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POTENTIAL BENEFITS AND UNINTENDED CONSEQUENCES OF RISK-BASED INSPECTIONS ON AUDITOR BEHAVIOR

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Abstract

This study examines how risk-based inspections influence auditor behavior in a multi-client setting. I conduct two experiments using an abstract setting that captures the theoretical constructs present in the audit ecology. In both experiments, I manipulate the presence of risk-based inspections between-participants and the level of client risk (higher vs. lower) within-participants. In Experiment 1, the auditors operate in an environment with relatively high resource pressure. Consistent with the theoretical predictions, I find that auditor effort is higher under a regime with inspections as compared to a regime without inspections. The finding is consistent with the PCAOB's goal of improving audit quality. However, I also find some unintended consequences of risk-based inspections. First, I find that auditor effort increases more for higher-risk clients than for lower-risk clients. Second, consistent with predictions from attentional control theory, I find that auditor decision performance is worse for lower-risk clients than for higher-risk clients, ceteris paribus. In Experiment 2, I test whether reducing auditors' resource pressure can evade the unintended consequences of risk-based inspections on lower-risk clients. Under this environment, as predicted, I find that auditor effort increases with an inspections regime, but auditor effort no longer increases more for higher-risk clients than for lower-risk clients. I also find that under a regime with inspections, decision performance is no longer worse for lower-risk clients compared to higher-risk clients.

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I. INTRODUCTION

The goal of the U.S. Public Company Accounting Oversight Board (PCAOB) inspection process is to improve audit quality. After almost a decade of inspections, relatively little is known about the effectiveness of the PCAOB inspection process in achieving this goal. Academics continue to call for research as to how PCAOB inspections potentially influence audit quality (e.g., Bedard et al. 2008, 208; Church and Shefchik 2012, 62; Houston and Stefaniak 2013, 25; Knechel et al. 2013, 36; Peecher et al. 2013). The purpose of this study is to examine how risk-based inspections influence auditor behavior and how changes in behavior potentially differ depending on client risk. In doing so, I consider potential benefits of inspections that are consistent with the PCAOB's goal of improving audit quality (e.g., increases in auditor effort) and potential unintended consequences of risk-based inspections on auditor behavior. I also examine how a change to the audit environment, reducing the level of auditors' resource pressure, can evade the potential unintended consequences caused by risk-based inspections.

The PCAOB inspection process is an independent, external review that essentially holds auditors accountable for the quality of their work. That is, auditors can anticipate being evaluated during inspections, and also they can anticipate negative consequences for performing substandard work. Consistent with other accountability mechanisms in auditing, I expect inspections motivate auditors to increase effort consistent with the PCAOB's preferences (e.g., higher levels of effort are desirable). Therefore, compared to a regime without inspections, I predict inspections will increase the level of auditor effort, in general. However, due to the risk-based nature of the inspections process, unintended consequences may arise.

The PCAOB uses a risk-based approach in selecting issuers for inspections. That is, higher-risk engagements are targeted for reviews. The risk-based nature of the inspection process is public knowledge and underscored by the PCAOB. While a risk-based approach has certain appeal, some worry that it may have potential drawbacks. To the extent that auditors anticipate which engagements will be selected for inspection (i.e., higher risk clients), they may direct special attention toward these clients. Houston and Stefaniak (2013, 28) warn that inspection outcomes may be capturing auditors' "best attempts to ensure audit quality and not the typical audit." Recent survey data from audit partners of large public accounting firms supports this concern (Houston and Stefaniak 2013). Reported data indicate that approximately 30 percent of audit partners can or try to predict which engagements will be selected for PCAOB inspection review, and approximately 29 percent of partners report changing their audit plans based on the perceived likelihood of being inspected.

When asked about her reaction to the survey findings reported above, PCAOB Board Member, Jeanette Franzel, stated that she "would be concerned if a partner is making decisions about staffing levels and hours based on that partner's assessment of whether or not that audit will be inspected. I would hope the *same levels* of quality and expertise would be applied to an audit regardless." She further added, "that makes me question what's happening on the audits that partners think are not being inspected?" (Franzel 2013, emphasis added).

As indicated by academics, the potential concern is that while the inspection process may alter auditor behavior to improve audit quality for some clients (i.e., higher-risk, targeted clients), improvements may not be uniform across all audit engagements. Further, drawing on theory from cognitive psychology and prior research in auditing, I expect that the environment auditors typically operate in, one with a relatively high level of resource pressure (Gullapalli 2005; Lopez and Peters 2012), combined with risk-based inspections, may lead to unintended consequences for lower-risk clients. Specifically, following prior research (Stone and Kadous 1997), I predict that pressure from anticipating inspections combined with pressure from resource constraints (i.e., wanting to increase effort in response to accountability pressures from inspections, but not being able to do so because of resource constraints) increases auditors' task-related anxiety. According to attentional control theory, such anxiety increases the use of stimulus-driven processing. That is, in order to reduce anxiety, individuals increase attention and effort toward the stimulus causing the anxiety. Therefore, in a multi-task setting, anxiety leads to worse decision performance for the other less-salient tasks (Eysenck et al. 2007). Following this theory and prior research, I expect auditor decision performance to be worse for lower-risk clients (i.e., less-salient decisions) than for higher-risk clients under a risk-based inspections regime.

To test my theoretical predictions as to how risk-based inspections influence auditor behavior, I conduct two experiments. Following prior experimental economics research in auditing, I design an experimental setting that captures the theoretical constructs present in the audit ecology in a controlled setting. The experimental setting allows me to examine auditor behavior in a multi-client setting. That is, auditors make effort and reporting decisions concurrently for two clients, a higher-risk and a lower-risk client, given a fixed amount of available audit resources. Auditors have incentives to report favorably for the client, but also have incentives to report accurately to avoid potential costs associated with incorrect reports (i.e., litigation and reputation costs of Type II errors). To examine the effect of risk-based inspections on auditor behavior, half of the auditors are subject to reviews (i.e., inspections). Auditors can anticipate that their higher-risk clients will be selected if they are reviewed and that they may receive penalties based on the audit effort allocated to that client.

In Experiment 1, auditors operate under relatively high resource pressure, similar to the environment during busy season and/or an audit with a tight budget (e.g., under fee pressure). The findings of Experiment 1 indicate that auditor effort is higher under a regime with inspections than under a regime without inspections, but auditor effort increases more for higher-risk clients than for lower-risk clients. Further, the findings indicate that risk-based inspections lead to worse decision performance for lower-risk clients. Specifically, using two different measures of decision performance (i.e., one effort-based and one reporting-based), in a regime with inspections, auditors' decision performance is worse (i.e., more suboptimal) for lower-risk clients than for higher-risk clients, ceteris paribus. By comparison, in a regime without inspections, auditors' decision performance does not differ for lower- and higher-risk clients. The findings are consistent with the claim that pressure from anticipating inspections combined with pressure from resource constraints increases task-related anxiety which leads to lower decision performance for less-salient tasks (i.e., lower-risk clients in a risk-based inspections regime).

In Experiment 2, I reduce the auditors' level of resource pressure by relaxing the constraints on total effort, and I conduct the same study to examine the effects of risk-based inspections on auditor behavior. Consistent with the theoretical predictions, under this environment, the unintended consequences of risk-based inspections on auditor behavior for lower-risk clients are no longer observed. That is, while auditor effort remains higher under an inspections regime, auditor effort no longer increases more for higher-risk clients than lower-risk clients. Further, under an inspections regime, decision performance is no longer worse for lower-risk clients than for higher-risk clients. The results of Experiment 2 further support the theory that it is the combined pressures of inspections and resource constraints that lead to anxiety, and thus lower decision performance for lower-risk (i.e., less-salient) clients.

The results of this study contribute to the auditing literature. First, this study adds to the literature that identifies PCAOB inspections as a source of accountability pressure that leads to higher levels of auditor effort (Stefaniak and Houston 2013) and higher auditor reporting quality (Lamoreaux 2013). This study also extends the auditing literature on pressures and answers calls for research as to how accountability pressures interact with other environmental pressures to influence auditor behavior (e.g., DeZoort and Lord 1997). Examining the joint effect of accountability pressure and resource pressure in a multi-client context provides a finer examination compared to prior studies (e.g., Glover 1997; Asare et al. 2000) which allows for identifying when the combination of these two pressures potentially has negative effects (i.e., when auditors are under both pressures and for tasks that they are held less accountable for). Third, this is one of the first studies to directly examine potential unintended consequences of the PCAOB's risk-based inspections on auditor behavior and, thus, audit quality. It also identifies a means for firms to avoid the potential unintended consequences (e.g., relaxing auditors' resource constraints). The results of this study should be of interest to audit regulators, auditing firms, and other academic researchers.

The remainder of the paper is organized as follows. In Section II, I provide a brief background on PCAOB inspections. In Section III, I discuss the related literature and develop the hypotheses. The method and results for Experiment 1 are included in Section IV, followed by Experiment 2 in Section V. Concluding remarks are in Section VI.

II. PCAOB INSPECTIONS BACKGROUND

The PCAOB was established by the Sarbanes Oxley Act of 2002 (SOX) to regulate the auditing profession. One of the main duties of the PCAOB is to conduct periodic inspections of audit engagements for all accounting firms that audit public companies (“issuers”). Beginning in 2004, the PCAOB began performing annual inspections for all accounting firms with over 100 issuer clients and triennial inspections (i.e., once every three years) for accounting firms with 100 or fewer issuer clients. Per the PCAOB inspection reports, “inspections are designed to identify and address weaknesses and deficiencies related to how a firm conducts audits.” Therefore, the PCAOB focuses their inspections on the audit process as compared to the audit outcome. According to the PCAOB, the goal of the inspection process is to improve audit performance and to promote public trust in the auditing profession by reducing the risks of auditing failures in U.S. public companies.

While many believe that audit quality has improved with PCAOB inspections (e.g., Abbott et al. 2008; Church and Shefchik 2012; DeFond 2010; DeFond and Lennox 2011; Dougherty et al. 2011; Gunny and Zhang 2013), relatively little research has provided empirical evidence on this matter. A few studies offer descriptive analyses on the results contained in the PCAOB inspection reports for large (Church and Shefchik 2012) and small accounting firms (Hermanson et al. 2007), indicating that the number of audit deficiencies has declined over time. Further, a few archival studies have examined associations between the PCAOB inspections and proxies for audit quality. The findings indicate that low-quality, smaller audit firms are more likely to exit the market following the implementation of the PCAOB (DeFond and Lennox 2011); auditors are more likely to issue going concern opinions for financially distressed clients after having been inspected by the PCAOB (Gramling et al. 2011); in general, clients of audit firms whose inspection reports contain more serious auditing deficiencies are associated with lower earnings quality (Gunny and Zhang 2013); and abnormal accruals of clients of Big 4 firms, on average, decrease in the first two years following PCAOB inspections (Carcello et al. 2010).

While the existing evidence is consistent with the claim that PCAOB inspections improve audit quality, empirical challenges limit the ability to draw causal inferences. First, because the PCAOB uses a risk-based approach to select issuer engagements for inspection reviews, the sample of engagements is not representative of the population. Accordingly, improvements in the results from inspection samples may not be representative of the average audit quality in the overall audit market. Second, until 2010, the inspection reports did not disclose the *number* of issuer audit engagements inspected for large, annually-inspected firms. As such, the reported decrease in the auditing deficiencies over time could simply be due to a decrease in the *number* of issuer clients inspected. Finally, empirical findings based on changes in the overall audit market following PCAOB inspections are confounded with many other changes in the market during the same time period (e.g., changes in client managers' and auditors' behaviors due to significant changes after the passage of SOX).

