How Following Regulatory Guidance Can Increase Auditors' Litigation Risk Exposure

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Abstract: This study investigates how following explicit regulatory guidance can result, unintentionally, in increased litigation risk exposure for auditors. We do so by examining the unique and specific context where the PCAOB directly instructs auditors how to apply professional judgment - to rely on a client's competent and objective internal audit function (IAF) during multi-location audits. Consistent with theoretical predictions based on numerosity heuristic processing and norm theory, we find that holding all other factors constant, following explicit regulatory advice not only fails to limit auditors' litigation risk but can actually increase jurors' assessments of auditor negligence. Because the numerosity heuristic leads jurors to believe that there is a higher likelihood of misstatement on multi-location compared to single location audits, jurors perceive that auditor reliance on the IAF during multi-location audits is not normal. Accordingly, they judge auditors to be more negligent when they rely on the IAF in multi-location audits than when they do not, but IAF reliance does not impact negligence assessments on single location audits. Our results suggest auditor reluctance to use a qualified IAF, despite client and regulatory pressure, can be a rational and defensible strategy to limit their litigation risk exposure.

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I. Introduction

We examine whether following explicit regulatory directives can have the unintended consequence of increasing auditors' litigation risk exposure. We do so by focusing on the auditor's reliance on the client's internal audit function (IAF) during multi-location financial statement audits, which is explicitly encouraged by the Public Company Auditing Oversight Board (PCAOB) (PCAOB 2007a). Audit litigation is a key operating cost for U.S. public accounting firms and the related risk exposure costs are estimated to be 15.1 percent of overall audit revenue (U.S. Treasury 2008). Further, during the period 1995 – 2007, the six largest accounting firms paid more than $5 billion to settle in excess of 360 litigation related cases (U.S. Treasury 2008; Donelson 2013). Litigation risk exposure can negatively impact auditors' reputation and business risk (Shu 2000). Thus, auditors adopt proactive and reactive strategies to manage their legal and reputation risks, such as shedding risky clients (Shu 2000) and enforcing more conservative financial reporting (Lennox and Li 2014; Center for Audit Quality 2015).

Auditors are not required to use their client's IAF, as there are both positive and negative considerations associated with doing so. Clients pressure auditors to rely on their IAF because they see it as an opportunity to achieve lower audit fees.[1] An effective IAF is an important component of high quality corporate governance (e.g., Treadway Commission 1987; Hermanson and Rittenberg 2003; Prawitt, Smith, and Wood 2009) likely because the IAF has significant company-specific knowledge and performs compliance and operational audits (Lin, Pizzini, Vargus, and Bardhan 2011). Further, objective and competent IAF teams who serve as direct assistants on audit engagements can improve

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[1] Auditors can elect to rely on the client's IAF in two ways: 1) direct assistants - where the IAF staff members support the audit team by performing procedures that are reviewed and approved steps in the auditor's audit program and, 2) work paper review – the auditor's use of the results of IAF testing to reduce the nature and extent of the auditor's own tests. This study focuses on auditor reliance on the IAF as direct assistants and where the IAF staff is directly employed by the client (i.e., the IAF is not an out-sourced operation).

the efficiency and effectiveness of the financial statement audit (e.g., PCAOB 2005, 2007b; Schneider 2009; Lin et al. 2011). Thus, satisfying client wishes to use their IAF would seem to be an easy decision. Yet, despite the PCAOB's encouragement, auditors still seem reluctant to use their client's IAF. Cohn (2011) notes that auditors tend to use the IAF only when pressed to do so by client management. Similarly, observers at the 2014 joint Center for Audit Quality (CAQ) and Institute of Internal Auditors (IIA) roundtable noted that auditors' reluctance to rely on their client's IAF has "caused resentment between our teams" (CAQ and IIA 2015). Auditors' reluctance to rely on their client's IAF might be a part of a deliberate strategy to manage their litigation risk among other reasons such as audit fee considerations (Felix, Gramling, and Maletta 2001) or IAF objectivity concerns (DeZoort, Houston, and Peters 2001).

