

Partner Rotation and PCAOB Inspections: Effects on End-of-Term Audit Quality

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Abstract

Partner Rotation and PCAOB Inspections: Effects on End-of-Term Audit Quality

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I examine the joint effects of two current audit regulations, mandatory partner rotation and PCAOB inspections, on audit quality. In doing so, I respond to Congress's call for research about the effects of the 2002 Sarbanes-Oxley Act's reforms on audit quality. In an experiment using experienced professional auditors, auditors decrease effort in the year prior to mandatory partner rotation and increase effort when there is a high risk of PCAOB inspection. When auditors anticipate *both* mandatory partner rotation and a high risk of PCAOB inspection, the effect of PCAOB inspection risk mitigates the decrease in effort from mandatory partner rotation, such that the net change in effort is not statistically different from zero. Additionally, partner rotation causes partners to reduce time spent on activities likely to enhance audit quality in favor of documentation. I find no evidence that partner rotation or PCAOB inspections affect auditors' independence, as measured by the magnitude of proposed audit adjustments. Regulators can consider whether required PCAOB inspections may perform the same external review function as the "fresh eyes" of mandatory firm rotation as they debate additional reforms.

1. Introduction

I use an experiment to test the joint effects of two current audit regulations in the United States: mandatory audit partner rotation and Public Company Accounting Oversight Board (PCAOB) inspections. Specifically, I test whether mandatory partner rotation increases or decreases audit quality in the final year of auditor-client tenure, and whether an anticipated PCAOB inspection mitigates any decrease in audit quality. I examine two components of audit quality, effort and independence, which are measured using experienced professional U.S. auditors' effort allocation decisions and proposed audit adjustments.

The House of Representatives passed the Audit Integrity and Job Protection Act in July 2013. The main purpose of this act was to prevent the PCAOB from being able to require mandatory firm rotation (U.S. House 2013). However, it also includes a requirement for further study on “what affect [*sic*] the Sarbanes-Oxley Act of 2002 has had on registered public accounting firms' independence and whether additional independence reforms are needed” (U.S. House 2013, Sec. 3). Thus, the discussion around proposed auditing reforms has highlighted the lack of empirical evidence available on the effects of existing regulations from the Sarbanes-Oxley Act of 2002 (SOX). SOX strengthened audit partner rotation requirements in the United States; lead and concurring auditor partners are currently required to rotate off of a client after five consecutive years working on a client engagement. Additionally, SOX created the PCAOB, which is charged with annually inspecting a portion of large accounting firms' audits, among other responsibilities (U.S. Congress 2002, Sec. 104). Direct archival evidence on mandatory partner rotation and PCAOB inspections is scarce; partners do not sign audit reports in the United States, making partner rotation publicly unobservable, and PCAOB inspection reports do not identify which clients' audits were selected.

Proponents of mandatory partner rotation espouse the belief that having a new auditor take a fresh look at a company's financial statements will enhance audit quality in the prior period, via the outgoing auditor's increase in effort. This argument follows from (1) the knowledge that the incoming partner will have access to the outgoing partner's work papers in the following year, and (2) the assumption that any perceived increase in threats to one's reputation is enough to motivate an outgoing audit partner to expend more effort. *Ceteris paribus*, an increase in effort implies an increase in audit quality.¹ Audit quality could also increase in the final year of tenure due to an increased willingness to challenge management, a measure of independence (Seidman 2001; Biggs 2002; Public Oversight Board 2002).

However, in interviews with Canadian Audit Committee members, a former audit partner suggested that effort actually *decreases* in the last known year of an audit (Kinney, Palmrose, and Winn 2012). From his point of view, it is natural to look ahead towards planning for the next client, rather than spending time on a client you have no ability to continue a relationship with in the future.² Former Securities and Exchange Commission (SEC) Chairman Pitt echoed this opinion, testifying:

“So if you think about it this way, let's say I am an auditor and I am going to assume the worst about auditors now, even though I do not as a practical proposition. In my first 2 years, I am not smart enough to know where all the problems are. And in my last year or two, I know I am losing this client, so I do not really care, even if I am now smart. Now if you have a 5 year rotation, you have knocked off four-fifths of the period” (Pitt 2012).

Thus, arguments exist for mandatory partner rotation to either increase or decrease audit quality in the final year of tenure. I test these competing predictions in the United States setting.

¹ I relax this assumption in supplemental analysis and examine audit effort allocated to various audit-related activities, which may have differential implications for audit quality.

² I allow for this possibility in my design by allowing participants to allocate time to a future client, “Client Z.”

I next investigate whether an existing reform from SOX, PCAOB inspections, helps to mitigate any decrease in audit quality. Similarly to mandatory partner rotation, PCAOB inspections impose an additional layer of review on audit partners. However, mandatory partner rotation imposes only an additional internal review, while PCAOB inspections consist of an external review. DeFond (2010) argues that PCAOB inspections could create incentives for auditors to increase audit quality *ex ante*, because the PCAOB has the authority to impose sanctions and fines for uncorrected audit deficiencies. I am interested in the effects of this external review, because they may speak to the purported benefits that mandatory *firm* rotation could provide. Proponents of mandatory firm rotation argue that anticipation of an external reviewer (the incoming audit firm) would cause the outgoing audit partners to increase audit quality. It is important to understand how current partner rotation and external PCAOB review requirements affect audit quality before considering additional, possibly redundant, measures such as mandatory firm rotation.

Because archival data are not available to answer my research questions – that is, neither audit partner rotation nor the audit clients inspected by the PCAOB are publicly disclosed in the U.S., I use an experiment in which experienced professional auditors make three judgments: (1) how to allocate their time across different clients; (2) for the client of interest, how to allocate their time to various audit-related activities, and (3) for a discovered audit difference, how much to propose as an audit adjustment. The first judgment is my primary proxy for effort, the second judgment refines my measure of effort, and the third judgment is my proxy for independence, where effort and independence together comprise the two components of audit quality (DeAngelo 1981). For one of the auditor's clients, I manipulate between participants whether the

client is continuing or subject to mandatory rotation in the next period, and I manipulate between participants whether the likelihood of a PCAOB inspection on that client is low or high.

I predict that auditors will either decrease or increase their effort in the final year of a client's audit, depending on whether rotation creates a net incentive to reduce investment in the client or to increase effort in anticipation of an internal review. Relative to other years; I find that auditors decrease their effort in the final year. Interestingly, this result is inconsistent with participants' reported beliefs about partners' effort; in a follow-up questionnaire, participants indicate that they believe outgoing partners would exert slightly more effort in the year prior to partner rotation than in other years. I also predict and find that a high likelihood of being inspected by the PCAOB mitigates the decrease in effort from mandatory partner rotation (and increases effort when partners are not in their final year with a client), which indicates that auditors are concerned about the PCAOB's external review.

I next examine the second component of audit quality: auditors' willingness to require client firms to adjust their financial statements. I predict that auditors will propose adjustments of larger magnitude when they are in the final year with a client, consistent with auditors' increased willingness to stand up to management when that relationship is ending. I further predict that auditors will propose adjustments of larger magnitude when a PCAOB inspection is likely, consistent with auditors' desire to enhance their apparent professional skepticism. Results do not support these predictions; I find no differences in proposed adjustments across my experimental conditions.

In supplemental analysis, I examine *how* audit partners change their planned effort due to partner rotation and risk of PCAOB inspection, by looking at the percentage of time they allocate to various audit-related activities. I find that, in the year prior to mandatory rotation, auditors

spend more time on documentation. They also spend less time on financial statement review and communicating with client management; the former may indicate a reduction in activities that enhance audit quality in the current period, and the latter may indicate a reduction in investment in the auditor-client relationship. In additional supplemental analysis related to effort on audit partners' other clients, I find that auditors anticipating mandatory rotation appear to shift their time from the outgoing client to the future client, rather than to their other current client.

