for audit quality is that deficiencies are a direct assessment that the auditor violated auditing standards (according to PCAOB inspectors). Therefore, this proxy is a relatively direct measure of the underlying construct of audit quality beyond audit failures captured by restatements (Aobdia, 2019). However, a disadvantage of using inspection deficiencies as a proxy for audit quality is that the PCAOB uses a risk-based (rather than random sampling) approach to select engagements for inspection. Thus, our test sample may not be representative of the audit quality of the wider

[10] We note the possibility that the SEC is more likely to investigate the clients of first time audit firms. While this may be possible, material misstatements need to exist to result in a restatement. In addition, the results of investigating restatements are consistent with the other audit quality proxies, which are not associated with increased SEC scrutiny.

population for first time auditors.[11] We include control variables previously associated with inspection deficiencies (Aobdia, 2019). We expect that the coefficient on *First Time* will be positive if first time auditors are more likely to have inspection deficiencies which we consider to be evidence of low quality audits.

PCAOB enforcement

For our final output-based proxy of audit quality, we model the likelihood of an audit firm being the subject of a PCAOB enforcement action. Congress granted the PCAOB the authority to investigate and discipline audit firms and their personnel for noncompliance with SOX, SEC rules, rules of the board, and non-compliance with PCAOB standards (PCAOB, 2003; Lamoreaux, et al. 2019). In cases of serious violations, the PCAOB may impose fines, censure individuals or firms, bar individuals from being employed with a PCAOB-registered audit firm, or revoke an audit firm's PCAOB registration, thus prohibiting an audit firm from auditing public companies in the future.

Because the likelihood of PCAOB enforcement may increase over time, we employ a Cox proportional hazard model which is a form of survival analysis that is appropriate when time-varying covariates are a significant concern (Greene, 2012). Additionally, the data are truncated because a significant proportion of enforcement actions result in the withdrawal or revocation of the firm's registration.

A Cox model estimates the effects of parameters without requiring a precise estimate of the underlying hazard function (i.e. the likelihood of an enforcement changes over time proportionally with the observed covariates). To test our hypothesis we estimate the following

[11] We do, however, note that this is less of a concern in a sample of small triennially inspected auditors because a greater percentage of a firm's engagements are likely to be selected for inspection (by default). For example, 202 of the 275 first time auditors in our sample have just one public client in their first post-entry year, and therefore, just one engagement available for inspection.

regression:

$$h(t) = h_0(t) \exp[\beta_1 \textit{New Entrant} + \beta_2 \textit{Number of Clients} + \beta_3 \textit{Number of Offices} + \beta_4 \textit{Workload} + \beta_5 \textit{Inspection Experience}] \quad (2)$$

The dependent variable, *h(t),* is the hazard rate, which captures the likelihood that an audit firm will receive an enforcement action in year *t*.[12] The variable of interest is *New Entrant,* which takes a value of one for all audit firm years of audit firms registering after 2004 and with no prior public clients, zero otherwise. Positive coefficients (hazard ratios larger than 1) indicate a higher probability of the dependent variable, and negative values (hazard ratios less than 1) indicate a decreased probability. If first time audit firms are of lower quality, we expect that the coefficient on *New Entrant* will be positive.

Because enforcement actions are captured at the audit firm level, the control variables in Equation (2) are all measured at the audit firm level. We include a number of control variables that we expect to be associated with the likelihood of PCAOB enforcement. *Number of Clients* is measured as the natural log of one plus the number of public-company clients listed on the auditor's PCAOB registration application (i.e., Form 1), which controls for the higher likelihood of PCAOB scrutiny for larger audit firms. We measure *Number of Offices* as the natural log of one plus the number of offices listed on the auditor's Form 1 application to control for audit firm size. We also control for the workload of the CPA firm (*Workload*) by calculating the ratio of the number of clients divided by number of CPAs at the firm (listed in Form 1). Lastly, we control for the number of years since the auditor's first PCAOB inspection to control for the experience a firm has in dealing with the regulators.

[12] We note that not all firms have their registrations revoked or withdrawn as part of an enforcement action. In the case where the audit firm continues to operate after the enforcement action we set the failure exposure equal to one and remove post-enforcement years from our hazard models.

Audit Effort

Our last audit quality proxy is audit effort as measured by the natural log of total audit hours charged to a client engagement. Audit hours provide a direct measure of auditor effort (Deis and Giroux, 1992; Caramanis and Lennox, 2008; Bae, Choi, Lamoreaux and Lee, 2019). Consistent with prior studies, we interpret a negative coefficient on the variable of interest (*First Time*) as evidence of lower audit quality with *Audit Effort* as a dependent variable in Equation (2). Data on audit hours are collected from the PCAOB's proprietary Exhibit B database. In the year an audit firm is subject to inspection, the PCAOB requests information on all engagements of SEC issuer clients, including total audit hours, and audit hours by rank (i.e., partner, engagement quality review (EQR) partner, and professional staff) (CAQ, 2012). These data are available beginning in 2004 for triennially inspected firms (Gipper et al., 2019; Kitto, 2019). Because our sample is restricted to triennially inspected auditors, clients will appear in our sample once every three years, on average.

An important distinction between our tests involving PCAOB-identified audit deficiencies is that the audit hours sample includes all engagements *subject to* inspection, and not just those that are actually *selected* for inspection. Consistent with prior literature, control variables modeling audit effort follow closely models of audit fees (Hay, Knechel and Wong, 2006 for a detailed discussion of these variables).

Sample Selection

Our sample period begins with the commencement of PCAOB inspections in 2004 and ends in 2017 to provide a time lag in PCAOB inspections, enforcement and client restatements. We exclude the time period prior to PCAOB inspections because our research design relies on PCAOB registration requirements to identify first time auditors. For the control group, we

exclude audit firms with more than 100 SEC registrant clients as these firms are unlikely to compete with first time auditors, these firms are inspected by the PCAOB each year and auditor size is positively correlated with the incentive and ability to provide high quality audits (e.g. DeAngelo, 1981). We further restrict our sample to exclude foreign audit firms listed in the U.S. to avoid the confounding effects of different levels of regulatory oversight (Lamoreaux, 2016). For all client-level tests, in addition to the full sample, we limit the sample to only clients that change auditors as all clients of first time auditors are, by definition, first-year engagements.

The sample composition for our audit quality tests is detailed in Panel A of Table 1. Starting with the intersection of Compustat and Audit Analytics (for clients of triennially inspected auditors) we remove all client years that immediately follow the initial year of a restatement. This ensures we only capture the first year in a restatement window and the audit firm associated with the initial misstatement. We then remove client years missing control variables. This process yields 12,657 client year observations for our restatement analysis. For tests involving audit hours, after adding back restatement years, we remove 11,258 observations that do not have data on audit hours because their audit firm is not subject to PCAOB inspection in that year, resulting in a sample of 4,832 observations for auditor effort tests.[13] Lastly, we remove an additional 2,868 observations that are not selected for inspection, resulting in a final sample of 1,964 firm-years for the audit deficiency tests.[14]

We classify first time auditors by identifying the first fiscal year a PCAOB registration number appears in our sample and impose two restrictions to ensure the audit firm has no prior

[13] The PCAOB collects data on audit hours for all engagements of all audit firms that are subject to inspection in given inspection-year (Kitto, 2019). Because our sample is limited to clients of triennially inspected audit firms, clients appear in this sample approximately once in every three years, on average.
[14] The PCAOB employs a risk-based selection criteria when selecting individual engagements for inspection. Thus, engagements that were not ultimately selected for inspection are not included in these tests.

experience auditing public companies. [15] First, we require the year of the auditor's registration date to be 2004 or later. Because all U.S.-based public company auditors were required to register with the PCAOB by October 22, 2003, this requirement ensures our classification of first time auditors does not capture audit firms that were actively participating in the public company audit market prior to PCAOB oversight. Second, we require that the auditor's unique identifier per Audit Analytics (*auditor_fkey*) does not appear prior to 2003 which further reduces the possibility that audit firms exited and then reentered the public company audit market. When an audit firm satisfies these conditions, we classify it as a first time auditor.

4. Empirical Results

In Table 1, Panel B we provide descriptive statistics for clients of first time auditors relative to clients who have recently switched to other triennially inspected firms. Of the 17 control variables, only four are statistically different between the two groups. Of the five dependent variables, four are different. While not statistically different, we find that 11 (6) percent of financial statements audited by first time (other) auditors are restated (*Restatement*), which is consistent with first timers providing lower quality audits. First time auditors have a drastically higher proportion of Part I deficiencies (63 vs 36 percent), and significantly lower total hours, partner hours, and non-partner hours. All of these indicate lower audit quality. For the control variables, clients of first time auditors, on average, have more foreign operations (*Foreign*), are in less litigious industries (*Litigation*), less likely to be a calendar year company (*FYE Dec*), and have lower liquidity (*Current Ratio*). All remaining control variables reveal no

[15] Although we conduct our analysis at the audit firm level, focusing on a sample of firms that that have not audited a public company, we acknowledge that individual auditors may have prior experience auditing public companies (e.g. while working at other audit firms). Throughout the paper we use the terms "first time auditors" and "first timers" to refer to refer to this group of audit firms with the understanding that individuals working at these firms might have prior public company auditing experience.

significant differences between clients of first-time auditors and the control group.