The PCAOB chides auditors for both not using the IAF enough (PCAOB 2007b), and for over relying on the IAF for *high risk* areas (PCAOB 2013). One area where the PCAOB has urged use of the IAF is on multi-location audits (audits of clients with more than one unit, subsidiary or affiliate at more than one geographic location).[2] More specifically, conditioned on maintaining audit effectiveness, auditing standards call for increased utilization of the client's IAF as a way to improve audit efficiency (Auditing Standard [AS] No. 2201, PCAOB 2007a; Statement on Auditing Standards [SAS] No. 128, AICPA 2014; International Standards on Auditing [ISA] No. 610, International Federation of Accountants [IFAC] 2013; Canadian Auditing Standard [CAS] No. 610, Chartered Professional Accountants of Canada [CPAC] 2013).[3] When implementing AS No. 2201, the PCAOB

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[2] AS No. 2201 (p. 63) is the unique case where the PCAOB explicitly encourages auditors to place reliance on the client's IAF for audit testing in multiple location settings: "For example, if the internal auditors' planned procedures include relevant audit work at various locations, the auditor may coordinate work with the internal auditors and reduce the number of locations or business units at which the auditor would otherwise need to perform auditing procedures."
[3] SAS No. 128 (AICPA 2014), AS No. 2605 (PCAOB 2003), ISA 610 (IFAC 2013), and CAS 610 (CPAC 2013) govern auditors' use of the client's IAF. These standards assert that auditors must first assess the objectivity, competence, and quality control system of the IAF, as well as the IAF's audit approach. After auditors determine that the IAF meets the quality standard, they can rely on the client's IAF for testing only when the risk of a misstatement in the account area being tested is low, and the degree of subjectivity in the calculation of the amounts being tested is low (PCAOB 2007a; IFAC 2013; CPAC 2013; e.g., low complexity inventory testing). The standards also indicate

alerted auditors that their inspections would assess audit efficiency and specifically encouraged auditors' use of the IAF as a way to enhance efficiency (without compromising effectiveness; PCAOB 2006).

Auditing standards guide auditors to rely on the IAF in areas where there is a ***low risk*** of misstatement and explicitly state that multi-location environments can qualify as low risk contexts where auditors could rely on the IAF for inventory testing (PCAOB 2007a; AICPA 2014). This suggests that auditors who rely on their client's IAF in a low risk multi-location context would be managing their litigation risk exposure effectively. But earlier audit litigation research suggests this might not be the case. For example, mere compliance with standards does not necessarily limit auditor legal liability (Kadous 2000; Reffett 2010; Maksymov and Nelson 2017). Thus, although auditors might be taking actions that are explicitly encouraged by regulators, jurors tasked with determining legal liability could perceive an increased risk of misstatement for multi-location versus single location audits even if the actual risk of misstatement is equivalent for the two types of audits and auditors acted appropriately to address the audit risk. We focus our study on examining this context.

Individuals in the general population (the pool from which jurors are selected) experience difficulty processing and integrating numeric and risk data which leads them to rely on a numerosity heuristic when processing numeric information (Nisbett and Ross 1980; Pelham, Sumarta and Myaskovsky 1994). The numerosity heuristic refers to the tendency to judge probability by inferring greater likelihood from larger numbers without regard to unit size because it is cognitively easier for individuals to process absolute numbers rather than relationships between numbers (e.g., Pelham et al. 1994). Developing theory from the numerosity heuristic, we predict that jurors will assess a higher likelihood of material misstatement on a multi-location than a single-location audit simply because the

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that auditors can rely on the client's IAF for internal controls and substantive testing in inventory settings (PCAOB 2007a; IFAC 2013; CPAC 2013).

number of locations will have a stronger effect on the perceived risk of misstatement than the base rate probability of misstatement at any location. We also apply research on norm theory to predict that jurors' perceptions of higher misstatement risk in multi-location than single-location audits will lead them to believe it is more abnormal for auditors to rely on the IAF in the multi-location versus single-location audit engagement (Kahneman and Miller 1986). Norm theory holds that decision makers (e.g., jurors) will assess stronger causal links and assign greater blame when there are negative outcomes in perceived abnormal events (Kahneman and Miller 1986; Gilovich, Griffin, and Kahneman 2002). Accordingly, we expect that, given an audit failure, jurors will assign increased auditor negligence when auditors rely on the IAF in the multi-location but not single-location audit setting.