Although I am not the first to examine the effect of mandatory partner rotation on audit quality, I contribute to the literature by separately examining the theoretical components of audit quality: effort and independence.³ In doing so, I hope to accomplish the following primary goals: (1) to shed light on possible reasons why prior literature has reached opposing conclusions about final-year audit quality in different settings; (2) to respond to the PCAOB's call for research regarding the effect of mandatory rotation on auditors' "diligence [effort] towards the end of their term" (PCAOB 2011); and (3) to respond to Bamber and Bamber's (2009) call for research attempting to separately identify the costs and benefits of rotation, rather than focusing on the net effects. Additionally, I am among the first to test whether PCAOB inspections provide an *ex ante* benefit to audit quality, as suggested by DeFond (2010); this research will partially address the U.S. Congress's demand for information about the effects of the Sarbanes-Oxley Act's reforms and provide evidence on the question of whether additional reforms might be warranted (U.S. House 2013).

Using an experiment allows me to observe the individual judgments of professional auditors and create data where none is publicly available. Creating my own dataset also allows me to gain a better understanding of how regulations affect audit quality across clients by observing how auditors address the tradeoffs across their entire client portfolio given their time

³ I describe the existing literature on mandatory partner rotation in section 3.1.

constraints. Prior papers have focused solely on the direct effects of mandatory rotation on the rotating client's audit quality. My study contributes to this literature on the direct effects of mandatory rotation, and additionally provides a more complete view of the indirect effects of rotation and inspections on non-rotating and non-inspected clients.

2. Regulatory Background

2.1 Mandatory Partner Rotation⁴

Mandatory audit partner rotation was implemented in the United States as a less costly alternative to mandatory firm rotation, which has been proposed multiple times since the 1970s. After corporate scandals at Penn Central, Equity Funding, and others, Senator Lee Metcalf published a study in 1977 on the "accounting establishment," detailing his concerns about a lack of independence shown by the large accounting firms. In his view, "long association between a corporation and an accounting firm may lead to such a close identification of the accounting firm with the interests of its client's management that truly independent action by the accounting firm becomes difficult." The report therefore noted, "one alternative is mandatory change of accountants after a given period of years."

The American Institute of Certified Public Accountants (AICPA) established the Commission on Auditor's Responsibilities, better known as the Cohen Commission, to develop recommendations about the mandatory audit firm rotation. The Cohen Commission ultimately recommended against mandatory firm rotation, asserting that the possible advantages from audit firm rotation could be achieved if the accounting firm rotated its engagement personnel. As a result, partner rotation has been part of the profession's self-imposed quality control processes since 1978, for firms that audit SEC registrants (AICPA 1978(a)).

⁴ This discussion is largely taken from the PCAOB Concept Release No. 2011-006 (PCAOB 2011).

In 2002, the U.S. Congress passed the Sarbanes-Oxley Act of 2002, which enhanced the audit profession's partner rotation rules. Specifically, Section 203(j) of the Sarbanes-Oxley Act declared that it is illegal for a lead or concurring audit partner to audit an issuer longer than five consecutive years (U.S. Congress 2002), based on the assumption that partners' independence becomes impaired after that amount of time. The SEC established a rule in accordance with this law, stating that for the audits of SEC registrants, audit firms must rotate the lead and concurring partners after five consecutive years on an audit, with a five-year "time out" period before they are allowed to return to the audit (SEC 2003). The SEC also ruled that other audit partners with substantial decision-making responsibility are subject to mandatory rotation after seven years and a two-year time out period. Previously, the accounting profession required only the lead partner to rotate off the audit of SEC registrants after seven years on the engagement, with a two-year time out period (SEC 2003).

2.2 PCAOB Inspections

In addition to strengthening partner rotation requirements, the Sarbanes-Oxley Act of 2002 established the Public Company Accounting Oversight Board (PCAOB) to "oversee the audit of public companies... in order to protect the interests of investors" (U.S. Congress 2002, Sec. 101 (a)). The Sarbanes-Oxley Act thus removed the accounting profession's ability to regulate itself with respect to audits of public companies. The Sarbanes-Oxley Act gave the PCAOB the power to establish and adopt auditing standards, to conduct inspections of registered public accounting firms, and to conduct investigations and disciplinary proceedings when needed.

The PCAOB conducts annual inspections for public accounting firms that regularly audit more than 100 issuers, and inspects public accounting firms every three years for those that regularly audit 100 or fewer issuers (U.S. Congress 2002, Sec. 104 (b)). In the course of its

accounting firm inspections, the PCAOB selects audit and review engagements and assesses the sufficiency of the accounting firm's quality control system, its documentation, and its compliance with professional standards (PCAOB 2012). The PCAOB describes its audit engagement selection strategy as "risk-based" rather than random and states that the areas of focus "often involve audit work on the most difficult or inherently uncertain areas of financial statements" (PCAOB 2012).

For every accounting firm inspection, the PCAOB prepares a written report and allows the audit firm to respond to any identified deficiencies. Each written report contains a public portion, Part I, and may contain a nonpublic portion, Part II. Part I describes any discovered audit deficiencies, such as failures to perform required audit procedures, which are significant enough to cause the PCAOB to believe that the audit firm did not have sufficient evidence to support its opinion on the financial statements at the time it issued its audit report (CAQ 2012). The PCAOB does not identify which companies were inspected, but rather refers to them as "Issuer A," "Issuer B," etc. Part I also includes the portion, if any, of the inspected accounting firm's written response that the firm chooses to make public. Part II, the nonpublic portion of the inspection report, identifies any overall quality control issues that the PCAOB discovered, and provides the PCAOB's views on how the accounting firm should improve those controls.

Prior to the creation of the PCAOB, the accounting profession required firms enrolled in the AICPA Peer Review Program to have a peer review once every three years (AICPA 1978(b)). The PCAOB inspection requirements now supersede the AICPA peer review requirement for audits of public companies, but the auditing profession continues to monitor its non-public company audits through the use of peer reviews. The results of peer reviews are not publicized. Therefore, relative to peer reviews, PCAOB inspections are more frequent and more public.

PCAOB inspections also carry the threat of sanctions and large penalties; the PCAOB has the authority to notify the SEC of auditor transgressions, to notify the Justice Department of possible criminal violations, and to initiate disciplinary proceedings on its own (PCAOB 2008(a)).⁵

3. Prior Literature, Theory, and Hypotheses

My overarching research question is how mandatory partner rotation in the United States affects audit quality (decomposed into its effort and independence components) in the final year of the auditor-client relationship. In light of my findings, I also consider whether any observed decrease in audit quality is mitigated by another currently implemented regulation, PCAOB inspections.

3.1 Prior Literature: Mandatory Partner Rotation and Audit Quality

Many countries require periodic audit partner rotation without also requiring periodic audit firm rotation, including Argentina, Australia, Belgium, China, Denmark, France, Germany, Hong Kong, Mexico, Netherlands, New Zealand, Norway, Russia, Taiwan, the United Kingdom, and the United States. Despite the prevalence of mandatory partner rotation, little direct evidence exists on its effects because partner rotation is typically not observable by researchers. Only Australia, China, Germany, and Taiwan require audit firms to disclose engagement partners' names in the audit reports.

Much of the existing literature on the effects of mandatory partner rotation addresses this research question indirectly, by testing in a voluntary rotation setting whether long audit partner tenure decreases audit quality.⁶ If yes, mandatory partner rotation would seem to be warranted; if

⁵ For a current list of settled and adjudicated disciplinary orders, please see the PCAOB's website: <http://pcaobus.org/Enforcement/Pages/default.aspx>.

⁶ This approach is also common in the mandatory *firm* rotation literature, in which many researchers design tests to determine whether long firm tenure erodes audit quality. The bulk of the evidence finds that long firm tenure is not associated with lower audit quality. In these studies, audit quality is measured using abnormal accruals (Johnson et al. 2002; Myers et al. 2003), accounting restatements (Stanley and DeZoort 2007), fraudulent accounting (AICPA

no, it would not. The evidence is mixed. Chi and Huang (2005) and Carey and Simnett (2006) find evidence consistent with long partner tenure eroding audit quality. Chi and Huang (2005) find that audit quality initially increases with partner tenure and begins to decrease after five years in China. In Australia, Carey and Simnett (2006) find that partners with tenure longer than seven years are less likely to issue going-concern opinions, and their audit clients are more likely to meet or beat earnings targets. On the other hand, Chen et al. (2008) and Manry et al. (2008) find evidence consistent with long partner tenure enhancing audit quality. Chen et al. (2008) find that partner tenure is associated with decreased absolute discretionary accruals in Taiwan, and Manry et al. (2008) find that partner tenure is negatively associated with abnormal accruals in a sample of U.S. audit firm offices, but only for small clients with tenure greater than seven years.