Next, we provide descriptive evidence on the 275 first time audit firms in our sample (i.e. audit firms obtaining a public client for the first time). In Panel A of Table 2 we plot the time it takes to enter the U.S. public company audit market from the date of registration and the number of clients obtained upon entry. All audit firms are aligned by their registration year with the PCAOB. The horizontal axis measures the number of years between registration and the year end of the audit firm's first public client's financial statements. We round partial years down in all instances. The vertical axis represents the number of audit opinions signed by the audit firm in the first year after entering the market. We find that 57% (159 of 275) of audit firms acquired their first client less than one year from their PCAOB registration date. Almost three quarters (202 of 275) of first time auditors have a single client in their first year entering the market, and 13.4% have at least three, and as many as 13 public-company clients in their first year following PCAOB registration. We note the existence of several outliers in the upper, right quadrant of the table. However, we manually reviewed the PCAOB registration forms (Form 1) for the 20 largest first time auditors in terms of the number of clients to ensure the accuracy of our strategy for identifying first time audit firms.

In Panel B of Table 2, we examine the number of first time audit firms by year for each year from 2004-2017. Approximately one-third (93 of 275) of first time auditors enter the market in the first three years of our sample, suggesting that PCAOB regulation (e.g., registration and inspection) was not a significant deterrent for a large number of firms. The rate of entry has remained relatively constant over the remaining portion of our sample: since 2007 there have been between 6 and 24 new entrants to the U.S. public company audit market each year. However, 2017 is a sharp decrease from the trend (6 first time audit firms).

Restatements

The results for tests of H1 using restatements as a proxy for audit quality are reported in Table 3. Control variables are based on prior literature and coefficients on these variables are generally consistent with prior research.[16] In Column (1) of Panel A, the control group includes all years of triennially inspected audit firms. The coefficient on *First Time* is positive and statistically significant (0.628, t=1.99), suggesting that clients' financial statements audited by first time auditors are 1.87 times more likely to be subsequently restated.

Engagements involving first time auditors are, by definition, first year audit engagements and prior literature has shown that first-year engagements are associated with lower audit quality (Johnson et al., 2002; Geiger and Raghunandan, 2002; Myers et al., 2003; Caramanis and Lennox, 2008; Ghosh and Lustgarten, 2006). Further, a change in auditors represents a choice by management (or the board) which may impose selection bias when comparing audit outcomes for first time audits relative to audits performed by longer tenured auditors. Therefore, in Column (2) we restrict the control group to initial year audit engagements only to mitigate these concerns. We find similar results as the coefficient on *First Time* is positive and statistically significant (0.597, t=1.77) suggesting that the result in Column (1) is not driven by auditor switches and variation in audit quality due to experience with the audit client.

In Column (3) we present results utilizing a quasi-difference-in-differences design adopted from Jiang, Wang and Wang, (2018). For this specification we restrict our sample to first year audit engagements and the year preceding the auditor change. We include *Auditor Change* as a control for all first year engagements. Therefore, the coefficient on *First Time*

[16] Prior research suggests that more complex firms (*New Financing*, *Going Concern*, *M&A Activity*, *Business Segs*) and firms with low quality internal controls (*ICW*) are positively associated with restatements (e.g. Lobo and Zhao, 2013).

captures the incremental difference in the likelihood of a restatement for clients of first time auditors relative to other initial year audit engagements, with clients' prior year effectively serving as its own control. As with Columns (1) – (2), the coefficient on *First Time* is positive and statistically significant (0.628, t=1.90), implying that first time auditors are driving the difference in restatement rates rather than a first-year auditor (auditor change) effect.

Lastly, we re-estimate the restatement model using a propensity score matched sample in Column (4).[17] Once again, the coefficient on *First Time* is positive and statistically significant suggesting that clients of first time auditors are significantly more likely to experience a restatement relative to clients of other triennially inspected auditors.

A limitation of financial-reporting based proxies is that they are a function both the client's underlying reporting characteristics, e.g., firm-level reporting quality, and audit quality. To mitigate concerns that higher restatement rates for first time auditors are driven by client characteristics rather than the auditors' quality, we examine restatements in the three years prior to a client engaging a first time audit firm. The results of these tests are presented in Panel B of Table 3. In these tests, the variable *Hire First Time* is equal to one for all clients that later hired a first time auditor and we remove all client years subsequent to a client selecting a first time auditor from the sample. The control group consists of the three years prior to clients of other triennially inspected audit firms changing audit firms. We find that the coefficient on the variable of interest (*Hire First Time)* is not statistically significant in Column (1), indicating no difference in restatement rates for clients that engage first time auditors in the three years prior to engaging a first time auditor. In Columns (2) – (4), we separately examine each of the three years before

[17] While we achieve covariate balance using the PSM approach (See Appendix B), we note there are limitations to a PSM sample, importantly there are only 155 observations that meet the data requirements. However, it is interesting to note that the coefficient on *First Time* in Column (4) is statistically strongest relative to columns (1)-(3) despite the significantly smaller sample size.

hiring a first time audit firm. The coefficient on *Hire First Time* is not statistically significant in any of the models. Overall, the results in Table 3, Panel B, indicate that we fail to reject the null that clients of first time audit firms do not exhibit differences in restatement rates prior to engaging a first time auditor. The results in Panel A also suggest that clients are more likely to experience a restatement after switching to a first time audit firm, relative to switching to an incumbent audit firm. These findings are consistent with first time auditors providing lower audit quality relative to incumbents. Importantly, these results imply our output-based measure of audit quality is driven by first time auditors rather than the underlying characteristics of the client.

PCAOB Inspection Deficiencies

Table 4 presents results for tests of H1 using PCAOB identified inspection deficiencies as a proxy for audit quality. We present the results of logistic regressions where the dependent variable is equal to one if the PCAOB identifies an audit deficiency in the audit of the client as part of its inspection process. We estimate our models using three different control groups: the full sample of triennially inspected auditors' inspected clients, a sample of only first-year engagements, and a propensity score matched sample to ensure that clients of first time auditors have comparable observable characteristics with clients of incumbent auditors in columns (1), (2), and (3), respectively.[18] Results from these tests reveal that audits performed by first time auditors are associated with a significantly higher probability of deficiency compared to inspected audits performed by other triennially inspected auditors regardless of the specification. More specifically, engagements involving a first time auditor are approximately 2.67 times more

[18] Unlike the restatement models, there are more data limitations for tests involving PCAOB reported audit deficiencies because small audit firms and their clients are not inspected every year. These data limitations, described in Section 3, preclude the quasi difference-in-differences design we employ in tests using only publicly available data.

likely to have a deficiency identified and reported by the PCAOB. These results are consistent with the restatement results documented in Table 3 in that deficient audit procedures could lead to material misstatements of clients' financial statements.

First time auditors may initially struggle with the required rigor of public company audits and the necessary compliance with PCAOB standards but adapt and improve over time. Therefore, in supplemental tests we examine whether low audit quality of first time auditors reverses in later years and reflects a learning curve for first time auditors. In untabulated tests, we drop *First Time* from Equation 1 and include a variable of interest *First Time ALL* which is an indicator variable equal to one for all post-entry client years audited by first time auditors (and not just the first year the auditor undergoes a PCAOB inspection).[19] The coefficient on *First Time ALL* is positive and statistically significant suggesting that higher deficiency rates are not limited to the first year of inspection. Therefore, first time auditors appear more likely to have deficiencies in the first year *and* subsequent year's inspections suggesting that the low quality in first time audits does not represent a learning curve.

Likelihood of PCAOB enforcement

We next investigate the likelihood of PCAOB enforcement for first time auditors relative to small incumbent audit firms. A PCAOB enforcement action captures particularly egregious audit failures. We employ a Cox proportional hazard model for these tests, with firms first appearing in the sample upon filing Form 1 with the PCAOB (registration document), and exiting the sample after being the subject of a PCAOB enforcement action. The results of these tests (Equation 2) are presented in Table 5. In Column 1 we find that first time auditors are 2.39

[19] The variable of interest in these supplemental tests equals one for clients audited by a firm that enters the public company audit market in 2004 or later. In contrast, we remove post-entry years in our main tests in order to focus on the first year a client engages a first time auditor to more directly test entry barriers.

times more likely to be the subject of a PCAOB enforcement action. In Columns 2-5 we increase the number of control variables that we anticipate would be positively associated with the likelihood of being the subject of PCAOB enforcement including, the number of clients the firm has, number of offices, and workload, which is the ratio of the number of clients to the number of CPAs in the audit firm, and prior inspection experience with the PCAOB. Regardless of the specification, first time auditors are significantly more likely to be the subject of a PCAOB enforcement action and the coefficient remains relatively constant across the various model specifications. For example, the coefficient on *First Time* in the fully specified model in Column (5) implies that first time auditors are more than three times more likely to receive a PCAOB enforcement action relative to their triennially inspected peer firms. These results are consistent with first time auditors providing egregiously lower quality audits, and as such becoming the subject of PCAOB enforcement.