With the exceptions of Stefaniak and Houston (2013) and Lamoreaux (2013), prior studies have not examined the direct causal effects of PCAOB inspections on auditor behavior. Stefaniak and Houston (2013) find that experienced auditors anticipating a PCAOB inspection increase planned audit hours and audit fees, but that they do not behave more conservatively (i.e., they are not more likely to require adjusting a subjective audit difference). Lamoreaux (2013) finds that auditors in jurisdictions allowing (barring) PCAOB inspections are more (less) likely to report going concern opinions and material weaknesses, but only in the pre-PCAOB regulatory period. The findings of the study are consistent with improved auditor reporting quality in anticipation of PCAOB inspections. My study complements the prior work by examining the contrasting effects of risk-based inspections on auditor behavior for higher-risk versus lower-risk clients in a multi-client setting, and also by examining the differential effects when auditors face varying levels of audit resource constraints. With this design, I am able to identify when risk-based inspections may have the strongest benefits, and also when risk-based inspections potentially lead to unintended consequences for lower-risk clients.

III. RELATED LITERATURE AND HYPOTHESES DEVELOPMENT

Related Literature

Accountability Pressure

As will be discussed, I expect PCAOB inspections act as an accountability mechanism to influence auditor behavior. Accountability refers to an expectation of having to justify one's actions to others and usually implies that negative consequences will be suffered for insufficient actions (Lerner and Tetlock 1999, 255). In auditing, research has shown that individuals perceive and react to accountability when they anticipate being evaluated, without necessarily anticipating having to *justify* their actions (Lord 1992; DeZoort and Lord 1997; Glover 1997). Accountability is one source of pressure, typically comprised of feedback pressure of being evaluated and/or social pressure of justifying one's actions to others (DeZoort and Lord 1997).

In general, accountability pressure motivates individuals to increase effort thereby leading to improvements in judgment and decision-making (JDM) quality in the particular task (Lerner and Tetlock 1999). However, the effects of accountability pressure are dependent on the perceived objective of the person held accountable to (e.g., a perceived objective to be accurate versus a preferred outcome). Research in auditing has illustrated the effects of accountability pressure on auditor performance. When auditors are held accountable with a perceived objective to be accurate, auditors tend to increase effort and improve judgment performance (e.g., Johnson and Kaplan 1991; Ashton 1990; Kennedy 1993). When auditors are held accountable to parties with preferences, they tend to conform to those preferences (e.g., Lord 1992; Hoffman and Patton 1997; Wilks 2002), even if it produces inefficient or ineffective outcomes.

Resource Pressure

Auditors suffer from chronic constraints on their resources. Whether through limited availability (e.g., during busy seasons) or through pervasive time-budget constraints, auditors often operate under high resource pressure (e.g., DeZoort and Lord 1997; Bowlin 2011; Lopez and Peters 2012). In general, auditors have negative attitudes toward increasingly tight budgets (Azad 1994), and they report experiencing stress from time-budget pressures (Kelley and Seiler 1982). Research has shown an inverted-U relationship with time-related pressures and judgment performance. That is, performance increases with low to moderate levels of pressure but decreases with moderate to high levels of pressure (Choo 1995; DeZoort and Lord 1997). Increasingly intense time-related pressures lead to an increased level of anxiety, which worsens performance (Ashton 1990) and leads to undesirable effects (Alderman and Deitrick 1982; McDaniel 1990). For example, time-related pressures have been found to reduce audit effectiveness (McDaniel 1990), decrease audit effort (Bowlin 2011), reduce the quality of auditors' decision-making processing (Solomon and Brown 1992), and increase auditors' willingness to underreport time and prematurely signoff on audit work (Ponemon 1992; Alderman and Detrick 1982).

Accountability Pressure and Resource Pressure

Relatively few studies have examined how accountability pressure influences auditor behavior when auditors are also under relatively high resource pressure (or other time-related pressures) (DeZoort and Lord 1997). Glover (1997) finds no effect of accountability pressure when auditors are also under time pressure. Specifically, he finds that accountability pressure does not mitigate dilution effects in auditors' fraud-risk assessments when auditors are under higher (or lower) time pressure. On the other hand, Asare et al. (2000) finds that accountability pressure improves the effectiveness (i.e., breadth) of audit testing, even when auditors are under higher time-budget pressure. My study extends this research by examining the effect of accountability pressure imposed by inspections on auditor behavior in a multi-task (i.e., multi-client) setting. Using a multi-task setting allows for a finer examination of the effects of accountability pressure on auditor behavior when auditors are under high resource pressure. While prior research only has examined the combined effects of accountability and time-related pressures on tasks auditors are held accountable for, in this study I examine the combined effects on tasks auditors are held more and less accountable for (i.e., higher- and lower-risk clients).

Anxiety and Cognitive Performance

Stone and Kadous (1997) show when individuals are under both accountability pressure (e.g., high levels of monitoring) and perceived time pressure they experience task-related negative affect, measured by higher levels of nervousness. Further, they find individuals in this nervous (i.e., anxious) state have lower decision performance for complex tasks as compared to individuals who are not under such conditions. Specifically, their decision processing strategies are more suboptimal (i.e., more heuristics-based), resulting in lower decision accuracy.

In a review of the literature, Eysenck et al. (2007) provide theory underlying the consequences of anxiety on cognitive performance in a multi-task setting. Anxiety impairs decision-making processing by disrupting individuals' attentional control processing. Anxiety impairs (distracts from) one's use of the goal-directed attentional system and increases one's use of the stimulus-driven attentional system. This effect arises because anxiety increases one's motivation to reduce the aversive state. To reduce anxiety, individuals direct effort and resources toward the tasks contributing to anxiety. In doing so, they shift from a goal-directed attentional system to a stimulus-driven attentional system (i.e., to the stimulus adding to the anxiety). In a multi-task setting, if the primary task is more salient than the secondary task, anxiety impairs performance on the secondary task more than on the primary task. Alternatively, if neither task is perceived as more salient than the other, anxiety impairs performance similarly for both tasks.

In my study, following Stone and Kadous (1997), I expect accountability pressure from inspections combined with resource pressure cause higher levels of anxiety during the task. Following theory from Eysenck et al. (2007), I make predictions as to how this expected anxiety influences decision performance in a multi-client setting as compared to when individuals are not under this anxious state. Specifically, I use attentional control theory to predict how inspections will influence auditor behavior differently for varying types of clients (higher- versus lower-risk) when auditors are under higher and lower resource pressure which naturally occur in the audit environment.

Hypotheses Development

Risk-based Inspections and Client-Risk on Auditor Effort

The PCAOB's inspection process is an independent, external quality review that holds auditors accountable for their work. Auditors can anticipate that their work will be evaluated for process quality, and they can anticipate negative consequences for insufficient quality. Under a regime with inspections, auditors likely experience accountability pressure in the form of both feedback pressure and social pressure (DeZoort and Lord 1997). Feedback pressure can result from anticipation of being evaluated by inspectors and suffering consequences for substandard quality (e.g., economic and psychological costs of incurring auditing deficiencies). Social pressure can result from anticipation of publicizing deficiencies in their audit work to superiors, peers, and the public (i.e., reputational costs of incurring auditing deficiencies).

Following prior research in auditing on accountability pressure when there is a perceived objective to be accurate (e.g., Johnson and Kaplan 1991; Kennedy 1993), I expect inspections motivate auditors to be more vigilant and diligent in their work in anticipation of potential PCAOB review. Further, the sentiment gathered from PCAOB inspection reports appears to be that more work is better. Therefore, following prior research in auditing on accountability pressure when there is a perceived preference (e.g., Lord 1992; Hoffman and Patton 1997; Wilks 2002), I expect auditors to increase effort under an inspections regime to appease inspectors, even if it produces inefficient outcomes. Either way, increasing auditor effort reduces auditors' chances of incurring auditing deficiencies and costs associated with those deficiencies. Accordingly, I expect the following prediction:

H1: Auditor effort will be higher under a regime with inspections than under a regime without inspections.

Due to the risk-based nature of the inspection process, it is possible that changes in auditor effort under an inspections regime will not be uniform across all clients. The PCAOB indicates the importance of allocating sufficiently high levels of auditor effort to all clients, but they focus their inspections on higher-risk clients. Auditors anticipate that higher-risk (lower-risk) clients may (may not) be selected for inspection (Houston and Stefaniak 2013). Accordingly, under an inspections regime, auditors may increase effort more for higher-risk, targeted clients than for lower-risk, untargeted clients, in order to avoid costs associated with incurring inspection deficiencies.

Further, auditors have chronic constraints on their resources, especially during busy seasons or during audits with tight budgets. When auditors' resources are constrained, they may not be able to increase effort to the desired level for all clients under an inspections regime. At higher levels of resource constraints, auditors are faced with making tradeoffs. That is, with increasing resource pressure, auditors may only be able to increase effort for some, but not all, clients. Further, at very high levels of resource pressure, if auditors want to increase effort for some clients (e.g., higher-risk clients), at some point they may have to reduce effort for others (e.g., lower-risk clients). This discussion leads to the following prediction:

H2a: When auditors are under relatively high resource pressure, compared to a regime without inspections, under an inspections regime auditor effort will increase more for higher-risk clients than for lower-risk clients.

By contrast, when auditors are not under high resource pressure, I no longer expect auditor effort to increase more for higher-risk clients than for lower-risk clients under a regime with inspections. Prior research in psychology and auditing supports that when individuals are held accountable to a party with preferences, they tend to conform to those preferences, even it if produces inefficient outcomes (e.g., Lord 1992; Hoffman and Patton 1997; Wilks 2002). Auditors are aware that the PCAOB prefers more effort to less and that they expect high quality auditing for all clients. Therefore, I expect auditors will be willing to increase effort for higher-risk and lower-risk clients in accordance with the perceived preferences of the PCAOB, even if additional auditor effort is costly and results in suboptimal levels of effort (i.e., inefficiencies). This discussion leads to the following prediction:

H2b: When auditors are under relatively lower resource pressure, compared to a regime without inspections, under an inspections regime auditor effort will no longer increase more for higher-risk clients than for lower-risk clients.

Risk-based Inspections and Client-Risk on Auditor Decision Performance

Following Stone and Kadous (1997), I expect accountability pressure from inspections combined with high resource pressure that naturally occurs in the audit environment causes task-related negative affect or anxiety. That is, I expect auditors experience accountability pressure under an inspections regime because they want to increase effort in order to avoid potential negative consequences of receiving inspection deficiencies (e.g., economic costs, social costs, psychological costs) (i.e., H1). However, when auditors are under high resource pressure, they are constrained from their desire of increasing effort; they do not have the resources available to increase effort to the desired level (i.e., without decreasing effort elsewhere). Therefore, I expect accountability pressure from inspections will increase task-related anxiety because auditors are constrained from adequately responding to the accountability pressure.

Recall that prior research in cognitive psychology finds that task-related anxiety leads to suboptimal decision processing and worse decision performance (e.g., Adelberg and Batson 1978; Stone and Kadous 1997), especially for less-salient, secondary tasks. Specifically, anxiety interrupts individuals' decision-making processing; it impairs the use of goal-directed processing and increases the use of stimulus-driven processing (Eysenck et al. 007). That is, to reduce anxiety, individuals enhance their attention toward the tasks stimulating the anxiety (i.e., the salient, primary tasks). Consequently, anxiety impairs decision performance for less-salient, secondary tasks. For example, individuals under anxiety tend to increase their use of heuristics-based processing for secondary tasks resulting in suboptimal, worse decision performance (Eysenck et al. 2007).

Under a risk-based inspections regime, an emphasis is placed on higher-risk clients as compared to lower-risk clients; thus, decisions related to higher-risk clients are likely more salient than those for lower-risk clients. I expect that auditors with higher task-related anxiety increase their use of stimulus-driven processing, thereby enhancing attention toward the tasks stimulating the anxiety (i.e., decisions related to higher-risk clients under an inspection regime). Therefore, following prior research, I expect anxiety impairs auditors' decision performance more for less-salient tasks (i.e., decisions for lower-risk clients) than for more-salient tasks contributing to the anxiety (i.e., decisions for higher-risk clients) (Eysenck et al. 2007).