I am aware of only one published study that directly examines the consequences of mandatory partner rotation. Chi et al. (2009) test whether mandatory partner rotation increases audit quality in Taiwan and find that abnormal accruals do not appear to be significantly affected by rotation. Bamber and Bamber (2009) discuss Chi et al. (2009) and classify it as a “no results” paper, and they highlight the concern that abnormal accruals are likely a noisy measure for audit quality. In a concurrent working paper, Lennox, Xi, and Zhang (2013) use a creative measure to combat this issue: a proprietary dataset of audit adjustments in China. These authors find a higher frequency of audit adjustments during the outgoing partner’s final year and the incoming partner’s first year, which they consider to be evidence of higher audit quality in those years.

Lennox et al. (2013) provide interesting insights into mandatory partner rotation in China, but some details of that institutional setting preclude their inferences from automatically generalizing to the United States. First, Chinese audit partners are required to sign their names on

1992; Carcello and Nagy 2004), lawsuits against auditors (Palmrose 1986; Palmrose 1991; Stice 1991), earnings response coefficients (Ghosh and Moon 2005), and the cost of debt financing (Mansi et al. 2004).

the audit report. This fact makes the quality of their work more transparent and may provide them with incentives to increase their efforts, especially around a partner change when their work may be more heavily scrutinized. Second, China requires a two-year cooling off period before a former partner can rotate back on to a client, whereas the U.S. requires a five-year cooling off period. Up to 46.4 percent of former partners in China rotate back onto their clients (Li, Xu, and Zhang 2013), raising questions about how much distance is actually achieved during partner rotation. Third, and most importantly, Chinese audit firms are required to report their clients' pre-audit and post-audit annual profits to the Ministry of Finance; Lennox et al. (2013) calculate audit adjustments as the difference between these amounts. The Ministry of Finance obtains this information in order to determine which audit engagements to target during its inspections, similar to the PCAOB's "risk-based" selection approach (Lennox et al. 2013). If audit partners perceive that the Ministry of Finance is more likely to inspect engagements in years before or after a change in partner, then the observed increase in audit adjustment frequency during those years could be driven by partners' desire for the inspections to go smoothly, rather than by the direct effects of mandatory rotation. I complement Lennox et al. (2013) by using an experiment to disentangle mandatory rotation and inspection risk (in a U.S. setting). I next clarify my working definition of audit quality.

3.2 Audit Quality and its Components

Audit quality is defined as the joint probability that an auditor will both discover and report a breach in the client's accounting system (DeAngelo 1981). The likelihood that an auditor will *discover* a breach in the client's accounting system can be considered in relation to Libby and Luft's (1993) model of performance, in which performance is a function of experience, knowledge, and ability. In this model, effort "determines the degree to which available

knowledge and abilities are brought to bear on the task” (p. 433) and environmental factors can change “the amount or allocation of effort that decision makers are willing to employ” (p. 435). In my study, the environmental factors of interest are existing regulations: mandatory partner rotation and PCAOB inspection requirements. I maintain the assumption that neither regulation will directly affect auditors’ experience, knowledge, and ability to perform the final-year audit of a client in the short run. Therefore, I choose to focus on the effort component of performance in this paper, because I expect that these regulations are most likely to affect audit quality (if at all) through this mechanism.

The second piece of DeAngelo’s audit quality definition is the *reporting* component. The accounting literature often uses this portion as its definition of auditor independence: “the conditional probability that, given a breach [in the accounting system] has been discovered, the auditor will report the breach” (DeAngelo 1981). For brevity and consistency with the prior literature, I refer to this reporting component of audit quality as “auditor independence.” Note, however, that auditors are required to comply with strict rules regarding their economic independence from client firms. Thus, this component reflects variation in willingness to challenge management within a group of audit professionals who are already technically economically independent from their clients.

I examine both components of DeAngelo’s (1981) definition separately because they comprise audit quality as a whole, and because mandatory audit partner rotation and PCAOB inspections are theorized to have different effects on these components. Therefore, separating the effects can inform academics and regulators about the mechanism, if any, through which current regulations affect audit quality.

3.3 Auditor Effort

In general, auditors can be expected to weigh the costs of putting forth effort, such as the decreased profitability of an engagement, with the benefits of putting forth effort, such as providing a higher level of assurance and decreasing the risk of legal or reputation costs. There are arguments for either an increase in auditor effort or a decrease in auditor effort at the mandatory end of a term. First, consider the theory and evidence supporting an expected decrease in effort on the outgoing client. Kahneman's (1973) "capacity model of attention" assumes a limit on one's capacity to perform mental work.⁷ He theorizes that an activity can fail "because the allocation policy channels available capacity to other activities" (p. 9 – 10).⁸ Intuitively, when people know that their employment is near an end, as when they have given their notice to their employer, their motivation and effort are likely to wane.⁹ This theory is consistent with Elitzur and Falk (1996), who show in an analytical model that planned audit quality and auditor effort will decrease over time when the engagement period is finite with a known end date. However, their model assumes a finite game, in which the audit firm does not suffer reputation or litigation losses in the event of an audit failure. This distinction is important because concerns about exposure to reputational damage are precisely the mechanisms through which proponents believe that mandatory rotation will lead to an increase in audit quality.

Bae, Kallapur, and Rho (2013) investigate mandatory [firm] rotation in Korea, where data on audit hours are publicly available, providing a proxy for total audit effort. Bae et al. (2013) find that audit hours decrease in the three years prior to mandatory rotation, consistent with a decrease in auditor effort. However, in addition to having a mandatory firm rotation rule

⁷ Kahneman (1973) uses the terms "effort" and "capacity" as synonyms for "attention" in his text (see p. 8, 9).

⁸ The theory of limited attention has subsequently been applied and developed in other accounting settings, as in Hirshleifer and Teoh (1993).

⁹ In an audit setting, a decrease in effort on an outgoing client may be reallocated to other clients. I investigate this possibility in section 5.4.2.

after six years of audit firm tenure, Korea also has a mandatory *retention* rule. Specifically, once a client hires an audit firm, they cannot fire that audit firm for three years. Therefore, an alternative explanation to the one provided by Bae et al. (2013), that Korean auditors are responding to impending rotation, is that auditors are reducing their effort because they cannot be fired during this period and thus have decreased incentives to produce high quality audits.

Next, consider the theory and evidence supporting an expected increase in effort on the outgoing client. Proponents of mandatory rotation suggest that outgoing auditors will be motivated to *increase* their effort at the end of an engagement's tenure due to the knowledge that the incoming partner will review their work in the following period (Seidman 2001; Biggs 2002; Public Oversight Board 2002). In auditing, the review process adds accountability to auditors' judgment and decision-making processes. There is a large literature in accounting showing that imposing accountability increases effort, relative to no accountability (see DeZoort, Harrison, and Taylor 2006 for a review). DeZoort et al. (2006) also find that effort is increasing in the strength of the accountability type, where justification and feedback are theorized to be stronger types of accountability than review.

However, auditors' work is already heavily reviewed. For example, a concurring partner within the firm must also sign every audit report, and audit firms conduct their own internal inspections for the purposes of quality control and performance evaluations. Therefore, the relevant question is whether auditors will respond to the additional pressure of having a new, incoming, audit partner review their work. Mandatory rotation involves adding an extra internal review on top of existing reviews, rather than increasing the strength of the accountability type (i.e. from review to justification or feedback as in DeZoort et al. [2006]); thus, it is unclear theoretically whether simply adding this extra layer of accountability of the same type will

increase effort. If audit partners perceive a sufficient increase in the likelihood of reputational damage from having their work reviewed by a new person, these audit partners may be willing to expend more effort to increase the quality of their audit.