We address our research questions in an experiment using jury eligible participants.[4] The design manipulates the extremes of audit locations (single versus multiple) and extent of auditor reliance on the IAF (rely versus not rely) while holding constant IAF quality, a low actual (stated) account balance misstatement risk, a low degree of subjectivity in the account balance, and a high severity of shareholder loss. We focus on auditors' reliance on the IAF where the IAF staff provides direct assistance to the auditor. In this form of IAF reliance, auditors create the audit work plan, supervise and sign off on the test work performed by the client's IAF staff. Thus, we examine the less risky of the two options of auditors' reliance on the client's IAF permissible under the standards.[5]

The experimental approach allows for key advantages – for example, we employ random assignment and manipulate only the two constructs of interest (number of locations and auditor's IAF reliance) while holding constant factors that can co-occur with the two constructs of interest (Cook and

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[4] While the majority of auditor litigation cases are resolved before trial, researchers focus on juror judgment because attorneys' decisions about settlements are largely influenced by the expected trial outcome (Maksymov, Pickerd, Lowe, Peecher, and Reffett 2017). For example, Maksymov et al. (2017) report that experienced audit litigation attorneys routinely use mock juror verdicts and decision making to inform their settlement approach and strategy.

[5] When auditors rely on the IAF's work performed as part of the IAF's audit plan, there is less scrutiny and control over the IAF's audit quality, which results in higher risk to the auditor.

Campbell 1979; Bonner 2008; Kadous and Zhou 2017). Through a pre-test lottery on the full sample, we demonstrate that participants, regardless of treatment group, are equally susceptible to the numerosity heuristic.[6] Therefore we can rule out the alternative explanation that the numerosity heuristic effect observed in this study exists only for participants in the multi-location treatment groups. The experimental approach allows us to disentangle auditors' litigation risk exposure arising from multi-location audits versus the cognitive effects of reliance on the IAF in the multi-location audit. In the real world, multi-location audits are often associated with increased audit risk because the various locations have heterogeneous operations and processes, and vary in their impact on audit materiality (e.g., Allen, Loebbecke, and Sorensen 1998). Our experimental design controls for these factors and incorporates cues that maintain a constant risk of misstatement across the two levels of audit locations varied. Importantly, an expert panel (audit partners, executive directors, and senior managers at multinational audit firms) reviewed the case materials and confirmed that auditors would consider the risk of material misstatement to be equivalent across the two location conditions.

Consistent with our expectations based on numerosity heuristic theory, jurors assess a higher likelihood of misstatement in the multi-location compared to the single location audit setting. These risk assessments lead jurors to judge auditors as more negligent when they rely on the client's IAF in the multi-location setting than when they do not. However, the level of auditor reliance on the client's IAF does not impact auditor negligence in the single location setting. Mediation analyses indicate that jurors' perception of misstatement risk in the audit influences their beliefs about when auditors' reliance on the IAF is normal, prudent behavior, and together, these factors mediate jurors' decisions.

Auditor litigation risk is a persistent problem that requires constant management by audit firm leaders, and understanding auditor liability factors remains an important research topic (Levitt and

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[6] We elaborate on the pre-test lottery in sections III and IV.