In sum, when auditors are under relatively high resource pressure, I expect decision performance to be worse for lower-risk clients than higher-risk clients when auditors are under a regime with inspections. When auditors are under a regime without inspection, decisions related to higher-risk clients are not made more salient than those for lower-risk clients; therefore, according to attentional control theory, anxiety from resource pressure should not impair decision performance more for lower-risk clients than for higher-risk clients. This discussion leads to the following interaction hypothesis:

H3a: When auditors are under relatively high resource pressure, decision performance will be worse for lower-risk clients than for higher-risk clients under an inspections regime, but decision performance will not differ across clients under a regime without inspections.

By comparison, when auditors are not under relatively high resource pressure, I no longer expect decision performance to be worse for lower-risk clients than for higher-risk clients under a regime with inspections. By reducing the resource pressure, I expect auditors will no longer experience task-related anxiety when they are under an inspections regime because they are no longer constrained from adequately responding to the accountability pressure from inspections. Thus, absent anxiety, auditors are no longer expected to engage in stimulus-driven processing or suboptimal decision making. This discussion leads to the following formal hypothesis:

H3b: When auditors are under relatively lower resource pressure, decision performance will no longer be worse for lower-risk clients than for higher-risk clients under an inspections regime.

I test my hypotheses using two experiments.[1] In Experiment 1, auditors are under relatively high resource pressure. This setting is used to test H1, H2a, and H3a. In Experiment 2, auditors are under relatively lower resource pressure. This setting is used to test H1, H2b, and H3b.

IV. EXPERIMENT I

Method

Design Overview

I employ a 2 X 2 mixed-design. I manipulate the inspections regime, present (*Inspections)* or absent (*No Inspections*), between-participants. I manipulate the level of client risk *(*denoted *Client Risk),* lower- and higher-risk, within-participants. When operationalizing the inspections regime I attempt to capture the key structural constructs of the PCAOB's inspection process. Accordingly, under the *Inspections* conditions, the following features are present: auditors are subject to an independent review; the review includes a risk-based selection of the client to be reviewed; auditors can anticipate penalties for insufficient levels of audit work; and

[1] I conduct two separate experiments because the parameters of the experimental setting are different across experiments. By changing the level of audit resources available, I vary the amount of auditor effort participants can allocate to clients. Further, I am interested in examining the effect of risk-based inspections on auditor behavior for lower- and higher-risk clients under varying levels of resource pressure. That is, I am not interested in examining the main effect of resource pressure on auditor behavior.

identified audit deficiencies are publicly disclosed. For *Client Risk*, higher-risk clients have a higher probability of a misstatement than do lower-risk clients.

For H1 and H2's, the dependent variable is auditor effort. For H3's, the dependent variable is auditor decision performance, measured by suboptimal auditor effort decisions and suboptimal auditor reporting decisions.

Experimental Procedures

The experiment was conducted in a controlled laboratory with undergraduate students from a medium-sized state university. Forty-nine undergraduates participated, with fifty-one percent being female. The average age was 20 years.

Consistent with prior experimental economic studies, the experimental setting is made as stark as possible to minimize the effect of any role-playing by participants (e.g., King 1991; Kachelmeier and King 2002). Participants are assigned the role of "verifiers" (auditors) and randomly assigned to *Inspection* conditions. The other audit market players are referred to as "sellers" (clients), "buyers" (investors), and "a review board" (regulators). Further, clients' financial statements are labeled "assets:" "Type A assets" for lower-risk clients and "Type B assets" for higher-risk clients. To reduce the complexity of the audit market, clients', investors', and regulators' behaviors are computerized (Schatzberg and Sevcik 1994).[2] Therefore, the design allows for isolating the effect of inspections on auditor behavior for multiple clients with varying levels of client risk.

[2] The theoretical predictions across the *Inspection* conditions remain unchanged if actual participants are used for clients, investors, and/or regulators. The auditor participants are aware that the other parties' decisions are programmed, and they have full information as to how the decisions are programmed. Consistent with single-period settings, the other parties' decisions are not dependent on prior periods (i.e., they do not consider historical auditor behavior in their decisions). These design choices remove any strategic interaction and reputational effects that may arise between auditors and other parties. Further, I am interested in examining how the anticipation of PCAOB inspections influences auditor behavior rather than any strategic interaction between PCAOB inspectors and auditors.

Prior to beginning the experiment, participants were provided with written instructions. The experimenter read a summarized version of the instructions aloud to the participants, highlighting the key points of the experiment. The instructions explained that each participant would be assigned the role of a "Verifier." They also were informed that they would make decisions for 20 periods and that each period was independent (i.e., that there were new assets each period). The instructions familiarized participants with the setting of the experiment, the choices to be made, the programmed behavior of the other players in the market, and the nature of the payoffs for different outcomes.

The experiment was implemented using the z-Tree experimental software (Fischbacher 2007). Following the instructions, participants completed a computerized true-false quiz to ensure they understood the key points of the experiment and the experimental manipulations. The percentage of correct/incorrect answers to the quiz questions did not differ across conditions ($p > 0.10$). Subsequently, participants completed three practice periods designed to help them understand the experimental protocol, become familiar with the computerized software, and understand how their decisions influence their outcomes and payoffs. See Figure 1 for a screen print of the experimental design in z-Tree.

The Experimental Setting

The following describes the sequence of the actions in the experiments. Verifiers make repeated decisions and accumulate experimental earnings (EE) over 20 periods.

1. Asset types. At the start of each period, verifiers receive revenues of 1,000 EE per asset to verify the values of one Type A asset and one Type B asset. For Type A assets (*lower-risk clients)*, the probability of a *low (high)* value is 0.20 (0.80). For Type B assets *(higher-risk client),* the probability of a *low (high)* value is 0.40 (0.60).

2. Effort-level choices. Verifiers make effort-level choices by allocating a fixed amount of resources among the two assets and keeping the remainder for their personal consumption. Verifiers are informed that the standard level of effort per asset is 3, but

that they can allocate any amount greater than or equal to 1 for each asset, subject to the constraint that the total level of effort for both assets does not exceed 6.[3] Higher levels of effort cost more but also provide a more accurate signal about the true value of the asset.

3. Asset value signals. Based on the effort-level choice, verifiers receive a signal about the true value of the asset (*high, low)*. When the true value of the asset is *high*, the signal will always be accurate. However, when the true value of the asset is *low*, the signal will be incorrect with some probability dependent on the effort-level choice (referred to as the "error rate"). By design, the error rates are higher for *higher-risk clients* (ranging from 12 percent to 40 percent) than for *lower-risk clients* (ranging from 6 percent to 20 percent). All participants received a table detailing the cost of effort and the corresponding error-rates of the signal for each effort-level choice. A copy of this table included in Panel A of Figure 2.

4. Reporting choices and outcomes. For each asset, verifiers report whether the asset has a *high* or *low* value. If the verifier reports that the asset has a *low* value (i.e., disagrees with the seller), they are charged a flat cost of 500 EE, regardless of the outcome. If the verifier reports that the asset has a *high* value (i.e., agrees with the seller), the report cost depends on the true value of the asset. If the true value of the asset is *low,* there is a 50 percent chance that the incorrect *high* report will be detected. If the incorrect *high* report is detected, s/he is charged an incorrect report cost of 6,000 EE.[4] The incorrect report cost represents a discovered Type II error which has significant consequences to audit firms (i.e., costs for litigation and reputational damage).

5. Review process. In the *Inspection* conditions, verifiers are informed that there is a 50 percent chance in each period that they will be selected for review by a review board. Further, they are informed that if they are selected for review, one of their assets will be reviewed and there is a 0.05 (0.95) probability that their Type A, *lower-risk* (Type B, *higher-risk*) asset will be reviewed.[5] When the verifier is selected for review, s/he is charged a cost of 150 EE for the review. In addition, s/he is penalized based on the effort-

[3] I set the "standard" effort level equal to the wealth-maximizing level under the assumption that audit firms' standard levels of effort are the level at which the firm maximizes revenues (i.e., the point at which the marginal benefits of effort start to decline). Refer to the Appendix for a detailed discussion on the wealth-maximizing decisions. I constrained the total effort to "6" in order capture relatively high resource pressure whereby auditors have sufficient levels of resources to meet the firm's optimal standards, but do not have extra resources.

[4] Given the amount of incorrect report costs, there was potential for participants to accumulate negative earnings. Relatively few participants ended the experimental session in negative earnings (i.e., bankrupt). The percent of participants who went bankrupt did not differ across *Inspection* conditions (*p-value* > 0.10). For participants who went bankrupt, I informed them *after* the experimental session was completed that they would earn $0 for the experimental study and that they would *not* be required to pay any additional amounts for the negative earnings. Participants still received full compensation for the show-up fee, for the risk-preference task, and for completing the post-experimental questionnaire.

[5] While in the real world, a partner or an audit firm may have several clients selected for inspection review, it is doubtful that 100 percent of their clients would be selected. Therefore, I chose to only have a maximum of one asset selected for review. This design choice also allowed me to operationalize the risk-based nature of the selection process in that only a higher-risk client is anticipated for review and not a lower-risk client.

level chosen for that asset.[6] The penalties range from 150 EE "severe" to 75 EE "moderate" to 0 EE "none." Only the maximum effort-level choice avoids receiving a penalty.[7] The summary of the review penalty costs that was provided to the participants is included in Panel B of Figure 2. Finally, participants are informed that at the conclusion of the experiment, the review board (the experimenter) will announce each person's review penalties to the group, one by one in order of severity (highest to lowest amounts).[8]

6. Feedback. Verifiers receive feedback about the asset value, report outcomes, review results, and earnings for the period. Then, the next period begins and the procedures are repeated.

To enhance comparability, for each period I randomly predetermine the states of the assets and reviews based on the probability parameters disclosed to the participants in the instructions. I hold these states constant across *Inspection* conditions, which facilitates making comparisons of auditor behavior across conditions. The predetermined states each period include: (1) the true values of the assets, (2) whether or not an incorrect high report will be detected, (3) whether or not a review will take place, and (4) the asset that will be reviewed.

Post-experimental Procedures and Payoffs

Participants completed a post-experimental questionnaire that included questions about demographics, comprehension of the manipulations, and insights into how participants made their effort and reporting decisions. Participants also completed an option-choice task that

[6] Penalties are based on effort-level choices, rather than reporting outcomes, in order to better reflect the PCAOB's inspection practice, which is inherently a review of the audit *process* rather than of the audit *outcome*. Participants were explicitly made aware during the instructions that the review penalties were based on effort-level choices and *not* their reporting outcomes. Comprehension of this information was confirmed during the pretest that occurred prior to the experiment.

[7] The auditors' wealth-maximizing decision is an effort-level of "3" but auditors receive an inspection penalty for anything lower than the maximum effort-level choice. This design choice was implemented in order to demonstrate the PCAOB's preference that more effort is better than less. Also, it seems that if auditors' work and documentation is anything less than satisfactory, they will incur costs for deficiencies issued by the PCAOB and/or through incurring time to satisfy the PCAOB's inquiries. Essentially, this design choice recognizes a gap between the auditors' optimal audit model and the PCAOB's optimal audit model, whereby the standards for effectiveness are likely higher for the PCAOB than for an audit firm.

[8] Alternatively, I could have announced the review penalties after each period. Either way, I anticipate the public announcement of the review penalties to induce social pressure with effects similar to that induced by the PCAOB's practice of reporting the audit firm's deficiencies in a public report. I chose to announce the penalties one time at the end of the experiment due to time constraints of the experiment.

measures their risk preferences.[9] The participants received compensation on the option-choice task, ranging from $0.10 to $3.80, based on the outcome of their decisions.