In summary, mandatory rotation is expected to reduce auditors' available attention for outgoing clients and to create an extra level of accountability, but the net effect of these changes on auditor effort is unclear *ex ante*. I test whether the net of these two changes results in a decrease or increase in auditor effort, where evidence of a decrease indicates that the benefits of shifting auditor attention to other clients outweighs any incremental accountability concerns, and evidence of an increase indicates that accountability has the stronger impact.

H1a: Audit partners **decrease** their effort in the year prior to mandatory partner rotation, relative to other years with the same client.

H1b: Audit partners **increase** their effort in the year prior to mandatory partner rotation, relative to other years with the same client.

Whereas mandatory partner rotation adds an additional review by a person *internal* to the firm, PCAOB inspections add a level of *external* review resulting in a public report. Thus, PCAOB inspection reports give audit committees one way to assess the quality of their auditors. For triennially inspected audit firms, PCAOB deficiency reports are associated with auditors being involuntarily dismissed by their clients (Daugherty, Dickins, and Tervo 2011; Abbott, Gunny, and Zhang 2012), suggesting that there are real costs of performing poorly on PCAOB inspections (at least for small audit firms). Auditors are likely to be concerned about the effects of the review on their reputation in the case of either mandatory partner rotation or PCAOB inspections, but PCAOB inspections also impose the threat of sanctions and large penalties (PCAOB, 2008(a)). DeFond (2010) argues that if the PCAOB develops a reputation for being tough reviewers, this reputation plus the threat of sanctions could provide firms with incentives

to increase audit quality *ex ante*.¹⁰ Based on the preceding discussion, mandatory partner rotation could either decrease or increase auditor effort in the final period prior to rotation, and the threat of a PCAOB inspection is likely to either mitigate this decrease in effort or exacerbate the increase in effort. However, I expect that the effect of PCAOB inspections will not be limited to years preceding mandatory partner rotation; thus, I hypothesize a main effect of expected PCAOB inspections below.

H2: Audit partners increase their effort when there is a high likelihood of PCAOB inspection, relative to when there is a low likelihood of PCAOB inspection.

3.4 Auditor Independence

Auditors are required to comply with strict rules regarding their economic independence from clients, and they also may take steps to improve the appearance of independence to outsiders (e.g., by choosing not to provide non-audit services to an audit client). This study assumes that auditors meet those requirements and instead uses the term “independence” to refer to an independent mindset, or the application of professional skepticism (for example, by showing a willingness to challenge the client’s management).

Proponents of mandatory partner rotation argue that, regardless of the economic independence rules, personal affiliation with a client firm threatens auditors’ ability to maintain an independent mindset. Some accounting researchers echo this point. Harris and Whisenant (2012) describe how a “familiarity threat” can erode professional skepticism, citing the example of Arthur Andersen employees at Enron headquarters. Arthur Andersen employees had

¹⁰ This argument depends upon the assumption that the expected penalties for poor performance on an external, PCAOB inspection are higher than (incremental to) those for poor performance on internal or peer inspections. Anecdotal and survey evidence supports this assumption. At one Big 4 firm, former employees report that audit partners are personally fined fifty thousand dollars for each Part I deficiency on one of their clients. In supplemental questions at the end of my study, I also ask participants, “*Relative to other types of reviews, such as internal firm reviews and peer reviews, how important is it to audit partners at your firm to perform well on PCAOB inspections?*” Participants responded to the question using a 7-point Likert scale, for which -3 was denoted “Much less important,” 0 was denoted “No more or less important,” and +3 was denoted “Much more important.” The mean response was positive (1.4) and significantly higher than zero ($t = 12.7$, two-tailed $p < 0.01$).

permanent office space at Enron, participated in company events, and went on Enron employees' ski trips, blurring the lines between Enron employees and the outside audit firm. Similar to Harris and Whisenant (2012), Moore, Tetlock, Tanlu, and Bazerman (2006) characterize the "gradual accumulation of pressures on [professionals] to slant their conclusions" as "moral seduction."

Although the preceding discussion implies that auditors may knowingly succumb to client pressures, auditors do not have to be consciously biased in order for affiliation with the client to affect their reasoning or judgments. Rather, having "directional goals" (relative to "accuracy goals") can affect judgments and reasoning processes in subtle ways (Kadous, Kennedy, and Peecher 2003; Kunda 1990). In the context of an audit, an example of a "directional goal" is to please the client firm's management by issuing an unqualified opinion, whereas an example of an "accuracy goal" is to issue the audit opinion most supported by the audit evidence.

Mandatory rotation could reduce auditors' desire to please a client firm as knowing that the auditor-client tenure is limited reduces auditors' incentive to develop a long-term, personal relationship with the client. Thus, auditors' personal affiliation with the client firm may be reduced, making auditors less concerned about pleasing the client's management and more willing to challenge them. In motivated reasoning terminology, mandatory rotation would thus decrease directional goals relative to accuracy goals. Dopuch, King, and Schwartz (2001) find results consistent with this theory in an experiment, in which rotation requirements decreased auditors' willingness to issue biased reports.¹¹

¹¹ Dopuch et al. (2001) held auditor effort constant and focused only on a reporting decision, whereas my experiment examines both effort and reporting decisions. Further, Dopuch et al. (2001) examine mandatory firm rotation rather than partner rotation, and test for differences across regimes (no rotation at all vs. mandatory rotation) rather than across years within a mandatory rotation regime. If mandatory rotation reduces auditors' affiliation with

Results from the game theory literature are also consistent with the idea that having an end date for a relationship affects behavior. Normann and Wallace (2012) test the effect of different termination rules (finite and known horizon, unknown horizon, and random-stopping rule) on cooperation in prisoners' dilemma games. Although termination rules do not affect participants' average cooperation rates, cooperation rates decrease in the last period of the experiment for those with a known finite horizon relative to those with an unknown horizon. In the audit setting, a known finite horizon represents the maximum tenure possible under mandatory rotation. Based on motivated reasoning theory and these findings from the literature, I expect auditors' willingness to challenge management to increase in the last year with a client.

H3: Audit partners exhibit more independence in the year prior to mandatory partner rotation, relative to other years with the same client.

Exhibiting independence and challenging a client's management has costs and benefits to the auditor, which auditors can be expected to weigh when making judgments about the client's financial statements and audit findings. Although auditors are prevented from having financial interests in their clients, the audit firm still benefits and earns revenue from being able to retain a client firm's business. If the audit firm views the auditor-client relationship as a long-term contract, audit engagement members may perceive that standing up to the client jeopardizes their relationship and the associated future stream of revenues (Harris and Whisenant 2012; Cassell et al. 2012; Nelson 2006). Therefore, in order to avoid being dismissed by a client, auditors may be unwilling to challenge the client's management. To mitigate this behavior, auditors are actually hired and fired by the clients' audit committees, which ties the business relationship to audit committee members rather than management.

their clients not just in the last period of the relationship, but throughout the relationship, auditors' independence would not differ across years in my study.

An expected PCAOB inspection provides auditors with an economic incentive to challenge a client's management, specifically, the desire to avoid sanctions and penalties. Accountants know that the PCAOB is concerned with professional skepticism, based on its reports (PCAOB 2008(b)). Therefore, in order to ward off criticisms by the PCAOB inspectors, auditors likely want to appear to exhibit professional skepticism by being more willing to challenge their clients' management. In a cross-country setting, Lamoreaux (2013) finds evidence consistent with this argument. Specifically, Lamoreaux (2013) finds that auditors in jurisdictions allowing PCAOB inspections are more likely to report going concern opinions and material weaknesses relative to auditors in jurisdictions barring PCAOB inspections.¹² Of course, opponents of additional regulation and accounting researchers point out that audit firms already have economic incentives designed to counteract client pressures. Auditors face the threat of legal action and associated penalties, regulatory sanctions, and reputational damage if they fail to adhere to professional rules and standards (Nelson 2006). However, on balance, I expect the threat of PCAOB inspection to increase auditors' desire to display independence. Therefore, I test the following hypothesis:

H4: Audit partners exhibit more independence when there is a high likelihood of PCAOB inspection, relative to when there is a low likelihood of PCAOB inspection.