Audit Effort

As the final dependent variable for the test of our hypothesis, we analyze an input-based measure of audit quality: audit hours. Using proprietary data provided by the PCAOB, we examine the audit hours worked on each engagement performed by an inspected firm in an inspected year. Investigating audit hours helps to ascertain whether the lower audit quality found in the tests of restatements, Part I deficiencies, and enforcement actions is driven by decreased effort or by a correlated, but omitted, client characteristic or circumstance.

Table 6 presents results for the estimation of Equation (1) with the natural log of total audit hours, total partner hours, and total non-partners as the dependent variables.[20] Results are consistent with lower audit effort by first time audit firms regardless of the control group. In

[20] In supplemental analysis (untabulated) we re-estimate all models after scaling audit hours by total assets. Results from these tests are qualitatively consistent with those reported in Table 6.

Columns (1) – (3), the control group includes all clients of triennially inspected auditors in their respective years of inspection. We find that the coefficient on *First Time* in column (1) is negative and statistically significant (-0.273, *t*=-5.335) implying that engagements involving first time auditors are associated with significantly lower effort. In terms of magnitude, total audit hours are approximately 23% lower for engagements involving a first time auditor relative to incumbents. Columns (2) and (3) partition the effort by partner and non-partner hours. We find that the lower audit effort observed in Column (1) appears to be driven by lower non-partner hours, rather than partner hours. The coefficient on *First Time* is statistically significant in Column (3), non-partner, (-0.402, *t*=-6.757) but is not in Column (2), partner. In Columns (4) – (6) we restrict the control group to a propensity score-matched sample to ensure that the control group firms are observably similar to First Time clients. The coefficients on *First Time* in Columns (4) – (6) are consistent in terms of sign and significance to those in Columns (1) – (3), suggesting that our results are not driven by selection bias.

In Panel B of Table 6, we re-estimate Equation (1) with *Audit Hours* as the dependent variable using two different control groups. We limit the sample to the first year of an auditor-client paring in Columns (1) – (3) to rule out the possibility that our results are driven by the auditor change effect rather than by first time auditors.[21] Once again, first time auditors are negatively associated with total audit hours (-0.250, *t*=-4.25) and non-partner hours (-0.373, *t*=-5.31), but not partner hours.

Lastly, we examine the extent to which the lower audit hours is driven by a client effect rather than by first time auditors. To perform this analysis, we employ the full sample of clients

[21] As with our tests of PCAOB-identified audit deficiencies, those involving audit hours are subject to data limitations in that hours data is only provided to the PCAOB in the years that the audit firm is subject to PCAOB inspection.

of triennially inspected auditors and include an additional control variable (*Hire First Time*) that is equal to one if a particular client engages a first time auditor at any point during the sample period. Thus, this variable captures differences in audit hours for these clients in years they are not audited by a first time auditor. In this specification, *First Time* captures the incremental difference in audit hours in the years these clients actually engage a first time auditor. The negative coefficient on *Hire First Time* in Column (4) (-0.169, *t*=-3.50) implies these clients receive lower effort from their auditor. However, the coefficient on *First Time* remains negative (-0.127, *t*=-1.974), consistent with an incremental reduction in effort for first time auditors. Examining differences in labor mix, we find a weakly significant positive association between first time auditors and total partner hours (0.128, *t*=1.676), despite a negative association with non-partner (-0.220, *t*=-2.919) and total audit hours. This result may suggest that partners of first time audit firms may take on responsibilities normally delegated to lower level staff, or the organizational structure of these smaller first time audit firms differs from incumbent firms.

5. Additional Analysis

Do first time auditors compete on price?

Although our audit quality tests demonstrate that first time auditors display consistent evidence of low quality *after* entering the public company audit market, consumers may not be able to infer quality *ex ante* due to the credence attributes of auditing as well as the lack of observable data about the private company audit market. As such, prospective clients may rely on barriers to entry, if any, to ensure a minimum level of quality. For example, if entry barriers deter all low quality auditors, then market entrants should exhibit similar quality to incumbents and clients should be willing to pay similar audit fees to first time auditors. Conversely, if barriers are insufficient to deter entry of low quality auditors, then clients face uncertainty when

considering whether to appoint a first time auditor. Under these conditions, we expect that prospective clients would only hire a first time auditor offering lower fees. Lastly, some clients may be able to infer, and actually demand, lower quality provided by first time auditors if, for example, they perceive the benefits of a fully compliant audit to be outweighed by the costs. Under this scenario we would also expect first time auditors to offer lower fees.[22] To investigate these possibilities we examine fees charged by first time auditors relative to various control groups. We estimate the following OLS regression:

$$Audit\ Fees = \beta_0 + \beta_1 First\ Time + \beta_2 Controls + Year\ \&\ Industry\ fixed\ effects \quad (3)$$

We base our audit fee model and control variables on prior literature (Hay et al., 2006). Our first specification of Equation 3 includes clients of first time auditors and all clients of triennially inspected audit firms. We also limit to a sample of clients that recently switched auditors, a quasi-difference-in-differences design, and a propensity score matched control group.

Table 7 presents the results of our estimations of Equation (3). In Column (1) the coefficient on *First Time* is negative and statistically significant (-0.298, *t*=-3.18), suggesting that first time auditors charge lower fees relative to other triennially inspected auditors. In Column (2) we restrict the control group to clients that have switched auditors because prior literature suggests first year audits are associated with lower audit fees (Ghosh and Lustgarten, 2006). Our results in Column (1) may be driven by selection bias because engagements involving first-year audits are, by definition, first-year engagements. Our results in Column (2) mitigate this concern as the coefficient on *First Time* remains negative and statistically significant (-0.301, *t*=-3.24). To mitigate concerns that our results are driven by observable client-level factors, in Column (3)

[22] Theoretically, clients could be willing to pay higher fees to obtain low audit quality. For example, there may be a limited supply of auditors willing to supply deficient audits. Under a scenario in which some clients demand low quality, we would also expect that these clients are less likely to switch away from first time auditors. We explore this possibility in our auditor switching tests below.

we employ a quasi difference-in-differences model similar to Table 3, Column 3. We find that the coefficient on *First Time* is negative and significant as expected, while the coefficient on *Auditor Change* is statistically insignificant. Therefore, our results in Column (1) do not appear to be driven by auditor changes. Lastly, in Column (4) we report results utilizing a PSM sample. We note that coefficient on *First Time* is of similar magnitude and statistical significance across the four columns.[23] Overall, the results in Table 7 provide support that first time auditors charge lower audit fees relative to incumbent auditors, and that the lower effort documented in Table 6 is accompanied by lower fees.

Taken together with our audit quality tests, our results suggest that first time auditors offer a lower-cost, lower-quality service. These findings imply that entry barriers are insufficient to deter low quality suppliers; as a result, some clients either: (1) demand lower quality, or (2) are unable to infer low quality *ex ante* but are willing to accept uncertainty about quality as long as it is accompanied by lower fees.

Do clients switch away from first time auditors?

To examine these two possibilities, we examine post-entry behavior of clients that hire first time auditors. As noted in Section 3, auditing exhibits characteristics of search, experience, and credence goods (Causholli and Knechel, 2012). To the extent auditing exhibits experience good attributes, we expect clients to react to their initial indication of audit quality in the years immediately following their first year audited by a first time auditor. For example, our tests of H1 indicate that first time auditors are associated with lower audit quality, on average. Thus, we

[23] Propensity score matching was performed with replacement using a 0.03 caliper. We performed *t*-tests on all variables in the model comparing means of those clients of incumbent firms to clients of first time firms. *T*-statistics were not significant, with absolute values less than one, for variables with one exception. Clients of incumbent firms had greater "Company Age"; all other variables achieved balance in the PSM analysis. Therefore, there is a low likelihood of functional form misspecification in our PSM model (Shipman, Swanquist and Whited, 2017).

expect clients of first time auditors to be more likely to switch auditors to the extent audit quality is observable ex-post, and these clients do not demand lower quality audits.[24] Conversely, if audit quality is unobservable, or clients of first time auditors demand low quality, then we expect no difference in switching rates between clients of first time audit firms and incumbents.[25]

Because clients of first time auditors have, by definition, recently switched audit firms, we model audit firm switches in a population of clients that has recently engaged its auditor. We estimate the following logistic regression:

$$Switch\ Away = \beta_0 + \beta_1 First\ Time + \beta_2\ Controls + Year\ \&\ Industry\ fixed\ effects \quad (4)$$

where the dependent variable takes a value of one if the client switches away from their newly hired audit firm within three (five) years. We control for client characteristics including if one of the years after the initial switch was later restated. We also control for restatements being announced within the three (five) year window.