Participants were paid in cash at the end of the session. They received a show-up fee, plus their accumulated earnings in the experimental task, plus compensation from the option-choice task. Only the experimenter was made aware of their payoff, which is consistent with other similar experimental economics studies in the auditing literature (e.g., Dopuch and King 1992; Grant et al. 1996). The average payment was $18.10 and the range was $10 to $34. The average payment did not differ across *Inspection* conditions (*p-value* > 0.10).[10] The experimental sessions lasted approximately 60 minutes, ranging from 50 to 80 minutes.

Wealth-maximizing Behavior

In this study, I am interested in studying the non-wealth-maximizing effects of inspections on auditor behavior. In order to better isolate these effects, I construct a setting where the wealth-maximizing predictions are held constant across the *Inspection* conditions and also for lower- and higher-risk clients. Therefore, any differences in observed behavior across conditions cannot be attributable to wealth-maximizing reasons. I explain the parameters and wealth-maximizing behavior in detail in Appendix A, and I provide a brief summary below.

For effort-level decisions, I set the standard level of effort 3 equal to the wealth-maximizing effort-level choice. As can be seen in Panel A of Figure 2, the cost of effort has increasing net marginal benefits from effort-levels 1 to 3 and then has decreasing net marginal benefits beyond 3.[11] For reporting decisions (*high/low*), by design, the wealth-maximizing

[9] I measure individual risk preferences using a modified version of the Holt and Laury (2002) instrument.
[10] In an attempt for participants to earn a similar payment, on average, across the experimental conditions, I used different conversion rates from EE to $ for the two *Inspections* conditions. Therefore, while participants in the *Inspections* condition accumulated lower earnings in the experiment, their overall payment did not differ from those in the *No Inspections* condition.
[11] The "benefits" represent the accuracy of the signal. Obtaining an accurate signal is necessary in order to avoid incorrect report costs of 6,000 EE.

decision is always to follow the signal. The Appendix illustrates the expected costs of the various report choices for lower-risk (higher-risk) clients. Following the signal always yields the lowest expect cost. Finally, the inspection review process does not alter the wealth-maximizing decisions. In summary, the wealth-maximizing decisions are to always choose an effort-level of "3" and to follow the signal when reporting; this holds for both lower- and higher-risk clients under a regime with and without inspections. Given this design, any differences in effort or reporting decisions across conditions are assumed to be for reasons other than to maximize wealth.

Results

For manipulation checks, 27 out of 29 participants in the *Inspections* condition correctly indicated that higher-risk clients had a 95 percent chance of being reviewed, and 26 out of 29 correctly indicated that review penalties were based on their effort-level decisions.[12]

Risk-based Inspections and Client-Risk on Auditor Effort

The results of inspections on auditor effort for lower- and higher-risk clients are included in Figure 3 and Table 1. In order to construct independent observations of auditor effort, each participant's effort-level decisions are averaged across all 20 periods, such that each participant provides a single observation for higher-risk and lower-risk clients.[13] Thus, auditor effort represents the average effort-level choice for each participant across the 20 periods.

H1 predicts that auditor effort will be higher under an inspections regime than under a regime without inspections. The mean total effort is 5.85 in the *Inspections* condition and 5.19 in

[12] Inferences from the hypotheses testing are unchanged if I exclude participants who failed one or more of the manipulation checks.

[13] I also performed a repeated measures analyses including period (n=20) as a repeated measure separately for lower-risk and higher-risk clients on auditor effort. The effect of period is not significant ($p > 0.10$). Further, I re-perform the analysis for testing the hypotheses using data from periods 11-20 and the inferences for H1 and H2's are unchanged.

the *No Inspections* condition. To test H1, I use a repeated measures (for *Client Risk*) ANOVA on auditor effort (refer to Panel B). The main effect of *Inspections* is significant (p = 0.003) supporting H1. Further, the inferences of H1 hold when controlling for individual risk preferences.

H2a examines the differential effect of inspections on auditor effort for lower- and higher-risk clients when auditors are under high resource pressure. H2a predicts an interaction of *Inspections X Client Risk* whereby auditor effort will increase more for higher-risk clients than for lower-risk clients under a regime with inspections. As shown in Panel B, the *Inspections X Client Risk* interaction is significant (p = 0.012). To interpret the interaction of *Inspections X Client Risk*, I perform simple effects tests included in Panel C. Consistent with H2a, compared to a regime with no inspections, an inspections regime significantly increases auditor effort, but only for higher-risk clients (p = 0.001) and not for lower-risk clients (p = 0.620). The inferences of H2a hold when controlling for individual risk preferences.

To provide some additional context underlying the findings of H2a, I perform simple effects tests to examine if auditor effort is significantly different from the standard, wealth-maximizing level of 3 for lower- and higher-risk clients under each condition. The results indicate that in the *No Inspections* condition, auditor effort for higher-risk clients is significantly lower than the standard level of 3 (mean = 2.73, t = -1.952, p = 0.066, two-tailed). In contrast, auditor effort in the *Inspections* condition for higher-risk clients is at a level greater than the standard level (mean = 3.49, t = 3.506, p = 0.002, two-tailed). My findings suggest that risk-based inspections may be particularly effective at increasing auditor effort for higher-risk clients that were subsequently substandard. However, risk-based inspections appear to have no significant impact on auditor effort for lower-risk clients. Auditor effort for lower-risk clients in the *No Inspections* condition is significantly lower than the standard level (mean = 2.46, $t = -3.865$, $p = 0.001$) and remains at a substandard level in the *Inspections* condition (mean = 2.36; $t = -4.755$, $p < 0.001$).

Risk-based Inspections and Client-Risk on Auditor Decision Performance

H3a predicts an *Inspections X Client Risk* interaction when auditors are under high resource pressure, whereby decision performance will be worse for lower-risk clients than for higher-risk clients when auditors are under a regime with inspections. To test H3a, I use two dependent measures for auditor decision performance: one related to auditors' effort-level decisions, Substandard Effort, and one related to auditors' reporting decisions, Suboptimal Type II Errors. For both dependent measures, higher amounts of the dependent measure represent suboptimal, worse decision performance.

Substandard Effort

Substandard Effort is calculated as the average amount of effort below the standard, wealth-maximizing level of 3 (i.e., 3 minus the effort-level choice and averaged for all 20 periods). For any effort-level choice equal to or greater than 3, the substandard level is 0. Substandard Effort represents suboptimal decision performance because lower levels of effort yield higher error rates in the signal about the asset's true value. Therefore, the chance of receiving an inaccurate signal and issuing an incorrect high report (i.e., incurring a cost of 6,000 EE) increases substantially. While effort-level choices above the standard wealth-maximizing level of 3 also can be viewed as "suboptimal," the choices are less suboptimal than choosing substandard effort because the costs associated with selecting higher levels of effort are minimal (e.g., 50 EE) compared to the expected costs of incurring an incorrect report cost (e.g., 3,000 EE) which is more likely with substandard levels of effort.

The results of inspections on auditors' Substandard Effort for lower- and higher-risk clients are included in Panel A of Figure 4 and Table 2. Consistent with H3a, the interaction *Inspections X Client Risk* is significant ($p = 0.026$). To interpret the relationship, I perform simple effects tests in Panel C. Consistent with H3a, in the *Inspections* condition, Substandard Effort is worse for lower-risk clients than for higher-risk clients ($p < 0.001$). Also consistent with H3a, in the *No Inspections* condition, Substandard Effort does not differ across lower- and higher-risk clients ($p = 0.313$).

The results of H3a are robust to controlling for individual risk preferences. The results also are robust when using an alternate measure of Substandard Effort. Instead of using the average level of substandard effort, I use the count of substandard effort (i.e., any instance of effort less than 3) and rerun the analyses (untabulated). The interaction *Inspections X Client Risk* is weakened ($p = 0.079$, two-tailed), but the inferences from the simple effects tests remain unchanged.

Suboptimal Type II Errors

Suboptimal Type II Errors is calculated as the number of times an auditor reported a *high* value after receiving a *low* value signal (i.e., an incorrect high report) as a percentage of *low* value signals received in the 20 periods. This measure is not dependent on whether or not the incorrect high report was detected. It does not include Type II reporting errors that are unintentional (i.e., an incorrect *high* report after receiving a *high* value signal) because that report decision is not suboptimal. The dependent measure only includes Type II reporting errors resulting from suboptimal decisions. This reporting decision is suboptimal because a *low* value signal has 100 percent accuracy; therefore, the expected cost of issuing a *high* value report after receiving a *low* value signal is 3,000 EE (6,000 EE * 50 percent detection rate) as compared to the expected cost of issuing a *low* value report of 500 EE. While this reporting decision is suboptimal, it is not necessarily irrational; rather, it indicates that participants are willing to accept the risk (i.e., 50 percent chance) of being detected for issuing an incorrect high report.

The results of *Inspections* on Suboptimal Type II Errors for lower- and higher-risk clients are included in Panel B of Figure 4 and Table 3. Consistent with H3a, the interaction *Inspections X Client Risk* is significant (p = 0.041). To better interpret the relationship, I test the predictions using simple effects tests in Panel C. Consistent with H3a, in the *Inspections* condition, Suboptimal Type II Errors are worse for lower-risk clients than for higher-risk clients (p < 0.017). Also consistent with H3a, in the *No Inspections* condition, suboptimal Type II reporting errors do not differ across lower- and higher-risk clients (p = 0.824). Overall, the results support H3a that decision performance is worse for lower-risk clients than for higher-risk clients under a regime with inspections when auditors are under high resource pressure.

The results are robust to controlling for individual risk preferences. As another robustness check, I perform additional analyses in order to control for auditors' effort-level choices. It is important to include auditor effort-level choices as a control variable when analyzing reporting behavior to ensure that the effect of inspections on reporting behavior is not caused by a lack of effort (i.e., receiving different signals) but rather by a change in reporting strategy (i.e., shifting to a more risky, suboptimal strategy). Therefore, in additional analyses (untabulated), I perform ANCOVA's on Suboptimal Type II Errors separately for lower- and higher-risk clients and controlling for (1) auditor effort-level choices and (2) individual risk preferences. As expected, the main effect of *Inspections* is significant for lower-risk clients (p = 0.036, one-tailed), but is not significant for higher-risk clients (p = 0.895) (consistent with H3a). In summary, the findings suggest that inspections decrease decision performance for lower-risk clients.

I conduct a number of other robustness checks for this analysis. First, because the dependent measure is calculated as a percent of *low* value signals, I compare the number of *low* value signals across *Inspection* conditions noting that they do not differ ($p > 0.10$, untabulated). This finding rules out the alternative explanation that the number of *low* value signals is driving changes in reporting behavior rather than suboptimal decision-making. Second, I examine the number of participants who had at least one Suboptimal Type II Error. The percent for each condition is not trivial and ranges from 15.0 to 44.8 (refer to Panel A of Table 3). This finding rules out the possibility that a few individuals drive my results. Further, as expected the largest percent of individuals who had at least one Suboptimal Type II Error was in the *Inspections* condition for lower-risk clients (i.e., 44.8 percent).

V. EXPERIMENT 2

The results of Experiment 1 identify some unintentional consequences of risk-based inspections on auditor behavior when auditors are under relatively high resource pressure. In Experiment 2, I examine how reducing the level of resource pressure changes the effects of inspections on auditor behavior. I conduct a second experiment, similar to Experiment 1, but with one exception in that I increase the total amount of resources available to auditors to a level slightly greater than the standard, wealth-maximizing level.