4. Research Design

4.1 Design Overview and Participants

To test my predictions, I conducted an experiment with a 2 x 2 between subjects design, with anticipated partner rotation (yes vs. no) and risk of PCAOB inspection (low vs. high) as manipulated independent factors. Participants assumed the role of an audit partner and were

¹² I complement Lamoreaux (2013) by examining variation in expected PCAOB inspection risk within a jurisdiction subject to PCAOB inspections.

assigned to two current-year clients, Client X and Client Y, along with one future client, Client Z.¹³ I manipulated partner rotation by informing participants whether they would be required to rotate off of Client Y next year (yes or no); Client X was a continuing client for all participants and Client Z was a future client for all participants.¹⁴ I manipulated the risk of PCAOB inspection by informing participants that their firm's assessed likelihood of inspection for Client Y was either high or low; Clients X and Z had a low likelihood of inspection for all participants. All other information was constant across conditions.

Participants were 98 professional auditors from three accounting firms. Two accounting firms were Big 4 firms, and the third accounting firm was a smaller, regional firm. The sample is comprised of 63.3 percent audit partners, 14.3 percent audit senior managers, 14.3 percent audit managers, 7.1 percent audit seniors, and 1.0 percent audit staff members. Thus, 91.9 percent of participants were auditors at the manager level or higher. All participants indicated experience with budgeting time for engagements, and 67.3 percent indicated personal experience with PCAOB inspections, i.e., one or more of their clients had been inspected.

4.2 Experimental Procedures and Materials

I administered the experiment using one of two methods. For one participating Big 4 firm and the regional firm, a firm contact sent potential participants an anonymous survey link that I generated using Qualtrics software, which randomly assigned participants to experimental conditions. Response rates under this approach were approximately 57.8 percent for the Big 4

¹³ Participants were informed that these three clients represented their entire client portfolio in the study. Client Z was included to reflect the reality that auditors rotate off of one client and on to another, and may have to spend time learning about the new client before leading the engagement.

¹⁴ Participants were asked to assume they had previously audited Client X. Although the materials did not specify exactly how many years Client X had been a client, participants were informed that they were operating within the current, five-year partner rotation regime. Therefore, participants could have assumed that the current year was their second, third, or fourth year with the client (because Client X was not a new client and not an outgoing client).

firm and 52.9 percent for the regional firm.¹⁵ The other Big 4 firm does not participate in online research due to concerns from its legal department. Accordingly, I worked with a contact at the national office of this firm to distribute the experimental materials to auditors at one office. She randomly distributed one of the four experimental conditions to potential participants via e-mail, distributing equal numbers of each condition. Participants received and filled out the materials in Word format and then e-mailed their saved responses back to the contact. The contact then printed and mailed the responses to me to ensure that responses were anonymous.

Participants assumed the role of an audit partner and in all conditions received instructions indicating that participants would make two primary judgments: (1) how much time to spend on their clients' audits, and (2) for a discovered audit difference, how much (if any) to propose as an audit adjustment. After reading instructions, all participants read and reviewed the following: a brief description of their two current year clients, Clients X and Y; summary financial data, audit fees, and prior year audit hours for Clients X and Y, presented side-by-side; a brief description of Client Z, another client audited by their firm; an overview of the review process for each client; and a vignette describing a discovered audit difference for Client Y.

Both current year clients were described as public manufacturing firms for which assessed management integrity is high and assessed risk of fraud is low. The firms are thus designed to be reasonably similar, because I wanted the participants to attend primarily to the experimental manipulations and the main difference between the two clients: size. Summary financial information for the two clients indicated that Client Y was much larger than Client X, with Client Y (Client X) having current year revenue of \$280 million (\$50 million) and assets of

¹⁵ All responses were completely anonymous using the online software, and participants were not asked to indicate their firm. However, the participating firms targeted different levels of auditors (partners only for the Big 4 firm and managers for the regional firm). Because participants indicated their level in their responses, I was able to infer approximate response rates by firm.

\$2 billion (\$300 million). Current year audit fees varied in accordance with this size difference; fees for Client Y (Client X) were \$5 million (\$1 million). As I explain in the next two sections, my experimental manipulations affect only Client Y, the relatively larger client.

4.3 Rotation Manipulation

The rotation manipulation was embedded within the description of the current year clients. For all participants, Client X was presented as a continuing client, while Client Y was either a continuing client or a rotating client, manipulated between subjects. Accordingly, in the “no rotation” condition, participants read identical language for Clients X and Y: “You WILL NOT be required to rotate off of this client next year. Therefore, you plan to continue working with this client in the future.” In the “rotation” condition, participants read the “no rotation” statement for Client X and the following “rotation” statement for Client Y: “You WILL be required to rotate off of this client next year. Therefore, this will be your last year working with this client.”

4.4 PCAOB Inspection Risk Manipulation

The PCAOB inspection risk manipulation was presented in the “review process” section of the experimental materials. Participants read a brief description of the possible PCAOB inspection, indicating that audits are selected for inspection on a “strategic rather than random” basis. The materials asked participants to assume that their accounting firm estimates whether the risk of inspection is low or high for each client. For all participants, the “firm’s assessed likelihood of your current period work being inspected by the PCAOB” was “low” for Clients X and Z, and I manipulated between subjects whether the risk for Client Y was “low” or “high.” Also within this “review process” section of the experimental materials, participants read that all audits are subject to concurring partner review, reminding participants of the high-accountability

environment in which auditors operate. Additionally, participants were reminded that an incoming audit partner would review their work in the event of partner rotation. This reminder was included to make the “fresh eyes” argument of rotation’s proponents salient to participants.

After reading the information described above, participants responded to a number of dependent measures and post-task questions.

4.5 Dependent Variable: Effort Hypothesis Tests

My primary dependent variable for the “effort” hypotheses (H1 and H2) is whether participants decreased their time allocated to Client Y, relative to the prior year amount provided within the experimental materials. Participants are asked to allocate their time across Clients X, Y, and Z, where the total time spent must be between 1,700 and 1,900 hours. Recent research supports that people react similarly to operationalizations of effort as costly choices or as real-effort tasks (Brüggen and Strobel, 2007).¹⁶ I use the former type of operationalization because it is more straightforward and requires less auditor time than a “real-effort” task. Additionally, measures of effort on a real-effort task are likely to be affected by factors outside of the experiment, such as a preference for completing the task quickly, or differences in ability and experience (Christ, Sedatole, and Towry, 2012).

I provide both a range of prior year hours allocated to Clients X and Y and a point estimate of the hours spent on Clients X (352) and Y (1,440) last year. I allow participants’ responses to fall within a range rather than summing to a point total, so either a decrease or increase in total hours from the prior year is possible. Additionally, this range allows participants to change hours on one client without then being forced to change hours on their other client.

¹⁶ In my experiment, auditors must allocate their time across multiple clients, where the total time spent falls between the minimum and maximum allowed. Spending effort on one client decreases the profitability of that engagement and carries an opportunity cost: the auditor has less time to spend on other clients.

4.6 Dependent Variable: Independent Mindset Hypothesis Tests

My primary dependent variable for the “independent mindset” hypotheses (H3 and H4) is the magnitude of auditors’ proposed audit adjustments for Client Y, where a larger proposed audit adjustment reflects a more independent mindset.¹⁷ Due to my experimental manipulations, Client Y is either an outgoing or continuing client, with either a low or high risk of PCAOB inspection. This auditor judgment is made based on a scenario adapted from Hatfield, Jackson, and Vandervelde (2011). Participants learn that this client’s materiality threshold is \$440,000 and that the audit team believes that the Allowance for Doubtful Accounts may be understated by \$500,000, with the appropriate adjustment likely ranging between \$400,000 and \$600,000. The Client’s CFO believes that the difference falls below the materiality threshold and is opposed to making an adjustment.