Nicolaisen 2008; Kadous and Mercer 2012; Grenier, Lowe, Reffett, and Warne 2015; Brasel, Doxey, Grenier, and Reffett 2016; Maksymov and Nelson 2017; Maksymov, Pickerd, Lowe, Peecher, and Reffett 2017). The prior literature demonstrates that juror's liability judgments often ignore steps auditors take to enhance audit quality or that appear to be consistent with audit guidance (e.g., Kadous 2000; Lowe, Reckers and Whitecotton 2002; Reffett 2010; Grenier, Pomeroy, and Stern 2015; Backof 2015; Gimbar, Hansen and Ozlanski 2016; Maksymov and Nelson 2017; Maksymov et al. 2017). We provide evidence that going beyond what is implied by or consistent with audit standards, even auditors' actions that are explicitly encouraged by an audit regulator, can not only fail to mitigate their legal liability, but can actually escalate auditors' litigation risk. Importantly too, our finding is obtained even in the context of a low risk of misstatement. Thus, in some instances, the legal regime can undermine its governance mechanism role and thwart one of its key objectives of incentivizing auditors to take steps to enhance audit quality.

Our test of the negative (unintended) consequence of auditor's reliance on the client's IAF is conservative because we consider auditor reliance on the IAF in the form of direct supervision, the less risky of the two options of auditor reliance on the IAF. Arguably, if auditors face increased litigation risk when following explicit regulatory urgings, even in low misstatement risk and low IAF reliance risk scenarios, then their liability likely escalates as these risks increase. More generally, our findings that numerosity heuristic and norm theory cognitive processing influence juror decision making has implications for other audit contexts. Potentially, auditors could be at risk of having evaluators focus on the sample size or the number of attributes that they selected for testing rather than other aspects of the account that the auditor deemed more relevant. Relatedly, other governance agents such as regulatory and peer inspectors might be susceptible to numerosity heuristic and norm theory cognitive processing when they judge audit quality, consistent with Reyna and Adam's (2003) finding that knowledgeable professionals are also prone to numerosity heuristic processing.

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II. Background and Hypothesis Development

Studies in auditor litigation provide insights into jurors' consideration of auditing standards when they assess auditors' legal liability. One of the first such studies, Kadous (2000), demonstrates that jurors make retrospective evaluations of auditors' due care driven by the severity of the losses stemming from an audit failure rather than audit quality. Advancing knowledge of how jurors evaluate audit effort, Maksymov and Nelson (2017) demonstrate that jurors' due care assessments depend on when they learn about the audit quality that had been applied on the audit. Relatedly, Lowe et al. (2002) show that reliance on some types of decision aids can hurt auditors during litigation proceedings. In a key development in the literature, Reffett (2010) finds that when the audit fails to detect fraud, audit teams that included fraud experts and had taken steps to enhance fraud detection actually faced <u>higher</u> legal liability than audit teams that expended less effort to detect fraud. More recently, Backof (2015) shows that enhanced documentation of alternative accounting approaches can increase auditors' litigation risk exposure because the documentation increases jurors' perceptions of the foreseeability of the misstatement. Likewise, Gimbar et al. (2016) document that enhanced disclosure of critical audit matters can increase auditors' litigation risk, even though users and regulators profess to value increased disclosure in audited financial statements. In sum, the foregoing literature informs our understanding of how auditors' conduct that appears to be consistent with or implied by the standards and the timing in informing jurors about the auditor's conduct impacts jurors' assessment of auditor negligence. This study extends the literature by examining how jurors evaluate auditors' negligence when auditors' actions directly follow explicit regulatory urgings.

Auditor reliance on a client's IAF can take two forms: 1) direct supervision of the IAF staff who perform audit program procedures as determined by the auditor and, 2) use of the results of IAF testing (e.g., work papers or procedures determined by the IAF) to reduce the nature and extent of the