Method

Fifty-five students participated in Experiment 2, with 47 percent being female.[14] The average age was 20 years.[15] In Experiment 2, I employ the same 2 X 2 mixed-design. I

[14] Participants were not allowed to participate in more than one experiment or in more than one session. Therefore, Experiment 1 and 2 are independent.
[15] The average age and years of school significantly differed across *Inspection* conditions ($p < 0.05$). However, when I include these variables as covariates in the analyses for hypotheses testing, the covariates are not significant ($p > 0.10$) and they do not interact with any of the variables of interest ($p > 0.10$). Further, the inferences related to the hypotheses are unchanged when including these covariates. Therefore, I do not include the covariates in the analyses presented.

manipulate the inspections regime (present or absent) between-participants, and client risk (lower- and higher-risk) within-participants. The independent variables and dependent variables remain the same as Experiment 1. The experimental procedures and experimental setting also are the same, except for one change: I vary the total amount of resources available to the participants to be allocated for their effort-level choices. Verifiers are still informed that the standard level of effort per asset is 3, but that they can allocate any amount greater than or equal to 1 for each asset, subject to the constraint that the total level of effort for both assets does not exceed 7 (i.e., as compared to 6 in Experiment 1).[16] All additional units of effort above 3 still cost 50 EE and have decreasing marginal returns. Further, related to review penalties, as in Experiment 1, only the maximum level of effort (i.e., 6 in Experiment 2) avoids a review penalty. Importantly, the wealth-maximizing predictions do not change in Experiment 2. That is, the wealth-maximizing strategy is to choose an effort-level of 3 for each asset and report according to the signal. Finally, to ensure consistency and comparability across Experiments, I used the same predetermined states and outcomes from Experiment 1 for every period 1-20 (e.g., the same high and low value assets, selection of reviews, etc.).

Results

[16] I set the constraint of available audit resources to 7 based on results from a previous pilot study. In the pilot study, there were no restrictions on the total audit resources available. The standard was still set at the wealth-maximizing level of 3 but participants were allowed to allocate as much effort as they preferred, at increasing costs of effort. The average effort allocated across both clients was 7.11 and 8.26 in the *No Inspections* and *Inspections* conditions, respectively. Accordingly, I set the maximum amount of effort to 7 in Experiment 2 because it is approximately equal to the desired average choice with no constraints for *No Inspections* conditions. Therefore, like the real world, auditors still have resource constraints but the pressure from resource constraints is lower than it is for Experiment 1. Further, the results of the pilot test are similar to that reported in H1 and H2b whereby auditor effort is higher with inspections, but does not increase more for higher-risk clients than for lower-risk clients.

For manipulation checks, 26 out of 27 participants in the *Inspections* condition correctly indicated that higher-risk clients had a 95 percent chance of being reviewed, and 24 out of 27 correctly indicated that review penalties were based on their effort-level decisions.[17]

Risk-based Inspections and Client-Risk on Auditor Effort

The results of inspections on auditor effort for lower- and higher-risk clients when auditors have relatively lower resource pressure are included in Table 4. As expected, the main effect of *Inspections* is significant (p = 0.018) indicating that auditor effort is higher under an inspections regime (mean = 6.24) than under a regime without inspections (mean = 5.58) (consistent with H1). Consistent with H2b, the interaction of *Inspections X Client Risk* is not significant (p = 0.667) indicating that auditor effort does not increase more for higher-risk than for lower-risk clients under a regime with inspections when auditors are not under high resource constraints. The results are robust to controlling for individual risk preferences.

Interestingly, when auditors are under relatively lower resource pressure, inspections appear to be especially beneficial to lower-risk clients. That is, in the *No Inspections* condition, auditor effort for lower-risk clients is significantly lower than the standard, wealth-maximizing level (mean = 2.49; p < 0.001), but increases in the *Inspections* condition to a level that is not significantly different from the standard level (mean = 2.76; p = 0.104). For higher-risk clients, in the *No Inspections* condition, auditor effort for higher-risk clients is not different from the standard level (mean = 3.09; p = 0.634), and increases in the *Inspections* condition to a level significantly higher than the standard level (mean = 3.49; p = 0.010) (i.e., to an inefficient level or "over-auditing").

Risk-based Inspections and Client-Risk on Auditor Decision Performance

[17] Inferences from the hypotheses testing are unchanged if I exclude participants who failed one or more of the manipulation checks.

The results of inspections on auditor decision performance for lower- and higher-risk clients when auditors have relatively lower resource pressure are included in Table 5 (for Substandard Effort) and Table 6 (for Suboptimal Type II Errors). Consistent with H3b, the interaction of *Inspections X Client Risk* on Substandard Effort is not significant (p= 0.674; Panel B, Table 5). The results are robust to controlling for individual risk preferences and to using the count of substandard effort as the dependent measure.

By contrast, the interaction of *Inspections X Client Risk* on Suboptimal Type II Errors is significant (p= 0.030; Panel B, Table 6); however, the interaction is no longer significant when risk preferences are included as a covariate (p = 0.158, untabulated). Further, as reported in Panel C of Table 6, under an inspections regime, Suboptimal Type II Errors do not differ for lower- and higher-risk clients (p = 0.183) (consistent with H3b). The results are robust to controlling for auditors' individual effort-level choices.

Together, the results support H3b that decision performance is no longer worse for lower-risk clients than for than higher-risk clients under an inspections regime when auditors are not under high resource pressure.

Supplemental Analysis

In H3's, I predict that under an inspections regime, decision performance will be worse for lower-risk clients than for higher-risk clients, but only when auditors are under relatively high resource pressure. This prediction is based on theory and prior research that suggests when auditors are under an inspections regime and have high resource pressure, they will experience task-related anxiety which will lead to lower decision performance. Specifically, I expect task-related anxiety to occur under this condition because participants will want to increase auditor effort in response to accountability pressure from inspections, but they will not be able to sufficiently do so because of high resource pressure. I provide some evidence to support this theory. In the post-experimental questionnaire, I asked participants to what extent they would have liked to choose more effort on a scale from 1 "a small extent" to 11 "a great extent." On average, only participants in the *Inspections* condition under high resource pressure (Experiment 1) indicated that they would have liked more effort (mean = 6.90, which is greater than the midpoint 6.0). By comparison, the means of the *Inspections* condition under relatively lower resource pressure (Experiment 2) and in the *No Inspections* conditions for Experiment 1 and 2 were less than 6.0. Further, the mean rating in the *Inspections* condition for Experiment 1 was significantly greater than the mean ratings of the other three conditions (t = -2.520, p = 0.013, two-tailed). This finding is consistent with the theory that participants in this condition, an only in this condition, experience anxiety because they want to increase effort in response to inspections pressure but were unable to because of resource pressure.

VI. CONCLUSIONS

In this study, I examine the effects of risk-based inspections on auditor behavior. The results of Experiment 1 indicate that auditor effort is higher under a regime with inspections than under a regime without inspections. This finding is consistent with the PCAOB's goal of improving audit quality. However, the results also identify potential unintended consequences of risk-based inspections when auditors are under relatively high levels of resource pressure (i.e., a condition that naturally occurs in the audit environment). That is, auditor effort with inspections increases more for higher-risk clients than for lower-risk clients, and decision performance worsens (i.e., suboptimal behavior increases) for lower-risk clients. In Experiment 2, I identify a potential means to evade the unintended consequences of risk-based inspections. I find that when auditors' resource pressure is reduced, auditor effort increases uniformly for both lower- and higher-risk clients under an inspections regime, and that decision performance is no longer worse for lower-risk clients.

The results have implications for both audit firms and regulators of audit firms, including the PCAOB. While the current PCAOB inspection process is designed to enhance audit quality for all clients, the risk-based nature of the inspection process may have unintentional, negative consequences for lower-risk clients. To that end, additional research could examine how an alternative process to selecting inspections (e.g., a random process) might differentially influence auditor behavior. However, one potential limitation of switching to a more randomized process is that private company audits for large audit firms will still be exempt from PCAOB inspections (i.e., firms will always have “lower-risk” clients).

Nonetheless, given the current PCAOB inspection process, to the extent that audit firms are concerned about the potential unintended consequences described in Experiment 1 of this study, they could attempt to avoid the negative effects by relaxing the level of resource constraints placed on their auditors. Specifically, audit firms could consider increasing auditors’ time-budgets allowed for engagements and/or increase the amount of audit staff during busy seasons in order to alleviate auditors’ resource pressures.

Consistent with traditional experimental-economics studies in auditing (Kachelmeier and King 2002), the experimental setting attempts to capture the essence of the audit ecology, but uses a stark setting. As such, I abstract away from many environmental and institutional factors present in the real-world that may affect auditors’ decisions. For example, in the real-world, auditors have strategic interactions with managers and potentially with PCAOB inspectors which my study does not allow for. Further, I make a number of simplifying assumptions in the experimental setting (e.g., the cost of Type II errors are the same for lower- and higher-risk clients). Future research can continue to examine how risk-based inspections influence auditor behavior under different conditions and/or under different assumptions. However, I do not expect that changes to these factors would systematically affect the directional predictions or results observed in this study.

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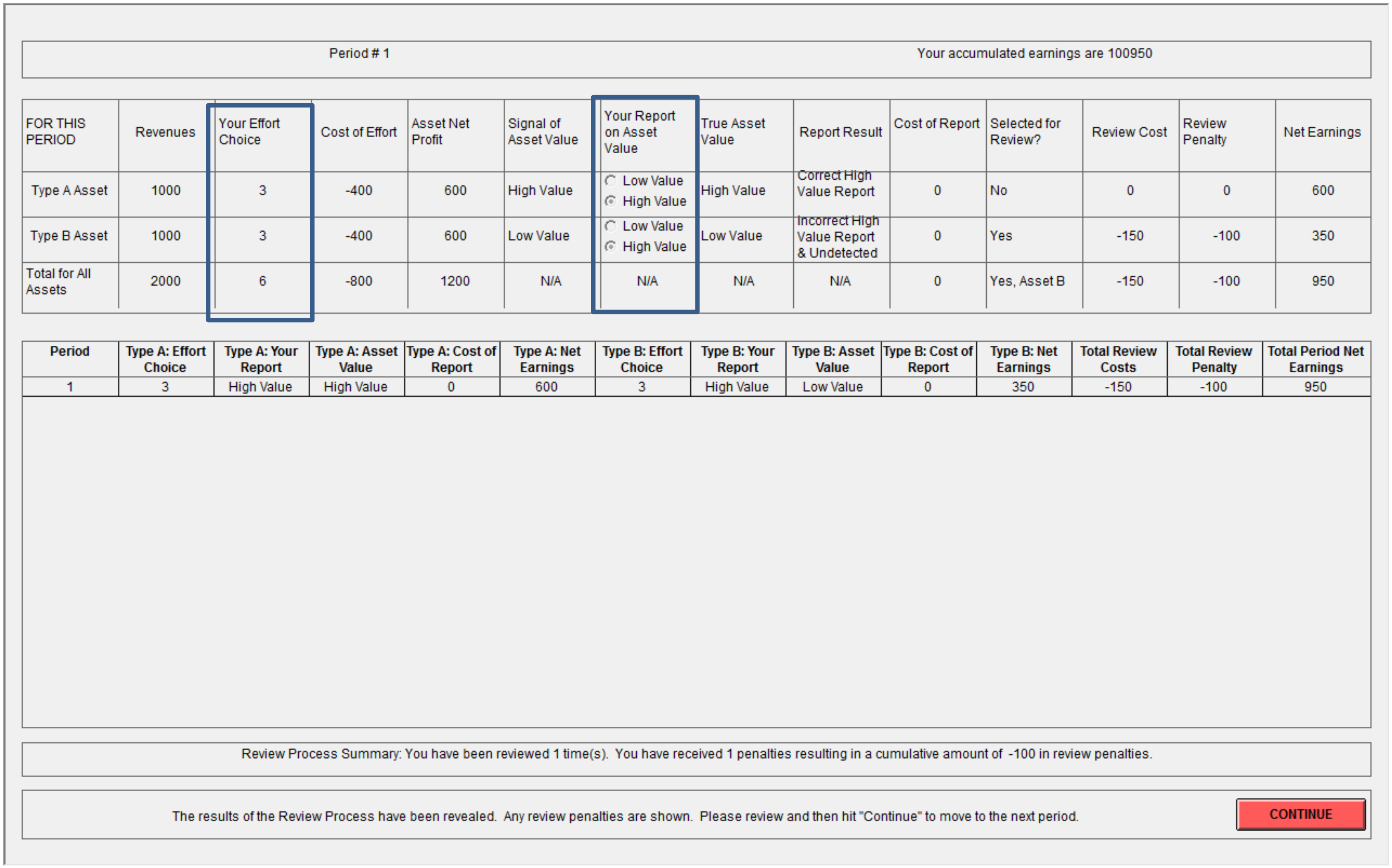
Figure 1
Screen Print of Experimental Task



Period # 1 | Your accumulated earnings are 100950

FOR THIS PERIOD	Revenues	Your Effort Choice	Cost of Effort	Asset Net Profit	Signal of Asset Value	Your Report on Asset Value	True Asset Value	Report Result	Cost of Report	Selected for Review?	Review Cost	Review Penalty	Net Earnings
Type A Asset	1000	3	-400	600	High Value	○ Low Value ◉ High Value	High Value	Correct High Value Report	0	No	0	0	600
Type B Asset	1000	3	-400	600	Low Value	○ Low Value ◉ High Value	Low Value	Incorrect High Value Report & Undetected	0	Yes	-150	-100	350
Total for All Assets	2000	6	-800	1200	N/A	N/A	N/A	N/A	0	Yes, Asset B	-150	-100	950

Period	Type A: Effort Choice	Type A: Your Report	Type A: Asset Value	Type A: Cost of Report	Type A: Net Earnings	Type B: Effort Choice	Type B: Your Report	Type B: Asset Value	Type B: Cost of Report	Type B: Net Earnings	Total Review Costs	Total Review Penalty	Total Period Net Earnings
1	3	High Value	High Value	0	600	3	High Value	Low Value	0	350	-150	-100	950

Review Process Summary: You have been reviewed 1 time(s). You have received 1 penalties resulting in a cumulative amount of -100 in review penalties.