The results in Table 8 are consistent with audits performed by first time auditors having characteristics of experience goods. The coefficient on *First Time* is positive and statistically significant in each iteration of the test, implying that clients of first time auditors are significantly more likely to switch auditors within three (five) years of engaging a first time auditor.[26] The positive coefficient on *First Time* is not consistent with clients demanding lower quality. Contrarily, clients of first time auditors are more likely to switch auditors after quality has been

[24] Here our prediction is directional in light of the results presented in Tables 3-7 implying that first time auditors are associated with significantly lower audit quality.

[25] We also note that clients of first time auditors may actually demand lower audit quality. If this is the case, then we expect clients of first time auditors are less likely to switch auditors.

[26] Prior literature suggests that clients are more likely to switch audit firms following a restatement (e.g. Hennes, Leone and Miller, 2013). Because our audit quality tests reveal that clients of first time auditors are associated with a higher likelihood of restatements, we control for restatements in all models. However, we also conduct an additional analysis (untabulated) to ensure that switching results are driven by a "first time auditor effect" rather than a "restatement affect." To conduct this analysis, we re-estimate Equation (4) after removing client years that are subsequently restated and announced during the 3 (5) year window, as well as client years that were later restated. Results from these tests are consistent in terms of sign and significance as those reported in Table 8.

revealed. These findings imply that first time auditors may provide a misleading signal of quality prior to entering the market. Taken together with our audit fee tests, our findings also suggest the possibility of a pooling equilibrium between relatively lower quality (first time auditors) and higher quality (incumbents) audit firms, consistent with Grossman and Horn (1988). To the extent such a pooling equilibrium exists, it reduces the incentive for suppliers to invest in high quality audits.

6. Conclusion

In this study, we investigate the sufficiency of entry barriers to the U.S. public company audit market by examining a sample of firms that recently overcame these barriers: first time auditors of public companies. We find that clients of first time auditors are more likely to have their financial statements restated, but these clients are not more likely to have a restatement in the three years prior to selecting a first time auditor. We also find that first time auditors are more likely to have Part I deficiencies in their PCAOB inspection reports and ultimately are more likely to have a PCAOB enforcement action. Lastly, we find that first time auditors are associated with lower effort.

In order to understand the demand for first time auditors, we examine audit fees and switching rates. We find that first time auditors receive significantly lower fees for their audits consistent with a lower cost and lower quality service. We also find that clients are more likely to switch away from these first time auditors suggesting an inconsistency between clients' ex ante and ex post assessments of first timers' quality.

Collectively, our results imply that barriers to entry in the U.S. public company audit market do not deter the entry of low-quality audit suppliers. Therefore, prospective clients appear to be willing to accept a tradeoff between uncertainty about quality for lower prices. Although

this finding is consistent with the theoretical predictions offered by Grossman and Horn (1988), it is particularly concerning because it suggests that insufficient barriers may allow for a pooling equilibrium between high quality and low quality suppliers, thereby reducing incumbents' incentives to provide high quality audits.

Our results should be of interest to the PCAOB, SEC, and international regulatory bodies whose policies may, intentionally or unintentionally, affect entry barriers to public company audit markets. Our findings imply that existing barriers in the U.S. public company audit market are insufficient to deter entry of low-quality auditors. Policies that lower barriers are likely to facilitate the entry of low-quality auditors that compete on price and reduce incumbents' incentive to provide high quality audits. These findings are particularly relevant to the SEC's proposal to expand the SOX 404(b) exemption, as well as policies designed to increase competition by encouraging the growth of small audit firms such as joint audits.

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APPENDIX A
VARIABLE DEFINITIONS

Dependent Variables

Inspection Deficiencies	Indicator variable taking the value of 1 if the PCAOB gives a Part I deficiency on the audit of the client, which indicates the audit evidence was insufficient to support the audit opinion, 0 otherwise.
Restatement	Indicator variable taking the value of 1 if the client year's financial statements were later restated, 0 otherwise.
Enforcement Action	Indicator variable taking the value of 1 if the audit firm receives an enforcement action from the PCAOB in the current year, 0 otherwise.
Audit Hours	Total audit hours incurred by an audit engagement team as reported by the audit firm to the PCAOB for all engagements in the year subject to inspection. In multivariate tests, the natural log of total audit fees is used.
Audit Fees	Total audit fees as reported in Audit Analytics. In multivariate tests, the natural log of total audit fees is used.

Independent Variables

Auditor Change	An indicator variable taking the value of 1 if the company switched auditors in the current year, 0 otherwise.
BtoM	The book value of equity divided by the market value of equity.
Business Segments	The number of business segments reported by the client.
Cash Flow	The client's cash flow from operations deflated by beginning assets.
Company Age	The natural log of one plus the number of years the company appears in Compustat.
Current Ratio	Current assets divided by current liabilities.
December YE	An indicator variable taking the value of 1 if the client's fiscal year end occurs in the month of December, 0 otherwise.
First Time	An indicator variable taking the value of 1 for all clients that engage a first time auditor (i.e., an audit firm that is auditing public clients for the first time), 0 otherwise.
Foreign Income	An indicator taking a value of 1 if the company has foreign exchange income or loss, 0 otherwise.
Geographic Segments	The number of geographic segments reported by the client.
Going Concern	An indicator variable taking the value of 1 if the audit firm issues a going concern opinion for a client in the current year, 0 otherwise.
Hire First Time	An indicator variable taking the value of 1 for all clients that later hired a first time auditor, 0 otherwise.

ICW	An indicator variable taking the value of 1 if the client reports an internal control weakness under SOX 302 or 404, 0 otherwise.
Inv + AR	Ratio of inventory plus accounts receivable to total assets.
Inspection Experience	The number of years since the auditor's first PCAOB inspection.
Integrated	An indicator variable equal to 1 for audit engagements requiring auditor attestation of internal controls, 0 otherwise.
Leverage	Total liabilities divided by total assets.
Litigation	An indicator variable taking the value of 1 for clients in litigious industries based on four-digit SIC and Francis et al. (1994).
Loss	An indicator variable equal to 1 for companies reporting negative income before extraordinary items, 0 otherwise.
Missing Data	An indicator variable equal to 1 for companies missing data for *Current Ratio* and/or *Return*, 0 otherwise.
M&A Activity	An indicator variable equal to 1 for companies that report merger and acquisition (M&A) activity, 0 otherwise.
MVE	Market value of equity.
NAS Fee Present	An indicator variable equal to 1 for clients that pay for non-audit services from their auditor in excess of 5% of the audit fee, 0 otherwise.
New Entrant	An indicator variable equal to 1 for clients of audit firms registering with the PCAOB after 2004 and with no prior public clients, 0 otherwise.
New Financing	An indicator variable equal to 1 for companies issuing more than $10m in stock or $1m in debt in the current year, 0 otherwise.
Number of Clients	The number of public companies audited by the audit firm according to the firm's most recent Form 1 or Form 2 filing.
Number of Offices	The number of offices of the audit firm according to the firm's most recent Form 1 or Form 2 filing.
Restate Announced	Indicator variable taking the value of 1 if the client year's financial statements were later restated and that restatement was announced within the three (five) years after an auditor change, 0 otherwise.
Return	The buy-and-hold return from the year end of *t-1* to *t*.
ROA	Income before extraordinary items divided by total assets.
Size	The natural log of total client assets.
Workload	The total number of issuer clients divided by the total number of CPAs according the audit firm's most recent Form 1 or Form 2 filing.