Participants are first asked, “Would you propose an audit adjustment to the client’s financial statements?” If the answer is yes, participants are then asked to “write the amount of the audit adjustment you would propose” to the client. Next, reflecting the negotiation process encountered during an audit, participants are asked, “What amount of adjustment do you expect would ultimately be made to the financial statements after discussing your proposed adjustment with the client?” The magnitude of the expected adjustment allows for perceived differences in negotiating power for clients that are outgoing vs. continuing. Finally, I ask participants a few follow-up questions designed to check whether they attended to my manipulations and to collect key demographic variables.

¹⁷ I do not separately analyze the likelihood of requiring an adjustment, because the scenario was designed to elicit a high likelihood of auditors requiring an adjustment of some magnitude. Consistent with this design, 94 percent of all participants stated that they would require an adjustment, with no differences across conditions.

5. Analysis and Results

5.1 Manipulation Checks

I asked participants two manipulation check questions, after they had completed the experimental tasks and before they completed a few supplemental and demographic questions. To assess the effectiveness of the rotation manipulation, I asked participants whether they were told to expect to continue working on the audit of Client Y next year, or whether they would be rotating off of Client Y. In order to assess the effectiveness of the PCAOB inspection risk manipulation, I asked participants whether the likelihood of Client Y being inspected by the PCAOB was low or high. 95.9 percent of participants correctly answered each question, indicating successful manipulations of partner rotation and risk of inspection. My analyses include only participants who passed both manipulation checks. I also eliminate outliers by using the rule of thumb that Cook's Distance should not exceed four divided by the number of observations.¹⁸ There were no statistically significant differences across conditions with respect to participants' demographics (level at the audit firm, years of experience, personal experience with PCAOB inspections, or experience budgeting hours), indicating that random assignment to conditions was successful.

5.2 Tests of Audit Effort Hypotheses

H1a (H1b) predicts that audit partners will decrease (increase) their effort in the last year with a client, while H2 predicts that audit partners will increase their effort when they anticipate a PCAOB inspection. Table 1, Panel A presents cell sizes, means and standard deviations for the dependent variable of interest: the change in Client Y hours from the prior year. Table 1, Panel B

¹⁸ My final sample for all analyses consists of 85 observations. From the original 98 observations collected, I eliminated seven participants who did not pass both manipulation checks and six outliers identified by calculating the Cook's Distance. Visual inspection of these outliers shows that they did indeed exhibit unusual patterns, such as more than doubling the effort on a client from the prior year.

presents an analysis of variance testing the effects of (1) partner rotation and (2) high risk of PCAOB inspection on the change in effort associated with Client Y. Results reveal a significant main effect of partner rotation (two-tailed $p = 0.01$); the direction of this main effect supports H1a (and not H1b) – partners *decrease* audit effort during their last year with a client, which is consistent with the arguments of partner rotation’s critics.

[Insert Table 1 here]

Interestingly, this behavior is inconsistent with participants’ reported beliefs about partners’ predicted behavior in the year prior to rotation. In a follow-up questionnaire I ask participants whether, for real audits, they believe the outgoing partner would exert less effort, more effort, or no change in effort relative to prior years’ effort level. The mean response is 0.16 on a seven-point Likert scale, for which zero represents no change. This mean is positive and significantly different from zero, ($t = 2.72$, two-tailed $p = 0.01$, result untabulated). Therefore, participants either believe that partners will increase their effort prior to rotation, or they are unwilling to say otherwise when directly asked.

The Results in Table 1, Panel B also reveal a significant main effect of PCAOB inspection risk (one-tailed $p < 0.01$), providing support for H2. A high risk of PCAOB inspection *increases* partners’ audit effort. I do not hypothesize or find an interaction; however, tests of the simple differences between conditions indicate that PCAOB inspection risk mitigates the decrease in effort observed in the year prior to mandatory partner rotation. Specifically, the mean decrease of 62.2 hours in the *Rotation / Low Inspection Risk* condition is significantly less than zero ($t = 3.32$, two-tailed $p < 0.01$), while the mean decrease of 7.4 hours in the *Rotation / High Inspection Risk* condition is not significantly different from zero ($t = 0.40$, two-tailed $p = 0.70$).

5.3 Tests of Independent Mindset Hypotheses

H3 predicts that auditors will exhibit a more independent mindset for outgoing clients than continuing clients, and H4 predicts that auditors will exhibit a more independent mindset when there is a high risk of PCAOB inspection. Table 2, Panel A presents cell sizes, means and standard deviations for the dependent variable of interest: auditors' proposed audit adjustment for Client Y.¹⁹ Table 2, Panel B presents an analysis of variance testing the effects of (1) partner rotation and (2) high risk of PCAOB inspection on the proposed adjustment for Client Y. Results reveal no significant main effects of either regulation, providing no support for H3 or H4.

[Insert Table 2 here]

A closer inspection of the data reveals that there is little variation in proposed adjustment amounts; the participants appeared to anchor heavily on the midpoint of the suggested range, \$500,000, which was also described as the estimate most likely to be correct. Therefore, the lack of significant results regarding independent mindset could indicate that neither partner rotation nor anticipated PCAOB inspections affect auditors' independence, or that auditors were generally unwilling to deviate from the anchor in my experiment.

5.4 Supplemental Analyses

5.4.1 Changes in the Allocation of Time to Audit-Related Activities

I next investigate whether mandatory partner rotation or PCAOB inspections change how audit partners expect to allocate their time *within* the audit. For Client Y, I asked auditors to allocate percentages of their time to the following audit-related activities: planning the audit, reviewing tests of controls, reviewing substantive tests, reporting and financial statement review, documenting work and conclusions, engagement management (internal communication and

¹⁹ For purposes of this analysis, I code observations with no proposed adjustment as a proposed adjustment of \$0. The results are the same if I only include participants who propose some non-zero adjustment.

meetings), communicating with the client's management, and communicating with the client's Audit Committee. For each activity, I provided participants with a prior year percentage; I selected both the activities and prior year percentages after discussions with the participating firms about how partner time is typically spent. This additional data allows me to explore whether any observed change in audit effort is allocated to activities more likely to enhance audit quality in the current period, such as reviewing substantive tests or the financial statements, or instead allocated to activities less directly related to audit quality in the current period, such as documentation.

I perform a MANOVA with a Bonferroni adjustment, where the dependent variables are the percentage of time allocated to the activities listed above, and the independent variables are rotation (yes or no) and PCAOB inspection risk (low or high).²⁰ The MANOVA results (untabulated) reveal a significant overall effect of rotation ($F = 2.69$, two-tailed $p = 0.02$) but no significant overall effect of high risk of PCAOB inspection ($F = 0.65$, two-tailed $p = 0.72$). I therefore only analyze further the effect of partner rotation.

Table 3, Panel A presents the mean percentages of time spent on audit-related activities for those with and without mandatory partner rotation, and tests for differences. The overall significant main effect of partner rotation is driven by differences in documentation, financial statement review, and communicating with client management. Specifically, audit partners in the year prior to partner rotation allocate a *larger* percent of their time to documentation and a *smaller* percent of their time to financial statement review and communicating with the client management, relative to audit partners not immediately anticipating partner rotation.

[Insert Table 3 here]

²⁰ The Bonferroni adjustment divides the alpha level by the number of dependent variables to reduce the likelihood of making a Type 1 error (i.e., when testing multiple dependent variables, some univariate tests could appear to be significant due to chance alone).