The results of the Review Process have been revealed. Any review penalties are shown. Please review and then hit "Continue" to move to the next period. CONTINUE

Notes: The figure represents a screen print of the experimental task in z-Tree software (Fischbacher 2007). The items highlighted by the blue boxes are decisions that the participants make. The remainder of the information is feedback to the participants. For each period, feedback is not presented until the participants have made their effort and report decisions.

Figure 2
Details of the Experimental Setting

Panel A: Cost of Effort and Signal Error Rates for Effort-Level Choices

Effort-Level Choice	Total Cost of Effort	Signal Error Rate – True Asset Value is "Low" but Signal says "High"	
		Type A Assets	Type B Assets
1	350	20%	40%
2	375	16%	28%
3	400	8%	16%
4	450	7%	14%
5	500	6%	12%

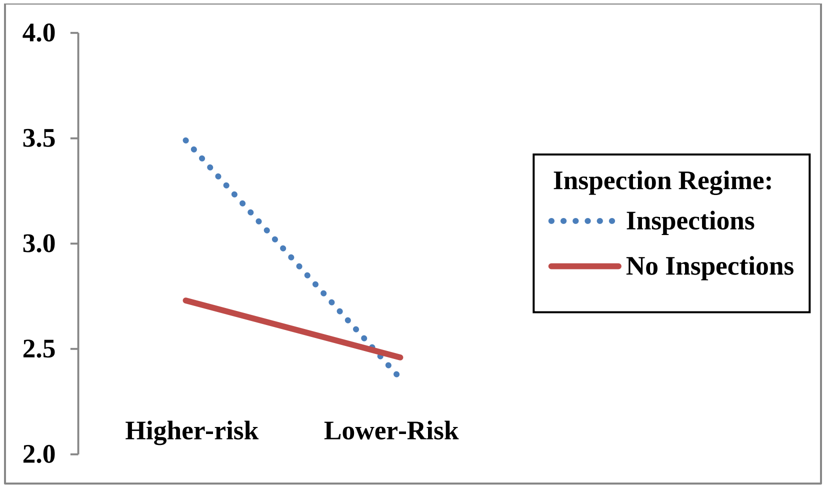
Note: Participants received this table in the instructions of the experiment detailing the cost of effort and signal error rates for both Type A and Type B assets.

Panel B: Review Penalties for Effort-Level Choices

Effort-Level:	1	2	3	4	5
	Severe		Moderate		None
Penalty:	150	125	100	75	0

Note: Participants received this table in the instructions of the experiment detailing the review penalties for each effort-level choice.

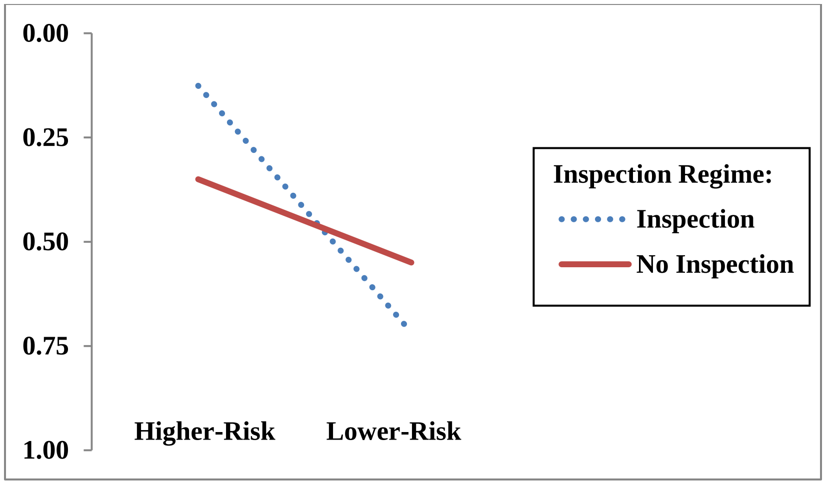
Figure 3
Results of Auditor Effort for Experiment 1



Notes: The dependent measure, Auditor Effort, is calculated as the participants' average effort-level choice across the 20 periods. Participants could choose an effort-level choice from 1-5 for each asset, but could not exceed 6 in total.

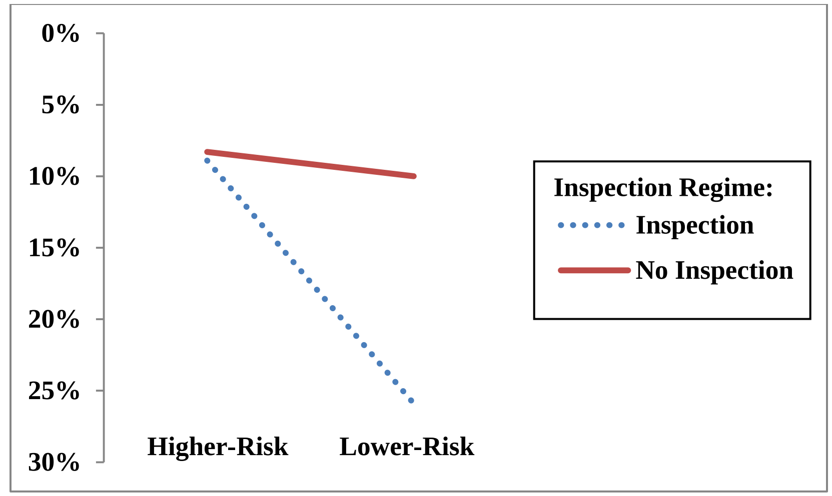
Figure 4
Results of Decision Performance for Experiment 1

Panel A: Substandard Effort



Notes: The dependent measure, Substandard Effort, is a measure of suboptimal, worse decision performance calculated as the average amount of effort below the standard, wealth-maximizing level 3 (i.e., 3 minus the effort-level choice). For any effort-level choice equal to or greater than 3, the substandard effort is 0. A reverse scale is used in order to better display performance where the best performance is 0 Substandard Effort.

Panel B: Suboptimal Type II Errors



Notes: The dependent measure, Suboptimal Type II Errors, is a measure of suboptimal, worse decision performance calculated as the number of times a participant reported a *high* value after receiving a *low* value signal as a percentage of *low* value signals received in the 20 periods. This measure is not dependent on the actual outcome (i.e., whether or not the incorrect *high* report was detected). It also doesn't include Type II reporting errors that are unintentional (i.e., an incorrect *high* value report after receiving a *high* value signal) because that report decision is not suboptimal. Rather, it only includes intentional Type II reporting errors. A reverse scale is used in order to better display performance where the best performance is 0 Suboptimal Type II Errors.

Table 1
Analysis of Auditor Effort for Experiment 1

Panel A: Mean (standard deviation) Auditor Effort

	Higher-Risk	**Lower-Risk**	**Total**
No Inspections	2.73 (0.62) [n=20]	2.46 (0.62) [n=20]	5.19 (1.19) [n=20]
Inspections	3.49 (0.75) [n=29]	2.36 (0.72) [n=29]	5.85 (0.35) [n=29]
Combined	3.18 (0.79) [n=49]	2.40 (0.68) [n=49]	5.58 (0.86) [n=49]

Panel B: Repeated Measures ANOVA on Auditor Effort

Between-subjects effects:	df	SS	MS	*F*	*p*-value	
Inspections	1	2.598	2.598	8.048	0.003*	H1
Between-subjects error	47	15.170	0.323			
Within-subjects effects:						
Client Risk	1	11.547	11.547	17.977	<0.001	
Inspections X Client Risk	1	4.396	4.396	6.843	0.012	H2a
Within-subjects error	47	30.189	0.642			

Panel C: Simple Effects Tests for Hypotheses (Univariate Analysis)

	df	*T*	*p*-value
Higher-risk clients: Effect of Inspections	47	-3.729	0.001
Lower-risk clients: Effect of Inspections	47	0.500	0.620

Notes:
* One-tailed *p*-value for directional tests. All other reported *p*-values are two-tailed.

When participants' individual risk preferences are included as a covariate in the repeated measures ANCOVA model, the inferences for the hypothesis are unchanged. The main effect of *Inspections* is still significant ($p = 0.024$) and the *Inspections X Client Risk* is significant ($p = 0.018$). Interestingly, however, the main effect of client risk is no longer significant ($p > 0.1$). This implies that the main effect of *Client Risk* on auditor effort is driven by individual risk preferences.

Table 2
Analysis of Decision Performance - Substandard Effort for Experiment 1

Panel A: Mean (standard deviation) Substandard Effort

	Higher-Risk	**Lower-Risk**
No Inspections	0.350	0.550
	(0.600)	(0.637)
Inspections	0.126	0.717
	(0.235)	(0.658)

Panel B: Repeated Measures ANOVA on Substandard Effort

Between-subjects effects:	df	SS	MS	*F*	*p*-value	
Inspections	1	0.019	0.019	0.045	0.833	
Between-subjects error	47	20.104	0.428			
Within-subjects effects:						
Client risk	1	3.707	3.707	21.533	<0.001	
Inspections X Client risk	1	0.907	0.907	5.267	0.026	H3a
Within-subjects error	47	8.090	0.172			

Panel C: Simple Effects Tests for Hypotheses (Univariate Analysis)

	df	*T*	*p*-value	
Inspections: Higher-risk vs. lower-risk clients	56	4.560	<0.001	H3a
No Inspections: Higher-risk vs. lower-risk clients	38	1.023	0.313	H3a

Notes: When participants' individual risk preferences are included as a covariate in the repeated measures ANCOVA model, the inferences for the hypothesis are unchanged. The *Inspections X Client Risk* is significant (p = 0.040).

Table 3
Analysis of Decision Performance – Suboptimal Type II Errors for Experiment 1

Panel A: Suboptimal Type II Errors

	Higher-Risk	**Lower-Risk**
No Inspections	8.3	10.0
	(20.6)	(26.2)
	[25.0%]	[15.0%]
Inspections	8.9	25.9
	(15.6)	(33.8)
	[37.9%]	[44.8%]

Notes: Represents the average percent of Suboptimal Type II Errors as a percentage of *low* value signals received in the 20 periods. The standard deviations are included in parenthesis. The percent of individuals who had at least one Suboptimal Type II error are included in brackets.