Appendix B
Restatements: PSM Covariate Balance

	(1) First Time Auditors			(2) PSM Matched Clients			(3) Difference of Means	
	Mean	Median	SD	Mean	Median	SD	Mean Diff	t
NAS Fee Present	0.42	0.00	0.50	0.39	0.00	0.49	-0.03	(-0.32)
LN(MVE)	2.97	2.69	1.98	2.92	3.14	1.50	-0.05	(-0.18)
Loss	0.70	1.00	0.46	0.68	1.00	0.47	-0.03	(-0.37)
New Financing	0.23	0.00	0.43	0.21	0.00	0.41	-0.02	(-0.34)
Leverage	6.16	0.63	22.35	11.50	0.45	58.75	5.34	(0.72)
Litigation	0.21	0.00	0.41	0.20	0.00	0.40	-0.01	(-0.19)
Going Concern	0.41	0.00	0.49	0.41	0.00	0.50	0.00	(0.01)
M&A Activity	0.21	0.00	0.41	0.15	0.00	0.36	-0.05	(-0.88)
December YE	0.51	1.00	0.50	0.52	1.00	0.50	0.01	(0.18)
ICW	0.04	0.00	0.19	0.01	0.00	0.12	-0.02	(-0.90)
Current Ratio	2.88	0.58	7.67	3.00	1.72	5.84	0.12	(0.11)
Leverage	6.16	0.63	22.35	11.50	0.45	58.75	5.34	(0.72)
Inv+AR	0.24	0.19	0.26	0.23	0.14	0.26	-0.01	(-0.32)
ROA	-3.14	-0.22	7.62	-6.16	-0.20	25.10	-3.02	(-0.98)
Business Segments	1.49	1.00	1.53	1.69	1.00	1.45	0.20	(0.81)
Foreign Income	0.25	0.00	0.43	0.21	0.00	0.41	-0.04	(-0.52)
Return	0.05	-0.09	1.14	2.18	0.07	8.14	2.12**	(2.18)

This table documents the covariate balance for the propensity score match analysis in Table 3, Panel A, Column 4.

Audit Hours: PSM Covariate Balance

	(1) First Time Auditors			(2) PSM Matched Clients			(3) Difference of Means	
	Mean	Median	SD	Mean	Median	SD	Mean Diff	t
Size	1.42	1.49	0.24	1.66	1.94	2.35	0.24	0.92
Leverage	4.09	0.61	-0.58	3.52	0.63	8.56	-0.57***	-2.83
Inv+AR	0.24	0.17	0	0.25	0.18	0.25	0.01	0.17
ROA	-3.2	-0.25	-0.09	-3.28	-0.26	7.4	-0.09	-0.11
Business Segments	1.5	1	0.22	1.72	1	1.39	0.22	1.6
Foreign Income	0.09	0	0.02	0.11	0	0.32	0.024	0.72
Going Concern	0.55	1	-0.04	0.51	1	0.5	-0.04	-0.76
Loss	0.7	1	-0.02	0.68	1	0.47	-0.02	-0.47
December YE	0.69	1	-0.04	0.65	1	0.48	-0.04	-0.81
NAS Fee Present	0.35	0	0.04	0.39	0	0.49	0.04	0.79
ICW	0.01	0	0	0.01	0	0.08	0	0
New Financing	0.15	0	0	0.15	0	0.36	0	0
M&A Activity	0.21	0	0	0.21	0	0.41	0	0
Auditor Change	0.67	1	-0.02	0.64	1	0.48	-0.02	-0.46

This table documents the covariate balance for the propensity score match analysis in Table 6, Panel A, Columns 4-6.

Audit Fees: PSM Covariate Balance

	(1) First Time Auditors			(2) PSM Matched Clients			(3) Difference of Means	
	Mean	Median	SD	Mean	Median	SD	Mean Diff	t
Size	2.41	2.01	2.10	2.56	2.74	1.76	0.15	(0.74)
Current Ratio	3.06	0.86	8.35	2.73	1.37	5.38	-0.33	(-0.44)
Leverage	22.15	0.68	223.43	14.37	0.50	74.64	-7.78	(-0.44)
Inv+AR	0.26	0.20	0.26	0.26	0.18	0.27	0.00	(0.13)
ROA	-9.46	-0.23	169.76	-8.52	-0.15	51.87	0.94	(0.07)
Business Segments	1.59	1.00	1.55	1.56	1.00	1.33	-0.02	(-0.14)
Foreign Income	0.26	0.00	0.44	0.29	0.00	0.46	0.04	(0.73)
Return	2.96	0.00	24.93	3.56	-0.03	19.91	0.60	(0.25)
Going Concern	0.44	0.00	0.50	0.40	0.00	0.49	-0.04	(-0.80)
Loss	0.69	1.00	0.46	0.66	1.00	0.48	-0.04	(-0.72)
December YE	0.56	1.00	0.50	0.54	1.00	0.50	-0.02	(-0.41)
NAS Fee Present	0.41	0.00	0.49	0.41	0.00	0.49	0.00	(0.07)
ICW	0.03	0.00	0.17	0.02	0.00	0.15	-0.01	(-0.30)
New Financing	0.25	0.00	0.43	0.27	0.00	0.45	0.02	(0.49)
M&A Activity	0.21	0.00	0.41	0.20	0.00	0.40	-0.01	(-0.15)
Company Age	1.94	1.95	0.82	2.31	2.20	0.75	0.36***	(4.30)
Missing Data	0.37	0.00	0.48	0.00	0.00	0.00	-0.37***	(-10.12)

This table documents the covariate balance for the propensity score match analysis in Table 7, Column 4.

Table 1:
Panel A: Sample Size

Intersection of Audit Analytics and Compustat 2004 - 2017	20,943
Less: Firm Restatement Years Subsequent to the Initial Restatement Year	(3,433)
Less: Firm Years Missing Stock Return Information	(1,154)
Less: Firm Years Missing Current Ratio Information	(3,682)
Less: Firm Years Missing Leverage Information	(17)
Total Sample for Restatement Analysis	12,657
Plus: Firm Restatement Years Subsequent to the Initial Restatement Year	3,433
Less: Client Years Not Subject to Inspection	(11,258)
Total Sample for Audit Hours Analysis	4,832
Less: Client Years Not Inspected	(2,868)
Total Sample for Part I Deficiencies	1,964

Table 3 reports the sample restrictions for the multivariate tests.

Table 1:
Panel B: Client Summary Statistics (Restatement Tests)

	First Time Auditors			Other Triennially Inspected Auditors				
	Mean	Median	SD	Mean	Median	SD	Difference	t
First Time	1.00	1.00	0.00	0.00	0.00	0.00	−1.00	.
Auditor Change	1.00	1.00	0.00	1.00	1.00	0.00	0.00	.
Restatement	0.11	0.00	0.31	0.06	0.00	0.24	−0.05	−1.64
Part I Deficiency †	0.63	1	0.49	0.36	0	0.48	−0.27***	−4.25
Ln(Total Hours) ‡	5.63	5.62	0.94	6.4	6.46	0.92	−0.73***	−10.33
Ln(Partner Hours)‡	3.95	3.91	0.95	4.22	4.29	0.92	−0.28***	3.78
Ln(Non-Partner Hours)‡	5.32	5.33	1.05	6.21	6.30	1.00	−0.89***	11.01
NAS Fee Present	0.40	0.00	0.49	0.44	0.00	0.50	0.04	0.90
MVE	290.24	12.83	1675.45	72.41	16.31	362.64	−217.83	−1.42
Ln(MVE)	2.81	2.62	1.83	2.90	2.85	1.54	0.09	0.52
Loss	0.70	1.00	0.46	0.72	1.00	0.45	0.02	0.46
New Financing	0.21	0.00	0.41	0.25	0.00	0.43	0.04	1.06
Leverage	30.89	0.63	270.44	17.19	0.57	227.14	−13.71	−0.55
Litigation	0.19	0.00	0.40	0.27	0.00	0.45	0.08**	2.16
Going Concern	0.42	0.00	0.50	0.45	0.00	0.50	0.02	0.46
M&A Activity	0.22	0.00	0.41	0.27	0.00	0.44	0.05	1.33
FYE Dec	0.54	1.00	0.50	0.65	1.00	0.48	0.10**	2.22
ICW	0.03	0.00	0.16	0.02	0.00	0.13	−0.01	−0.52
Current Ratio	2.51	0.90	6.39	3.86	1.28	22.10	1.35*	1.84
Inv_AR	0.26	0.21	0.26	0.25	0.18	0.25	−0.01	−0.24
ROA	−20.87	−0.30	185.95	−9.46	−0.22	89.39	11.41	0.67
Business Segs	1.58	1.00	1.64	1.56	1.00	1.23	−0.02	−0.14
Foreign Income	0.27	0.00	0.44	0.16	0.00	0.37	−0.10**	−2.51
Return	14.60	−0.09	157.11	2.55	−0.16	21.52	−12.05	−0.84

The sample consists of clients that changed audit firms. This sample is used in the logistic regression reported in Table 3, Panel A, Column 2. The sample consists of 120 clients that changed to a first time audit firm and 2,457 that changed to another triennially inspected audit firm.

† This sample is used in the logistic regression reported in Table 4, Column 2. The sample consists of 62 clients that changed to a first time audit firm and 613 that changed to another triennially inspected audit firm.

‡ This sample is used in the OLS regression reported in Table 6, Columns 1-3. The sample consists of 185 clients that changed to a first time audit firm and 4,647 client years that were audited by another triennially inspected audit firm.