One possible implication of this finding is that mandatory partner rotation may harm audit quality and/or audit efficiency.²¹ To explore this possibility, I examine total hours allocated to the same audit-related activities rather than percentages allocated to these activities.²² Table 3, Panel B presents the mean hours spent on audit-related activities for those with and without mandatory partner rotation, and tests for differences. Inferences about the effects of partner rotation are identical whether I examine percentages or hours.²³ Audit partners in their last year with a client spend more time on documentation and less time on financial statement review and communicating with client management than those not rotating off of a client. Results therefore indicate that partner rotation is associated with decreased audit effort in the year prior to rotation, and within the effort that *is* expended, partners expect to spend more time on documentation and less time on other audit-related activities. This finding is consistent with Aier, Jones, and Schroeder's (2013) evidence that the higher audit fees associated with the last year of an audit do not necessarily result in higher audit quality.

5.4.2 Changes in Effort for Other Clients

I next examine how mandatory partner rotation and/or an anticipated PCAOB inspection on a target client affect partners' effort on their *other* clients. Do rotating partners (who decreased effort in their last year with a client) shift their effort to current or future clients, or do they decrease effort in total? Do partners anticipating a PCAOB inspection (who increased effort on the inspected client) reduce their time spent on other clients to make up for that time?

²¹ I maintain the assumption that documentation is detrimental to audit efficiency and less likely to enhance audit quality in the current period than other audit-related activities. Discussions with Big 4 audit partners have provided anecdotal evidence in support of this assertion. However, documentation may improve or smooth audit quality in the long-run, if it allows incoming audit partners to learn about the client and its audit more quickly, for example.

²² I calculate total hours spent on each activity for Client Y by multiplying the percent allocated to each activity by the participant's total hours allocated to Client Y.

²³ When I run the full MANOVA on allocated hours rather than percentages, PCAOB inspection risk is additionally statistically significant overall ($F = 2.45$, two-tailed $p = 0.02$). Further analysis of the individual dependent variables indicates that this significance is driven solely by increased time spent on documentation when PCAOB inspection risk is high ($F = 6.00$, two-tailed $p = 0.01$, result untabulated).

Although tests of my hypotheses focus on Client Y, participants also allocate their time to another current-year client, Client X, and, if desired, to a future client called Client Z.²⁴ Including these other clients in the design allows me to examine auditors' choices in the context of their entire client portfolio.

I start by exploring the effect of mandatory partner rotation and PCAOB inspections on partners' other current year client, Client X, and on partners' future client, Client Z. Table 4, Panels A and B present cell sizes, means and standard deviations for the dependent variables of interest: the change in Client X hours from the prior year and the hours allocated to Client Z.²⁵ Table 4, Panels C and D present an analysis of variance testing the effects of (1) partner rotation and (2) high risk of PCAOB inspection on the change in hours associated with Client X and the hours allocated to Client Z, respectively. Results reveal no significant main effects of partner rotation or PCAOB inspection risk on changes in effort on Client X. Further, none of the mean changes in X are significantly different from zero (all two-tailed p 's > 0.28), indicating that audit partners did not change their time allocated to Client X on average.

[Insert Table 4 here]

For Client Z, Table 4, Panel D shows a significant main effect of mandatory partner rotation; those in their last year with a client spend more time on their future client than those who do not face impending partner rotation ($F = 9.70$, two-tailed $p < 0.01$). Additionally, the interaction between mandatory partner rotation and high PCAOB inspection risk is significant (F

²⁴ Client Z is described as a continuing client for the audit firm, on which the participant will be the incoming partner when they are next required to rotate. (For those with no currently rotating clients, they will join the audit of Client Z at some unspecified point later than next year, while those for whom Client Y is currently rotating will join the audit of Client Z next year.) Client Z is another public manufacturing firm whose primary products include large-scale farming equipment; Client Z's expected audit billings for the next year are between those of Client X and Client Y. The materials indicate that participants have the option to allocate some of their current period hours to Client Z, "in an effort to learn more about Client Z and prepare to lead the audit team."

²⁵ The prior year hours on Client Z were zero; therefore, the number of hours allocated to Client Z is equivalent to the change in yours on Client Z (and decreases on Client Z are not possible).

= 3.62, two-tailed $p = 0.06$). Subsequent tests of differences to explore the nature of this interaction indicate that hours allocated to Client Z are lower in the *No Rotation / High Inspection Risk* condition than in all other conditions (all two-tailed p -values $< .04$), and hours allocated to Client Z are not significantly different across the other three conditions (all two-tailed p -values > 0.10). My interpretation of this interaction is thus that audit partners plan to spend time acquainting themselves with future clients, but a high risk of PCAOB inspection on a current year client requires audit partners to stay more focused on that client.

To summarize the implications of this analysis of audit partners' client portfolio, it appears that the decrease in effort observed on Client Y for audit partners rotating off of Client Y is offset by their allocation of more effort to Client Z, with no difference in allocation to their other current year client, Client X. In short, results are consistent with anecdotal evidence from interviews of previous audit partners, who state that audit partner rotation requires a shift in attention from the partner's current, outgoing client, to the partner's future client.

5.5 Robustness Checks

In order to assess the robustness of my results, I first expand my sample by adding back in outliers and participants who failed manipulation checks. All results are directionally consistent with those presented in the paper but less statistically significant, which is not surprising when adding in noisy observations. I next return to the sample presented in this paper and rerun my tests using four sub-samples: (1) audit partners, (2) non audit-partners, (3) those with personal PCAOB inspection experience, and (4) those without personal PCAOB inspection experience. Results are directionally consistent with those presented in the paper in all sub-samples. Interestingly, results related to mandatory partner rotation appear to be driven by audit partner participants; the decrease in effort supporting H1 is statistically significant in the audit

partner subsample but not in the non-audit partner subsample. This finding gives me some comfort that my conclusions are based on behavior observed among those who are most equipped to shed light on my research questions.

6. Conclusion

Proponents of mandatory rotation focus on arguments supporting increased independence in a mandatory rotation regime, while opponents suggest that mandatory rotation will lead to a decrease in auditor effort in the final year of tenure with a client. Archival literature tests for the net of these possible effects in different settings, with somewhat mixed results. My results contribute to this line of research by separately examining the effects of independence and effort on audit quality. My results show that U.S. auditors plan to decrease audit effort on a client in their last year with that client, consistent with the concerns of mandatory rotation's opponents. Thus, I infer that the disincentive to exert effort in this period outweighs any additional incentive to respond to review pressure from the "fresh eyes" of the incoming partner.

However, I also find that audit partners do respond strongly to a certain type of review pressure: a high risk of PCAOB inspection. My results show that partners anticipating a high risk of PCAOB inspection increase their effort on that client, regardless of whether the client is continuing or outgoing. The combined implication of these findings is that, if regulators are concerned about audit effort, they could lengthen allowed partner tenure (to reduce the overall impact of the final year), increase the risk of a PCAOB inspection, or pursue both measures for additional impact on audit effort. Furthermore, I find that partner rotation is associated with increased partner time spent on documentation, revealing that increased audit effort is not necessarily related to activities likely to enhance audit quality. Thus, my findings do not reveal

any benefits to audit quality of audit partner rotation, and I find limited *ex ante* benefits to audit quality of anticipating PCAOB inspections.

My study is subject to certain limitations. First, I do not observe firm-wide resource allocation decisions. Thus, it is possible that any decrease in time spent on a client by the outgoing partner would be offset by an increase in time spent by the incoming partner or other members of the audit team. Second, I only examine audit quality in the year prior to rotation; it is an open question whether the benefits of partner rotation outweigh the costs in other years. Third, I assume that audit firms attempt to anticipate the risk of PCAOB inspection on clients. Based on my conversations with the participating firms and a current PCAOB inspector, this assumption appears to be reasonable. However, to the extent that partners do not have priors about the likelihood of PCAOB inspection, the results that I obtain in this experimental setting may not be present in practice. Over time, however, the accounting firms are likely to improve in their ability to anticipate which clients will be inspected, with the likely effects being those observed in this study. In general, my study can inform academics and regulators about how the current regulatory requirements in the United States affect audit quality. Importantly, my results show determinants of variation in audit effort *within* the current regulations, highlighting paths to increasing audit quality that do not require additional regulations.