Panel B: Repeated Measures ANOVA on Suboptimal Type II Errors

Between-subjects effects:	df	SS	MS	*F*	*p*-value	
Inspections	1	0.160	0.160	1.663	0.203	
Between-subjects error	47	4.519	0.096			
Within-subjects effects:						
Client risk	1	0.205	0.205	6.580	0.014	
Inspections X Client risk	1	0.138	0.138	4.435	0.041	H3a
Within-subjects error	47	1.466	0.031			

Panel C: Simple Effects Tests for Hypotheses (Univariate Analysis)

	df	*T*	*p*-value	
Inspections: Higher-risk vs. lower-risk clients	56	2.453	0.017	H3a
No Inspections: Higher-risk vs. lower-risk clients	38	0.224	0.824	H3a

Notes: When participants' individual risk preferences are included as a covariate in the repeated measures ANCOVA model, the inferences for the hypothesis are unchanged. The *Inspections X Client Risk* is still significant (p = 0.039).

Table 4
Analysis of Auditor Effort for Experiment 2

Panel A: Mean (standard deviation) Auditor Effort

	Higher-Risk	**Lower-Risk**	**Total**
No Inspections	3.09	2.49	5.58
	(0.94)	(0.65)	(1.33)
	[n=28]	[n=28]	[n=28]
Inspections	3.49	2.76	6.24
	(0.91)	(0.75)	(0.92)
	[n=27]	[n=27]	[n=27]
Combined	3.28	2.62	5.91
	(0.94)	(0.70)	(1.19)
	[n=55]	[n=55]	[n=55]

Panel B: Repeated Measures ANOVA on Auditor Effort

Between-subjects effects:	df	SS	MS	*F*	*p*-value	
Inspections	1	3.047	3.047	4.605	0.018*	H1
Between-subjects error	53	35.074	0.662			
Within-subjects effects:						
Client Risk	1	12.020	12.020	17.519	<0.001	
Inspections X Client Risk	1	0.129	0.129	0.187	0.667	H2b
Within-subjects error	53	36.365	0.686			

* One-tailed *p*-value for directional tests. All other reported *p*-values are two-tailed.

When participants' individual risk preferences are included as a covariate in the repeated measures ANCOVA model, the inferences for the hypothesis are unchanged. The main effect of *Inspections* is still significant ($p = 0.042$, one-tailed) and the interaction *Inspections X Client Risk* is not significant ($p = 0.720$). Interestingly, however, the main effect of client risk is no longer significant ($p > 0.10$). This implies that the main effect of *Client Risk* on auditor effort is driven by individual risk preferences.

Table 5
Analysis of Decision Performance - Substandard Effort for Experiment 2

Panel A: Mean (standard deviation) Substandard Effort

	Higher-Risk	**Lower-Risk**
No Inspections	0.355	0.539
	(0.650)	(0.637)
Inspections	0.141	0.391
	(0.301)	(0.577)

Panel B: Repeated Measures ANOVA on Substandard Effort

Between-subjects effects:	df	SS	MS	*F*	*p*-value	
Inspections	1	0.906	0.906	1.961	0.167	
Between-subjects error	53	24.496	0.462			
Within-subjects effects:						
Client risk	1	1.294	1.294	7.700	0.008	
Inspections X Client risk	1	0.030	0.030	0.179	0.674	H3b
Within-subjects error	53	8.908	0.168			

Notes: When participants' individual risk preferences are included as a covariate in the repeated measures ANCOVA model, the inferences for the hypothesis are unchanged. The interaction *Inspections X Client Risk* is not significant (p = 0.790).

Table 6
Analysis of Decision Performance – Suboptimal Type II Errors for Experiment 2

Panel A: Suboptimal Type II Errors

	Higher-Risk	**Lower-Risk**
No Inspections	11.3	6.5
	(21.5)	(16.6)
	[39.3%]	[14.3%]
Inspections	8.0	17.3
	(15.4)	(32.2)
	[33.3%]	[25.9%]

Notes: Represents the average percent of Suboptimal Type II Errors as a percentage of *low* value signals received in the 20 periods. The standard deviations are included in parenthesis. The percent of individuals who had at least one Suboptimal Type II error are included in brackets.

Panel B: Repeated Measures ANOVA on Suboptimal Type II Errors

Between-subjects effects:	df	SS	MS	*F*	*p*-value	
Inspections	1	0.038	0.038	0.524	0.472	
Between-subjects error	53	3.862	0.073			
Within-subjects effects:						
Client risk	1	0.014	0.014	0.511	0.478	
Inspections X Client risk	1	0.135	0.135	4.963	0.030	H3b
Within-subjects error	53	1.443	0.027			

Panel C: Simple Effects Tests (Univariate Analysis)

	df	*T*	*p*-value	
Inspections: Higher-risk vs. lower-risk clients	52	1.348	0.183	H3b
No Inspections: Higher-risk vs. lower-risk clients	54	-0.927	0.358	H3b

Notes: When participants' individual risk preferences are included as a covariate in the repeated measures ANCOVA model, the inferences for the hypothesis are slightly changed. The interaction *Inspections X Client Risk* becomes insignificant (p = 0.158), consistent with H5.

Appendix A
Wealth-maximizing Behavior

I constructed an experimental setting where the wealth-maximizing predictions are held constant across the *Inspections* conditions and held constant across client types. The purpose of this appendix is to explain the parameters and the wealth-maximizing behavior in detail. The following information pertains to both Experiments 1 and 2.

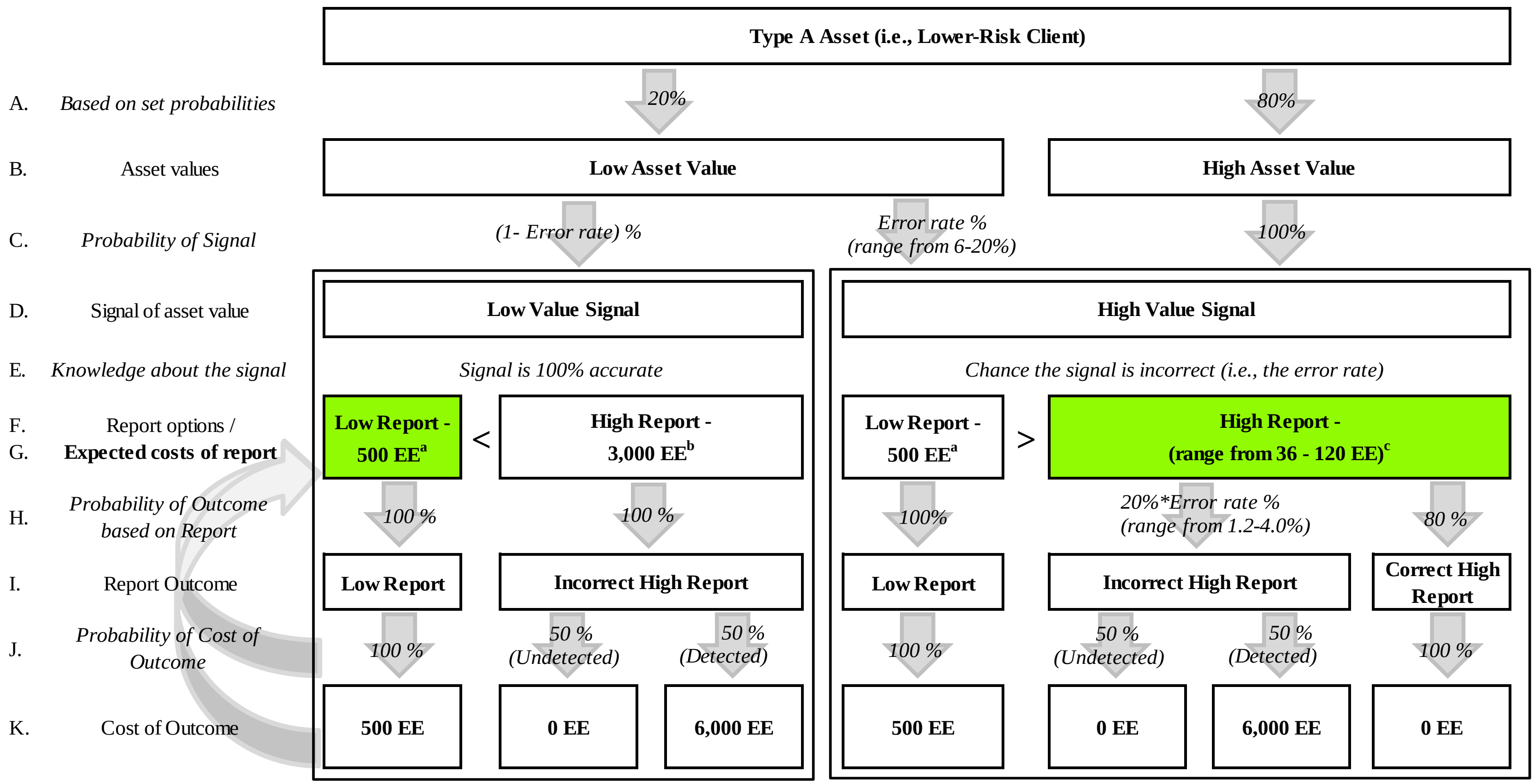
For effort-level decisions, I set the standard level of effort 3 equal to the wealth-maximizing effort-level choice. Specifically, for both assets, the cost of effort has increasing net marginal benefits from effort-levels 1 to 3 (up to the standard level) and then has decreasing net marginal benefits beyond the standard level 3 (refer to Panel A of Figure 2). The "benefits" represent the accuracy of the signal. Obtaining an accurate signal is necessary in order to avoid incorrect report costs of 6,000 EE. The parameters related to effort-level decisions and signals are held constant across the *Inspections* conditions.

For reporting decisions (*high/low*), by design, the wealth-maximizing decision is always to follow the signal. Figure A-1 and A-2 illustrate the expected costs of the various report choices for lower-risk and higher-risk clients. As shown in Lines G of Figures A-1 and A-2, when there is a "low value signal" the expected cost of reporting *low* (i.e., following the signal) is 500 EE which is lower than the expected cost of reporting *high* of 3,000 EE. This result follows because (1) the cost of reporting *low* is always 500 EE, regardless of the outcome, and (2) a low value signal is 100 percent accurate, thus, the expected cost of reporting *high* after receiving a "low value signal" is the cost of an incorrect report 6,000 EE multiplied by the detection rate of 50 percent. Likewise, when there is a "high value signal" the expected cost of reporting *high* (i.e., following the signal) is lower than the expected cost of reporting *low* of 500 EE. Specifically, for lower-risk (higher-risk) clients, the expected cost of issuing a *high value* report upon receiving a "high value signal" ranges from 36-120 EE (144-480 EE) based on the effort-level chosen (refer to Figures A-1 and A-2 for more details). Accordingly, the reporting decisions do not differ across client types. These design choices are held constant across the *Inspections* conditions.

Finally, the inspection review process does not alter the wealth-maximizing decisions. Recall that the inspection review penalties range from 0 to 150 EE and are incurred based on the effort-level choices. While higher levels of effort reduce the amount of review penalties (if selected for review), the incremental cost of effort is greater than the expected value of savings for avoiding review penalties. For example, choosing an effort-level "4" costs 50 EE more than an effort-level "3," but *if* the asset is selected for inspection, the review penalty for an effort-level "4" is only 25 EE less than for an effort-level of "3." Therefore, increasing effort to avoid inspection penalties is not consistent with maximizing wealth. Further, in this setting, the participants' reporting choices have no bearing on the review process.