Table 2:
Panel A: Years to Obtain Public Client by Number of Clients Obtained

Number of Clients	Years to Obtain Public Client													
	0	1	2	3	4	5	6	7	8	9	10	12	13	Total
1	110	29	19	12	7	5	4	4	2	3	2	4	1	202
2	25	4	-	2	2	1	-	-	1	1	-	-	-	36
3	9	4	2	-	-	2	-	-	-	-	-	-	-	17
4	2	-	-	1	-	-	-	-	-	-	-	-	-	3
5	2	-	1	-	-	-	-	-	-	-	-	-	-	3
6	4	1	-	-	-	-	-	-	-	-	-	-	-	5
8	1	-	1	-	-	-	-	-	-	-	-	-	-	2
9	3	-	-	-	1	-	-	-	-	-	-	-	-	4
10	2	-	-	-	-	-	-	-	-	-	-	-	-	2
13	1	-	-	-	-	-	-	-	-	-	-	-	-	1
Total	159	38	23	15	10	8	4	4	3	4	2	4	1	275

Table 2:
Panel B: Years to Obtain Public Client from Registration Year
by Fiscal Year First Client Obtained

Fiscal year	Years to Obtain Public Client													
	0	1	2	3	4	5	6	7	8	9	10	12	13	Total
2004	27	-	-	-	-	-	-	-	-	-	-	-	-	27
2005	22	10	-	-	-	-	-	-	-	-	-	-	-	32
2006	21	6	7	-	-	-	-	-	-	-	-	-	-	34
2007	9	2	7	3	-	-	-	-	-	-	-	-	-	21
2008	14	3	2	1	2	-	-	-	-	-	-	-	-	22
2009	9	-	-	1	3	1	-	-	-	-	-	-	-	14
2010	7	5	-	-	2	1	2	-	-	-	-	-	-	17
2011	5	3	3	3	-	2	2	1	-	-	-	-	-	19
2012	10	1	3	-	-	2	-	-	-	-	-	-	-	16
2013	12	1	1	2	3	1	-	3	-	1	-	-	-	24
2014	8	1	-	1	-	-	-	-	1	1	1	-	-	13
2015	9	1	-	1	-	-	-	-	-	1	-	-	-	12
2016	4	5	-	3	-	1	-	-	1	1	-	3	-	18
2017	2	-	-	-	-	-	-	-	1	-	1	1	1	6
Total	159	38	23	15	10	8	4	4	3	4	2	4	1	275

Table 3:
Panel A: First Time Auditors and Restatements

	(1) Full Sample		(2) Auditor Change Years Only		(3) Change & Pre-Change Years		(4) PSM	
First Time	0.628**	(1.99)	0.597*	(1.77)	0.628*	(1.90)	1.661**	(2.02)
Auditor Change	0.111	(1.12)			-0.313**	(2.10)		
NAS Fee Present	-0.079	(0.92)	-0.285	(1.64)	-0.171	(1.23)	-1.396*	(1.81)
Ln(MVE)	0.041	(1.24)	-0.062	(0.85)	-0.004	(0.07)	0.575*	(1.65)
Loss	0.118	(1.07)	-0.003	(0.01)	0.157	(0.86)	1.227	(1.15)
New Financing	0.162*	(1.71)	0.251	(1.24)	0.160	(0.98)	-1.493	(1.59)
Leverage	-0.000	(0.29)	-0.000	(0.89)	0.000	(0.04)	0.039	(1.43)
Litigation	0.069	(0.61)	0.005	(0.02)	-0.017	(0.10)	-2.001**	(2.00)
Going Concern	0.263**	(2.50)	0.265	(1.30)	0.193	(1.19)	-0.754	(1.09)
M&A Activity	0.263***	(2.69)	0.268	(1.45)	0.274*	(1.77)	-0.331	(0.31)
December YE	0.031	(0.36)	-0.038	(0.23)	0.039	(0.28)	-0.092	(0.12)
ICW	0.531**	(2.23)	0.724	(1.48)	0.761**	(2.06)	-1.323	(0.75)
Current Ratio	-0.010*	(1.71)	-0.005	(0.56)	-0.004	(0.92)	-0.024	(0.72)
Inv+AR	-0.283	(1.40)	-0.529	(1.42)	-0.435	(1.45)	1.371	(1.04)
ROA	-0.000***	(4.05)	-0.001*	(1.94)	-0.001	(1.22)	0.048	(0.74)
Business Segs	0.074**	(2.45)	0.029	(0.37)	0.055	(1.02)	0.137	(0.93)
Foreign Income	-0.272**	(2.16)	-0.296	(1.15)	-0.420*	(1.94)	-0.989	(0.87)
Return	0.000***	(3.70)	-0.000	(0.03)	0.001	(1.02)	-0.007	(0.14)
Intercept	-2.872***	(9.89)	-2.759***	(4.58)	-2.840***	(5.92)	-5.502***	(2.78)
Year Effects	Yes		Yes		Yes		Yes	
Industry Effects	Yes		Yes		Yes		Yes	
Pseudo R2	0.044		0.046		0.048		0.290	
LROC	68.23		69.51		68.97		85.04	
Num. of First Time	120		120		120		81	
Num. of Obs.	12,657		2,577		3,728		155	

Absolute t statistics in parentheses. * $p < 0.10$, ** $p < .05$, *** $p < .01$. All p-values are two-tailed. Robust standard errors are clustered by client. We use first-time restatement years only.

The sample for Column 1 includes all clients of triennially inspected audit firms. The sample for Column 2 includes all clients that changed audit firms; only the change year is included. The sample for Column 3 includes all clients that changed audit firms as well as the year prior to changing audit firms. Column 4 is a propensity score matched sample based on a 0.03 caliper with replacement. Details of the sample are provided in Appendix B.

Panel B: Prior to Engaging First Time Auditors and Restatements

	(1)		(2)		(3)		(4)	
Restatement	1-3 yrs prior		1yr prior		2yr prior		3 yr prior	
Hire First Time	0.224	(0.58)	−0.574	(0.74)	0.206	(0.31)	0.807	(1.20)
NAS Fee Present	−0.050	(0.30)	0.019	(0.08)	0.074	(0.29)	−0.412	(1.34)
Ln(MVE)	0.068	(1.09)	0.118	(1.23)	0.124	(1.36)	0.034	(0.33)
Loss	0.442**	(2.04)	0.459	(1.50)	0.211	(0.60)	0.799**	(1.96)
New Financing	0.073	(0.39)	0.035	(0.12)	0.073	(0.25)	−0.195	(0.53)
Leverage	0.001	(1.27)	0.001	(1.58)	0.000	(0.12)	0.001	(0.41)
Litigation	0.170	(0.81)	−0.121	(0.39)	0.426	(1.30)	0.165	(0.40)
Going Concern	0.005	(0.02)	0.088	(0.31)	−0.050	(0.15)	−0.556	(1.47)
M&A Activity	0.238	(1.28)	0.314	(1.09)	−0.076	(0.24)	0.468	(1.45)
December YE	0.176	(1.02)	0.205	(0.82)	0.007	(0.03)	0.291	(0.90)
ICW	0.781*	(1.82)	0.874	(1.40)	0.338	(0.46)	0.742	(0.92)
Current Ratio	−0.007	(1.02)	−0.003	(0.83)	−0.004	(0.52)	−0.009	(0.62)
Inv+AR	−0.049	(0.13)	−0.294	(0.63)	−0.043	(0.07)	−0.187	(0.25)
ROA	−0.001	(0.65)	0.003	(0.54)	−0.002	(1.61)	0.003	(0.78)
Business Segs	0.089	(1.62)	0.093	(1.15)	0.074	(0.79)	0.114	(1.22)
Foreign Income	−0.305	(1.23)	−0.719*	(1.81)	−0.087	(0.25)	−0.249	(0.56)
Return	0.001	(1.22)	0.001	(1.17)	−0.001	(0.55)	−0.002	(0.23)
Intercept	−2.881***	(5.29)	−3.621***	(4.31)	−1.896**	(2.55)	−2.484**	(2.42)
Year Effects	Yes		Yes		Yes		Yes	
Industry Effects	Yes		Yes		Yes		Yes	
# of First-time years	76		35		25		16	
Pseudo R2	0.041		0.088		0.043		0.083	
LROC	65.99		71.05		65.89		69.44	
Num. of Obs.	2,370		1,133		834		636	

Absolute t statistics in parentheses. * $p < 0.10$, ** $p < .05$, *** $p < .01$. All p-values are two-tailed.

Robust standard errors are clustered by client. First-time restatement years only.