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TABLE 1
The Effect of Partner Rotation and PCAOB Inspections on
the Magnitude of Change in Effort

Panel A: Means by Condition

Dependent Variable: Magnitude of Change in Effort on Client Y

Risk of PCAOB Inspection	Rotation		Row Means
	No	Yes	
Low	-28.48 (40.72) n=23	-62.22 (79.47) n=18	-43.29 (62.32) n=41
High	41.09 (68.74) n=23	-7.38 (85.67) n=21	17.95 (80.19) n=44
<u>Column Means</u>	6.30 (66.01) n=46	-32.69 (86.32) n=39	

Panel B: Analysis of Variance (ANOVA)

Dependent Variable: Magnitude of Change in Effort on Client Y

<u>Source</u>	<u>df</u>	<u>MS</u>	<u>F-Stat</u>	<u>p-value</u>	
Intercept	1	17,085	3.51	0.07	*
Rotation (R)	1	35,548	7.30	0.01	***
Risk of PCAOB Inspection (I)	1	81,402	16.71	0.00	***
R x I	1	1,140	0.23	0.63	
Residual	81	4,871			

Notes: The magnitude of change in effort on Client Y is calculated as Current Year Y hours – Prior Year Y Hours (which was constant across conditions in the experimental materials). Means, standard deviations (in parentheses), and number of participants are provided in Panel A. Panel B presents the results of an analysis of variance (ANOVA) where the independent variables are Rotation (no or yes) and Risk of PCAOB Inspection (low or high). ***, **, and * denote two-tailed statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

TABLE 2
The Effect of Partner Rotation and PCAOB Inspections on Independence

Panel A: Means by Condition

Dependent Variable: Magnitude of Proposed Audit Adjustment

Risk of PCAOB Inspection	Rotation		Row Means
	No	Yes	
Low	426,087 (160,163) n=23	461,111 (97,853) n=18	441,463 (135,970) n=41
High	450,435 (136,031) n=23	438,000 (139,307) n=20	444,651 (136,056) n=43
<u>Column Means</u>	438,261 (147,442) n=46	448,947 (120,422) n=38	

Panel B: Analysis of Variance (ANOVA)

Dependent Variable: Magnitude of Proposed Audit Adjustment

Source	df	MS	F-Stat	p-value
Intercept	1	1.64E+13	871.76	0.00
Rotation (R)	1	2.65E+09	0.14	0.71
Risk of PCAOB Inspection (I)	1	7.94E+06	0.00	0.98
R x I	1	1.17E+10	0.62	0.43
Residual	80	1.88E+10		

Notes: The magnitude of proposed audit adjustment is the amount auditors stated that they would propose as an audit adjustment to Client Y's financial statements. If an auditor indicated that they would not propose an adjustment, their proposed adjustment is coded as zero. Means, standard deviations (in parentheses), and number of participants are provided in Panel A. (In the Rotation / High Inspection Risk condition, the n differs from the n in Tables 1, 3 and 4 because one participant left the magnitude of his or her proposed adjustment blank.) Panel B presents the results of an analysis of variance (ANOVA) where the independent variables are Rotation (no or yes) and Risk of PCAOB Inspection (low or high). ***, **, and * denote two-tailed statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

TABLE 3
The Effect of Partner Rotation on
Audit Partners' Allocation of Effort to Audit-Related Activities

Panel A: **Percent** of Total Effort Allocated to Audit-Related Activities for Client Y

Activity	Rotation		Difference	F-stat	p-value	
	No (n = 46)	Yes (n = 39)				
Planning the Audit	15.72%	14.49%	-1.23%	2.99	0.09	*
Reviewing Tests of Controls	17.38%	17.97%	0.59%	0.54	0.47	
Reviewing Substantive Tests	15.96%	16.62%	0.66%	0.72	0.40	
Reporting and financial statement review	17.32%	15.62%	-1.70%	4.14	0.05	**
Documenting work and conclusions	9.28%	11.15%	1.87%	6.62	0.01	***
Engagement management (internal communication and meetings)	8.53%	9.23%	0.70%	1.9	0.17	
Communicating with client management	10.51%	9.47%	-1.04%	4.37	0.04	**
Communicating with the Audit Committee	5.30%	5.45%	0.15%	0.39	0.53	

Panel B: **Hours** of Effort Allocated to Audit-Related Activities for Client Y

Activity	Rotation		Difference	F-stat	p-value	
	No (n = 46)	Yes (n = 39)				
Planning the Audit	227.21	203.85	-23.36	5.12	0.03	**
Reviewing Tests of Controls	251.82	252.60	0.78	0.01	0.93	
Reviewing Substantive Tests	230.06	233.88	3.82	0.07	0.80	
Reporting and financial statement review	250.15	220.07	-30.08	6.09	0.02	**
Documenting work and conclusions	134.91	157.06	22.15	4.28	0.04	**
Engagement management (internal communication and meetings)	123.37	130.56	7.19	0.83	0.37	
Communicating with client management	151.96	133.10	-18.86	7.26	0.01	***
Communicating with the Audit Committee	76.82	76.19	-0.63	0.00	0.96	

Notes: Panel A presents the percent of total effort allocated to audit-related activities, which is reported as provided by participants. Panel B presents the hours of effort allocated to audit-related activities for Client Y, which is calculated as the participants' provided percentages for each activity multiplied by their hours allocated to Client Y. Mean responses are presented by Rotation (no or yes), and differences are calculated as the mean response for those with rotation less the mean response for those without rotation. ***, **, and * denote two-tailed statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

TABLE 4
The Effect of Partner Rotation and PCAOB Inspections on
Other Clients in Audit Partners' Portfolio

Panel A: Means by Condition

Dependent Variable: Magnitude of Change in Effort on Client X (current client)

Risk of PCAOB Inspection	Rotation		Row Means
	No	Yes	
Low	-1.78 (14.96) n=23	10.22 (38.78) n=18	3.49 (28.26) n=41
High	2.00 (49.99) n=23	-2.96 (56.09) n=21	-0.36 (52.43) n=44
<u>Column Means</u>	0.11 (36.54) n=46	3.13 (48.71) n=39	

Panel B: Means by Condition

Dependent Variable: Magnitude of Effort Allocated to Client Z (future client)

Risk of PCAOB Inspection	Rotation		Row Means
	No	Yes	
Low	71.09 (44.16) n=23	85.00 (53.52) n=18	77.20 (48.36) n=41
High	41.65 (49.41) n=23	99.29 (63.05) n=21	69.16 (62.82) n=44
<u>Column Means</u>	56.37 (48.67) n=46	92.69 (58.53) n=39	

Panel C: Analysis of Variance (ANOVA)

Dependent Variable: Magnitude of Change in Effort on Client X (current client)

<u>Source</u>	<u>df</u>	<u>MS</u>	<u>F-Stat</u>	<u>p-value</u>
Intercept	1	295	0.16	0.69
Rotation (R)	1	262	0.14	0.71
Risk of PCAOB Inspection (I)	1	464	0.25	0.62
R x I	1	1,512	0.83	0.37
Residual	81	1,832		

Panel D: Analysis of Variance (ANOVA)

Dependent Variable: Magnitude of Effort Allocated to Client Z (future client)

<u>Source</u>	<u>df</u>	<u>MS</u>	<u>F-Stat</u>	<u>p-value</u>
Intercept	1	464,015	167.18	0.00 ***
Rotation (R)	1	26,923	9.70	0.00 ***
Risk of PCAOB Inspection (I)	1	1,207	0.44	0.51
R x I	1	10,053	3.62	0.06 **
Residual	81	2,776		

Notes: The magnitude of change in effort on Client X is calculated as Current Year X hours – Prior Year X Hours (which was constant across conditions in the experimental materials). The magnitude of effort allocated to Client Z is the number of hours participants allocated to Client Z; because Client Z was presented as a future client in the experiment, prior year Z hours were equal to zero for all participants. Means, standard deviations (in parentheses), and number of participants are provided in Panels A and B. Panels C and D present the results of an analysis of variance (ANOVA) where the independent variables are Rotation (no or yes) and Risk of PCAOB Inspection (low or high). ***, **, and * denote two-tailed statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.