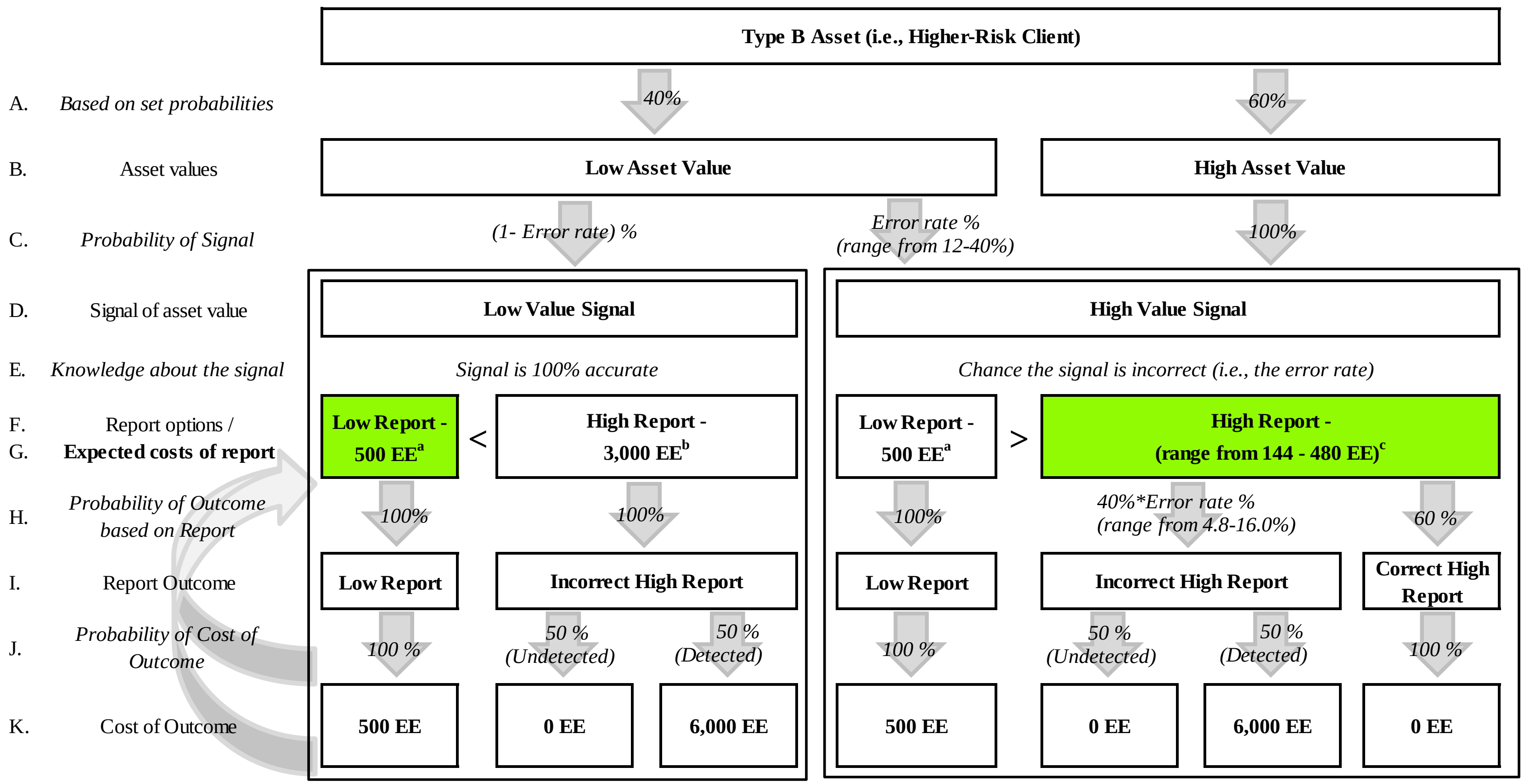
In summary, the above discussion indicates that the wealth-maximizing decisions are to always choose an effort-level of "3" for both lower- and higher-risk clients, under a regime with and without inspections. Given this design, any deviations in effort-level choices of "3" or in reporting choices that do not follow the signal are assumed to be for reasons other than to maximize wealth.

Figure A-1
Flowchart of Expected Costs for Report Decisions for Lower-Risk Clients



Notes: The boxes highlighted in green represent the wealth-maximizing report choices following the respective signals, which are to follow the signal.
a. The cost of reporting a *low* value is always 500 EE regardless of the actual value of the asset.
b. A "low value signal" is 100% accurate. Therefore, if a participant reports a *high* value after receiving a "low value signal," there is a 50% chance that the incorrect high report will be detected. The cost of an incorrect *high* report is 6,000 EE if detected; therefore, the expected value is 3,000 EE (i.e., 6,000 EE * 0.5).
c. If the true value of the asset is *low*, the signal is not 100% accurate. The signal error rate for a *low* value asset depends on the participant's effort-level choice. The signal error rates range from 20% for an effort-level choice of "1" to 6% for an effort-level choice of "5." The expected cost of issuing a *high* report after receiving a *high* value signal is always less than the cost of issuing a *low* report (i.e., 500 EE). The expected cost is calculated as follows: 20% chance of being a low value asset * the error rate of the signal * 50% chance of detecting an incorrect high report * 6,000 EE cost of an incorrect high report. Therefore, the expected cost ranges from 36 to 120 EE.

Figure A-2
Flowchart of Expected Costs for Report Decisions for Higher-Risk Clients



Notes: The boxes highlighted in green represent the wealth-maximizing report choices following the respective signals, which are to follow the signal.
a. The cost of reporting a *low* value is always 500 EE regardless of the actual value of the asset.
b. A “low value signal” is 100% accurate. Therefore, if a participant reports a *high* value after receiving a “low value signal,” there is a 50% chance that the incorrect high report will be detected. The cost of an incorrect *high* report is 6,000 EE if detected; therefore, the expected value is 3,000 EE (i.e., 6,000 EE * 0.5).
c. If the true value of the asset is *low*, the signal is not 100% accurate. The signal error rate for a *low* value asset depends on the participant's effort-level choice. The signal error rates range from 40% for an effort-level choice of "1" to 12% for an effort-level choice of "6." The expected cost of issuing a *high* report after receiving a *high* value signal is always less than the cost of issuing a *low* report (i.e., 500 EE). The expected cost is calculated as follows: 20% chance of being a low value asset * the error rate of the signal * 50% chance of detecting an incorrect high report * 6,000 EE cost of an incorrect high report. Therefore, the expected cost ranges from144 to 480 EE.

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1. Knechel, W. R., and L. B. Shefchik. "Audit Quality." *The Routledge Companion to Auditing*, Ed. D. Hay, W.R. Knechel, and M. Willikens, Oxford (UK): Routledge (forthcoming).
2. Knechel, W. R., G. V. Krishnan, M. Pevzner, L. B. Shefchik, and U. K. Velury. 2013. Audit Quality: Insights from the Academic Literature. *Auditing: A Journal of Practice & Theory* 32 (Special Issue).
3. Church, B. K. and L. B. Shefchik. 2012. PCAOB Inspections and Large Accounting Firms. *Accounting Horizons* 26 (1): 43-63.

Working Papers:

- Shefchik, L. B. "Potential Benefits and Unintended Consequences of Risk-based Inspections on Auditor Behavior." (Dissertation job market paper)
- Krishnan, G. V., L. B. Shefchik, and W. Yu. "Debt Covenant Violations and Associations with Viable Auditor Responses." (Under second round of review at *Contemporary Accounting Research)*

  Received the "Best Paper Award" at the 2013 Center for Corporate Reporting & Governance Conference held at the College of Business and Economics at California State University, Fullerton.

  Presented at the 2010 AAA Annual Meeting and the 2014 Auditing Section Midyear Conference.
- Gramling, A. A., A. Schneider, and L. B. Shefchik. "The Combined Effects of Prior Work and Type of Internal Control Deficiency on Internal Auditors' Evaluations of Internal Controls" (Under second round of review at *Auditing: A Journal of Practice & Theory*)

  Presented at the 2010 AAA Annual Meeting.
- Majors, T. M., L. B. Shefchik, and A. Vitalis. "The Interactive Effect of Ego Depletion and Skepticism on Auditor Performance: Why There *Can* Be Too Much of a Good Thing" (In process of presenting at workshops and conferences)

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Georgia Institute of Technology, Scheller College of Business, Atlanta, GA
- *Instructor*, Auditing & Financial Control Systems
    - Fall 2013, Course rating 4.8/5.0
    - Summer 2012, Course rating 5.0 / 5.0
    - Spring 2012, Course rating 4.5 / 5.0

RESEARCH PRESENTATIONS

- 2014 AAA Auditing Midyear Meeting, San Antonio, TX. "The Interactive Effect of Ego Depletion and Skepticism on Auditor Performance: Why There *Can* Be Too Much of a Good Thing"
- 2013 Center for Corporate Reporting & Governance (CCRG) Conference, California State University, Fullerton. "Debt Covenant Violations and Associations with Viable Auditor Responses"
- 2012 AAA Annual Meeting, Washington D.C. "Regulatory Inspection Regimes and Auditor Behavior" (A previous version of my dissertation job market paper)
- 2012 AAA Annual Meeting, Washington D.C. "Effects of Prior Internal Audit Work on Internal Control Evaluations"
- 2010 AAA Annual Meeting, San Francisco, CA. "PCAOB Inspections and Large Accounting Firms"

ACADEMIC SERVICE

Ad Hoc Reviews for Scholarly Journals and Conferences:
- *Contemporary Accounting Research*, 2014
- *Managerial Auditing Journal*, 2013
- *Auditing: A Journal of Practice & Theory*, 2011
- AAA Auditing Section Midyear Conference, 2014 (two papers)
- AAA Annual Meeting, 2013 (two papers)
- AAA, Annual Meeting, Washington D.C., 2012 (two papers)
- AAA Accounting Behavioral Organization Conference, 2012

Discussant and Moderator for Conferences:
- AAA Accounting Behavioral Organization Conference, San Diego, CA, 2013, Discussant
- AAA Annual Meeting, Anaheim, CA, 2013, Discussant
- AAA Accounting Behavioral Organization Conference, Atlanta, GA, 2012, Discussant and Moderator
- AAA Annual Meeting, Washington D.C., 2012, Moderator
- AAA Annual Meeting, Denver, CO, 2011, Discussant and Moderator
- AAA Accounting Behavioral Organization Conference, Denver, CO, 2010, Discussant

CONFERENCES ATTENDED

- AAA Auditing Section Midyear Conference, San Antonio, TX 2014
- AAA Accounting Behavioral Organization Conference & Doctoral Consortium, San Diego, CA 2013
- Center for Corporate Reporting & Governance (CCRG) Conference, California State University, Fullerton, 2013
- AAA Annual Meeting, Anaheim, CA 2013
- Southeast Summer Accounting Research Colloquium, Atlanta, GA 2013
- AAA Auditing Section Midyear Conference & Doctoral Consortium, New Orleans, LA 2013
- AAA Accounting Behavioral Organization Conference & Doctoral Consortium, Atlanta, GA 2012
- AAA Annual Meeting, Washington D.C. 2012
- Southeast Summer Accounting Research Colloquium, Atlanta, GA 2012
- AAA/Deloitte Foundation/J. Michael Cook Doctoral Consortium, Tahoe, CA 2012
- AAA Auditing Section Midyear Conference, Savannah, GA 2012
- IFREE's Graduate Student Workshop in Experimental Economics, Orange, CA 2012
- Southeast Summer Accounting Research Colloquium, Atlanta, GA 2011
- AAA Annual Meeting, Denver, CO 2011
- AAA Auditing Section Midyear Conference & Doctoral Consortium, Albuquerque, NM 2011
- AAA Accounting Behavioral Organization Conference & Doctoral Consortium, Denver, CO 2010
- AAA Annual Meeting, San Francisco, CA 2010
- AAA Auditing Section Midyear Conference & Doctoral Consortium, San Diego, CA 2010

HONORS AND AWARDS

- *Ashford Watson Stalnaker Memorial Award* for student excellence in the PhD program, 2013
- Outstanding Performance Award, Deloitte & Touche, LLP, 2009

REFERENCES

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