Table 4: First-Time Auditors & Part I Inspection Deficiencies

	(1)	(2)	(3)
		Audit Change	
	Full Sample	Years Only	PSM
First Time	0.983***	0.976***	1.813***
	(3.616)	(3.087)	(2.911)
Integrated	0.035	−0.182	0.337
	(0.223)	(−0.599)	(0.243)
Foreign Income	−0.167	−0.286	0.292
	(−0.814)	(−0.823)	(0.254)
Size	−0.100***	−0.139**	−0.490**
	(−2.580)	(−2.154)	(−2.238)
Geographic Segments	−0.091*	−0.171**	0.490
	(−1.914)	(−2.248)	(1.203)
Business Segments	0.046	0.168**	0.346
	(1.091)	(2.453)	(1.502)
December YE	−0.052	0.090	1.954**
	(−0.435)	(0.435)	(2.198)
Cash Flow	0.115	0.106	1.273***
	(1.163)	(0.730)	(3.088)
Leverage	0.027	−0.007	0.392***
	(0.878)	(−0.154)	(3.142)
BtoM	−0.011	0.001	−0.085*
	(−0.724)	(0.030)	(−1.785)
Litigation	0.214	0.096	−0.730
	(1.326)	(0.377)	(−0.780)
Auditor Change	0.286***		0.419
	(2.645)		(0.510)
N	1,964	675	116

DV: Part 1 findings = 1 if the engagement has one or more Part I audit deficiencies.

Column (1): Full Sample of triennially inspected auditors

Column (2): Limited to only the first year of an auditor-client relationship.

Column (3): PSM Sample (.03 Caliper with replacement).

Absolute t statistics in parentheses. * $p < 0.10$, ** $p < .05$, *** $p < .01$. All p-values are two-tailed.

Table 5: PCAOB Enforcement Action

	(1) Enforcement Action	(2) Enforcement Action	(3) Enforcement Action	(4) Enforcement Action	(5) Enforcement Action
New Entrant	2.393***	3.613***	3.560***	2.630***	3.130***
	(4.30)	(4.71)	(4.57)	(3.39)	(3.47)
Number of Clients		1.352**	1.532***	1.419***	1.374**
		(2.54)	(3.45)	(2.86)	(2.49)
Number of Offices			0.170***	0.224***	0.226***
			(-3.63)	(-3.12)	(-3.09)
Workload				1.098***	1.100***
				(7.04)	(7.16)
Inspection Experience					1.050
					(1.06)
N	7957	7957	7957	7957	7957
Pseudo R-sq	0.014	0.019	0.037	0.061	0.062

Survival analysis of those firms having an enforcement action. This table presents the results for our estimations of Equation (2). The sample is comprised of all audit firm years for all triennially inspected audit firms, including the 275 first time auditors that entered the market during our sample period. Audit firms enter the sample in the year of their registration with the PCAOB (i.e. Form 1 filing), and exit the sample if they are the subject of a PCAOB enforcement action or withdraw their registration. In cases where an audit firm is sanctioned but its registration is not revoked, we remove all subsequent audit firm years from the sample.

Absolute t statistics in parentheses. $_{*}\ p < 0.10$, $_{**}\ p < .05$, $_{***}\ p < .01$. All p-values are two-tailed.

Table 6: First-Time Auditors & Audit Hours
Panel A: Full Sample and PSM Sample

	(1) Total Hours	(2) Partner Hours	(3) Non-partner Hours	(4) Total Hours	(5) Partner Hours	(6) Non-partner Hours
First Time	−0.273***	0.100	−0.402***	−0.247***	0.062	−0.365***
	(−5.34)	(1.63)	(−6.76)	(−3.64)	(0.707)	(−4.86)
Size	0.298***	0.244***	0.319***	0.280***	0.231***	0.326***
	(36.24)	(25.10)	(34.86)	(8.22)	(5.74)	(9.20)
Leverage	0.009***	0.007**	0.008***	0.005	0.002	0.007
	(4.04)	(2.29)	(3.15)	(1.04)	(0.32)	(1.09)
Inv+AR	0.180***	0.028	0.222***	0.436***	0.248	0.530***
	(3.80)	(0.50)	(4.09)	(2.83)	(1.25)	(2.96)
ROA	−0.009***	−0.011**	−0.010***	−0.019**	−0.014	−0.019**
	(−2.80)	(−2.53)	(−2.67)	(−2.37)	(−1.39)	(−2.04)
Business Segments	0.065***	0.043***	0.068***	0.059**	0.116***	0.063*
	(6.50)	(3.90)	(6.21)	(1.99)	(3.48)	(1.93)
Foreign Income	0.220***	0.120***	0.223***	0.104	0.101	0.024
	(6.20)	(2.78)	(5.73)	(0.87)	(0.75)	(0.17)
Going Concern	−0.040	0.126***	−0.048	0.097	0.117	0.171
	(−1.37)	(3.42)	(−1.41)	(0.85)	(0.88)	(1.40)
Loss	0.132***	0.123***	0.138***	−0.055	0.116	−0.005
	(5.61)	(4.16)	(5.23)	(−0.53)	(0.96)	(−0.04)
December YE	−0.015	0.023	−0.030	0.044	0.154*	0.007
	(−0.62)	(0.79)	(−1.11)	(0.62)	(1.77)	(0.09)
NAS Fee Present	0.014	−0.030	0.021	0.074	−0.171*	0.133*
	(0.61)	(−1.12)	(0.86)	(1.03)	(−1.83)	(1.77)
ICW	0.428***	0.405***	0.431***	0.658***	1.144***	0.571**
	(7.02)	(6.21)	(6.50)	(3.40)	(4.83)	(2.49)
New Financing	0.049**	0.057**	0.036	0.351***	0.179	0.267**
	(2.33)	(2.22)	(1.51)	(3.46)	(1.40)	(2.12)
M&A Activity	0.196***	0.155***	0.192***	0.020	−0.108	0.013
	(8.47)	(5.58)	(7.51)	(0.23)	(−0.97)	(0.14)
Auditor Change	0.077***	0.043*	0.083***	0.042	−0.039	0.045
	(4.08)	(1.82)	(3.95)	(0.55)	(−0.46)	(0.55)
Intercept	5.143***	3.350***	4.748***	4.927***	4.010***	3.817***
	(71.52)	(32.98)	(58.31)	(18.15)	(9.29)	(11.67)
Year Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Effects	Yes	Yes	Yes	Yes	Yes	Yes
N	4832	4928	4843	392	409	397
Adj. R-sq	0.593	0.329	0.571	0.576	0.302	0.552

Columns (1)-(3): Full Sample.

Columns (4)-(6): Propensity score matched sample (.03 Caliper with replacement).

Absolute t statistics in parentheses. * $p < 0.10$, ** $p < .05$, *** $p < .01$. All p-values are two-tailed.

Table 6: First-Time Auditors & Audit Hours
Panel B: Audit Change Years and Client Effects

	(1) Total Hours	(2) Partner Hours	(3) Non-partner Hours	(4) Total Hours	(5) Partner Hours	(6) Non-partner Hours
First Time	−0.250***	0.061	−0.373***	−0.127**	0.128**	−0.220***
	(−4.25)	(0.83)	(−5.31)	(−1.97)	(1.68)	(−2.92)
Hire First Time				−0.169***	−0.032	−0.210***
				(−3.500)	(−0.535)	(−3.811)
Size	0.277***	0.251***	0.294***	0.295***	0.244***	0.315***
	(21.620)	(17.463)	(21.525)	(35.779)	(24.766)	(34.382)
Leverage	0.005	0.001	0.003	0.009***	0.007**	0.008***
	(1.559)	(0.258)	(0.724)	(3.962)	(2.270)	(3.097)
Inv+AR	0.245***	0.003	0.293***	0.182***	0.029	0.225***
	(3.536)	(0.042)	(3.781)	(3.855)	(0.511)	(4.156)
ROA	−0.015***	−0.018***	−0.017***	−0.009***	−0.011**	−0.010***
	(−2.921)	(−2.898)	(−2.996)	(−2.832)	(−2.538)	(−2.667)
Business Segments	0.063***	0.066***	0.065***	0.066***	0.043***	0.070***
	(4.320)	(4.062)	(4.151)	(6.614)	(3.914)	(6.346)
Foreign Income	0.230***	0.149**	0.226***	0.221***	0.120***	0.224***
	(4.371)	(2.351)	(3.836)	(6.212)	(2.778)	(5.737)
Going Concern	−0.086**	0.143***	−0.125**	−0.038	0.127***	−0.044
	(−1.888)	(2.605)	(−2.446)	(−1.285)	(3.429)	(−1.310)
Loss	0.141***	0.199***	0.138***	0.132***	0.123***	0.138***
	(3.644)	(4.270)	(3.252)	(5.604)	(4.159)	(5.217)
December YE	0.021	0.051	−0.005	−0.013	0.024	−0.028
	(0.587)	(1.243)	(−0.136)	(−0.541)	(0.804)	(−1.025)
NAS Fee Present	0.052	−0.057	0.085**	0.011	−0.031	0.017
	(1.555)	(−1.418)	(2.320)	(0.470)	(−1.145)	(0.665)
ICW	0.437***	0.422***	0.435***	0.432***	0.406***	0.437***
	(4.312)	(4.147)	(4.002)	(7.136)	(6.210)	(6.687)
New Financing	0.095***	0.064	0.093**	0.049**	0.057**	0.035
	(2.632)	(1.514)	(2.296)	(2.319)	(2.216)	(1.501)
M&A Activity	0.187***	0.097**	0.187***	0.196***	0.155***	0.193***
	(4.942)	(2.202)	(4.399)	(8.516)	(5.579)	(7.559)
Auditor Change	0.041	−0.063	0.025	0.083***	0.044**	0.091***
	(0.344)	(−0.533)	(0.200)	(4.411)	(1.867)	(4.322)
Intercept	5.278***	3.394***	4.910***	5.161***	3.354***	4.771***
	(32.689)	(17.611)	(28.501)	(71.585)	(32.896)	(58.255)
Year Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Effects	Yes	Yes	Yes	Yes	Yes	Yes
N	1722	1771	1737	4832	4928	4843
adj. R-sq	0.584	0.320	0.575	0.595	0.328	0.573