auditor's own work (see Bame-Aldred, Brandon, Messier Jr., Rittenberg, and Stefaniak 2013 for a review). When auditors rely on the results of IAF testing, they will test a sample of the IAF's work. SAS No. 128 (AICPA 2014), ISA No. 610 (IFAC 2013), CAS No. 610 (CPAC 2013), and AS No. 2605 (PCAOB 2003) govern auditors' reliance on the IAF on a financial statement audit. The standards require that, before IAF reliance, auditors must first assess the objectivity and competence of the internal auditors, the IAF's quality control system, and its application of a systematic and disciplined approach to conducting audits (AICPA 2014; CPAC 2013; IFAC 2013; PCAOB 2003). If these attributes are judged to be satisfactory, auditors can elect to rely on the client's IAF in audit areas where there is a low risk of misstatement, and a low level of subjectivity associated with the account balance (CPAC 2013; IFAC 2013; PCAOB 2003). Auditors are encouraged to rely on the IAF to improve audit efficiency and effectiveness (IFAC 2012) and reduce the amount of testing on the internal controls over financial reporting and financial statement audits (PCAOB 2007a; PCAOB 2006). Research finds that reliance on the IAF can benefit auditors and clients. Felix et al. (2001) find an 18 percent reduction in audit fees when auditors rely on IAF work, while Pizzini, Lin, and Ziegenfuss (2015) report the use of the IAF positively impacts both efficiency and effectiveness of audit testing. Based on these findings that IAF reliance can benefit both auditors and clients, and regulators encourage auditors to use the IAF within audit effectiveness constraints, we investigate how jurors assess auditor negligence when they rely on the client's IAF in low risk accounts. Below, we develop our hypotheses informed by findings from numerosity heuristic processing and norm theory.

Juror Perceptions of Account Balance Misstatement Risk

Individuals have difficulty processing and interpreting numeric data (e.g., Nisbett and Ross 1980; Nayak and Prabhala 2001; Burson, Larrick and Lynch 2009; Pandelaere, Briers and Lembregts 2011; Monga and Bagchi 2011), and understanding numeric risk estimates (Yamagishi 1997; Lipkus,

Samsa, and Rimer 2001; Bonner and Newell 2008).[7]   Research in numerosity heuristic processing

suggests that difficulty evaluating relationships between numbers (Pelham et al. 1994; Pinto-Prades,

Martinex-Perez, and Abellan-Perpinan 2006) will influence jurors' assessment of misstatement risk on

multi-location audits. Numerosity heuristic processing is the tendency to focus on the number of units

into which the stimulus is divided while failing to consider the size of the units when judging likelihood

and probabilities (Pelham et al. 1994). Numerosity heuristic processing leads to focus on the absolute

value of the numerator while ignoring the value of the denominator when evaluating proportions, and

to overweighting the likelihood of the occurrence of an event when data are presented using larger

absolute numbers (e.g., 100 out of 1,000) versus smaller absolute numbers (e.g., 10 out of 100) (Pinto-

Prades et al. 2006). In a game of chance where selecting a red bean is rewarded, Denes-Raj and

Epstein's (1994) participants preferred to choose from a bowl containing nine red and 91 blue beans

(i.e., a 9 percent probability of winning) rather than from a bowl containing one red and nine blue beans

(i.e., a 10 percent probability of winning). Noteworthy was that although participants indicated they

were aware that choosing from the larger bowl was contrary to a rational choice, they, nonetheless,

believed that more beans improved their chances (Denes-Raj and Epstein 1994). Pacini and Epstein

(1999a) posit that numerosity heuristic processing occurs because it is cognitively easier to process

absolute numbers (more concrete facts) and frequencies than it is to process ratios (facts about

relationships between numbers).

Relevant to the risk context of this study, numerosity heuristics research findings indicate that

when evaluating risk-related information, individuals tend to overweight the numerator while ignoring

the denominator (Yamagishi 1997; Bonner and Newell 2008). Individuals perceived that the mortality

risk was higher when told that cancer kills 1,286 out of 10,000 people (12.86 percent risk) versus when

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[7] This difficulty is not correlated with general intelligence (Forrow, Taylor and Arnold 1992; Reyna and Adam 2003).