Columns (1)-(3): Limited to only the first year of an auditor-client relationship. Some of the audit firms of interest were not inspected in their first year of registration. We include their first year subject to inspection in this analysis and control for *Auditor Switch.* Columns (4)-(6): Full Sample & Base Model + Control for Client Effect. Additional indicator variable (HIRE) for firms that engaged a first-time auditor at any point during the sample period. Absolute t statistics in parentheses. * $p < 0.10$, ** $p < .05$, *** $p < .01$. All p-values are two-tailed.

Table 7: First Time Auditors and Audit Fees

	(1) Full Sample		(2) Change Clients Only		(3) Quasi Diff-in-Diff		(4) PSM	
First Time	−0.298***	(−3.18)	−0.301***	(−3.23)	−0.306***	(−3.31)	−0.354***	(−3.37)
Auditor Change	−0.071***	(−5.35)			−0.003	(−0.20)		
Size	0.429***	(44.04)	0.450***	(31.78)	0.445***	(33.57)	0.426***	(9.90)
Current Ratio	−0.000***	(−3.11)	−0.003**	(−2.15)	−0.002***	(−2.87)	−0.015***	(−2.68)
Leverage	−0.000	(−0.45)	−0.000	(−0.54)	−0.000	(−1.30)	−0.000	(−0.36)
Inv+AR	0.343***	(7.87)	0.278***	(4.28)	0.304***	(4.96)	0.552***	(2.98)
ROA	−0.000**	(−1.97)	0.000	(0.02)	−0.000	(−0.63)	0.000	(0.39)
Business Segments	0.029***	(3.78)	0.030**	(2.55)	0.028***	(2.71)	0.030	(0.73)
Foreign Income	0.077***	(2.73)	0.156***	(4.06)	0.145***	(3.98)	0.232**	(2.19)
Return	−0.000	(−0.70)	−0.000	(−1.18)	−0.000	(−0.49)	−0.001	(−0.70)
Going Concern	0.100***	(4.07)	0.109***	(2.96)	0.106***	(3.14)	0.163	(1.37)
Loss	0.183***	(9.58)	0.237***	(7.50)	0.240***	(8.62)	0.222*	(1.95)
December YE	0.107***	(4.52)	0.100***	(3.09)	0.104***	(3.37)	0.134	(1.34)
NAS Fee Present	−0.023	(−1.32)	−0.005	(−0.18)	0.022	(0.86)	−0.027	(−0.27)
ICW	0.366***	(5.97)	0.264**	(2.44)	0.302***	(3.44)	−0.358	(−0.95)
New Financing	0.110***	(6.22)	0.151***	(4.40)	0.131***	(4.48)	0.192	(1.41)
M&A Activity	0.200***	(9.71)	0.188***	(5.53)	0.189***	(6.11)	0.415***	(3.08)
Company Age	0.111***	(8.04)	0.127***	(6.23)	0.119***	(6.31)	0.091	(1.31)
Missing Data	0.133	(0.97)	0.149	(1.09)	0.149	(1.09)	0.220	(1.41)
Intercept	9.333***	(152.48)	9.177***	(94.35)	9.238***	(106.40)	9.244***	(30.18)
Year Effects	Yes		Yes		Yes		Yes	
Industry Effects	Yes		Yes		Yes		Yes	
# of First-time years	177		177		177		176	
R-Square	0.632		0.603		0.602		0.637	
Adj. R-Square	0.631		0.598		0.599		0.589	
Observations	15,318		3,431		4,932		352	

Absolute t statistics in parentheses. * $p < 0.10$, ** $p < .05$, *** $p < .01$. All p-values are two-tailed.

The sample for Column 1 includes all clients of triennially inspected audit firms. The sample for Column 2 includes all clients that changed audit firms; only the change year is included. The sample for Column 3 includes all clients that changed audit firms as well as the year prior to changing audit firms. Column 4 is a propensity score matched sample based on a 0.03 caliper with replacement. Details of the sample are provided in Appendix B.

Table 8: Switch Away from First Time Auditors

	(1)		(2)		(3)		(4)	
	Switch within 3 years				Switch within 5 years			
First Time	0.869***	(7.32)	0.882***	(7.26)	0.705***	(6.91)	0.725***	(7.05)
Restatement	0.383***	(4.16)			0.353***	(4.13)		
Restate announced			0.253**	(2.46)			0.227*	(1.90)
NAS Fee Present	-0.414***	(6.34)	-0.412***	(6.31)	-0.374***	(6.37)	-0.373***	(6.34)
Ln(MVE)	-0.060**	(2.06)	-0.058**	(1.98)	-0.055**	(2.08)	-0.053**	(2.01)
Loss	-0.009	(0.10)	-0.002	(0.02)	-0.044	(0.57)	-0.042	(0.54)
New Financing	-0.062	(0.77)	-0.050	(0.62)	-0.057	(0.78)	-0.043	(0.59)
Leverage	0.000	(0.96)	0.000	(1.00)	0.000	(0.07)	0.000	(0.07)
Litigation	-0.025	(0.30)	-0.027	(0.33)	-0.057	(0.76)	-0.054	(0.72)
Going Concern	0.301***	(3.41)	0.306***	(3.47)	0.281***	(3.65)	0.288***	(3.73)
M&A Activity	-0.023	(0.29)	-0.029	(0.36)	0.031	(0.43)	0.027	(0.38)
December YE	0.003	(0.04)	0.002	(0.03)	0.006	(0.10)	0.008	(0.13)
ICW	-0.038	(0.18)	0.008	(0.04)	0.034	(0.17)	0.079	(0.41)
Size	-0.002	(0.06)	0.003	(0.10)	-0.021	(0.71)	-0.018	(0.61)
Current Ratio	-0.002	(1.23)	-0.002	(1.27)	-0.002	(1.08)	-0.002	(1.13)
Inv+AR	0.144	(0.99)	0.127	(0.87)	0.076	(0.57)	0.060	(0.45)
ROA	0.000	(0.92)	0.000	(0.93)	0.000	(0.99)	0.000	(0.95)
Business Segments	0.000	(0.02)	0.000	(0.01)	0.008	(0.36)	0.012	(0.50)
Foreign Income	-0.132	(1.53)	-0.141	(1.63)	-0.177**	(2.23)	-0.187**	(2.34)
Return	-0.000	(0.66)	-0.000	(0.66)	-0.000	(0.72)	-0.000	(0.71)
Company Age	-0.414***	(8.47)	-0.430***	(8.76)	-0.398***	(9.17)	-0.414***	(9.47)
Intercept	-0.331	(1.14)	-0.267	(0.92)	-0.297	(1.15)	-0.217	(0.84)
Year Effects	Yes		Yes		Yes		Yes	
Industry Effects	Yes		Yes		Yes		Yes	
Pseudo R2	0.054		0.052		0.049		0.048	
LROC	69.41		69.19		68.85		68.60	
Num. of Obs.	6,665		6,665		8,318		8,318	

Absolute t statistics in parentheses. Robust standard errors clustered by client. * $p < 0.10$, ** $p < .05$, *** $p < .01$. All p-values are two-tailed.

The dependent variable is an indicator variable set to one for clients that switch auditors in the three(five) years after an initial switch. First Time is an indicator for those clients who initially engaged a first-time audit firm. Restatement takes a value of one if the year's financial statements were later restated. Restate announced takes a value of one if the year's financial statements were later restated and that restatement was announced prior to the end of three(five) years. As a robustness test, the analysis is also run omitting all client years that are subsequently restated (Columns 1 and 3) and also those that are subsequently restated and announced within the three and five year windows respectively (Columns 2 and 4). Results are identical in sign and significance.