told cancer kills 24.24 out of 100 people (24.24 percent risk) (Yamagishi 1997). They focused on the absolute value of the numerators (i.e., assessing "1,286" to be of greater risk than that of "24.24") and did not consider the size of the units indicated by the denominators ("10,000" and "100," respectively). Similarly, individuals perceived the risk of death was greater when told "36,500 people die from cancer every year" versus when told "100 people die from cancer every day" (Bonner and Newell 2008). Extrapolating numerosity heuristic processing to the audit litigation context, we expect that, *ceteris paribus*, jurors will focus on the number of locations and discount their relative size (proportion of account balance) when evaluating the risk of misstatement in a multiple-location versus a single-location setting. Consequently, jurors will perceive a greater risk of misstatement when auditors evaluate multiple locations (without regard to the size implications – such as underlying dollar value of each of the locations) than when they evaluate one location.

Applying these findings of how individuals process risk, probabilities and numeric data to the audit litigation setting, we expect that jurors exposed to a company with multiple audit locations will perceive that there is a higher likelihood of account misstatement than jurors who are exposed to a company with a single audit location (all else being equal). Formally:

H1:   *Ceteris paribus, jurors will assess an increased likelihood of an account misstatement when the audit client is a multi-location engagement than when the audit client is a single location engagement.*

Hoitash and Hoitash (2017) observe that there is mixed evidence supporting a connection between the factors associated with multi-location complexity and misstatement risk (i.e., financial reporting quality). While some studies find that companies with more reporting segments are associated with lower financial reporting quality (e.g., Doyle, Ge, and McVay 2007), other studies do not find evidence to support this relationship (e.g., Cao, Myers, and Omer 2012). Accordingly, there is some tension as to whether even informed jurors would judge an increased likelihood of misstatement due to the number of client locations. As detailed later in Section III, our experimental

design holds constant, across treatment conditions, the multi-location factors that are associated with the risk of misstatement based on prior research including: company size, internal control quality, operating complexity and other client-specific differences that occur but cannot be disentangled in the natural environment. This study, therefore, extends the literature by offering the first direct evidence of how assessments of misstatement risk, driven by numerosity heuristic processing, are impacted when the number of locations is isolated. Importantly, Hypothesis 1 is a necessary condition for stimulating the norm theory cognitive processing posited in Hypothesis 2. Thus, Hypothesis 1 serves as a validation check to support an important tenet of our model (Bonner 2008) - that assessments of the likelihood of misstatement plays an integral role in the cognitive path of jurors' auditor liability judgment. See Figure 1.

Insert Figure 1 here

Juror Perceptions of Auditor Legal Liability

Our model of juror assessment of auditor litigation exposure provides that the joint effect of the number of audit locations and the auditor's reliance on the IAF, along with jurors' perceptions of the likelihood of misstatement together influence jurors' judgments of normal auditor behavior. These juror judgments of what is normal will influence their beliefs about the (normalcy of) auditor's conduct on the audit, which in turn, will guide their assessments of the auditor's negligence and liability. Norm theory, a derivate of the availability and simulation heuristics (e.g., Kahneman and Tversky 1982), holds that individuals reason about events by employing a backward process from the experienced event to similarities with prior experienced events (Kahneman and Miller 1986). Kahneman and Miller (1986) find that perceptions of the normality of an event are determined retrospectively (after the event is experienced) and that people interpret and evaluate events by consulting remembered and constructed representations of how the event should have or could have unfolded. Accordingly, when a constructed representation is consulted, events are evaluated by generating ad hoc counterfactual

alternatives rather than retrieving past experiences, where each event evokes its own frame of reference (Kahneman and Miller 1986; Reffett 2010; Donelson, Kadous, and McInnis 2014).

Individuals perceive an event as normal (abnormal) when it conforms (does not conform) to remembered or constructed representations of how the event should unfold or when it evokes highly available counterfactual alternatives (Kahneman and Miller 1986; Reffett 2010; Donelson et al. 2014). When an event has a negative outcome, factors that trigger increased representations of alternatives tend to be attributed as causes and are assigned greater blame for the outcome (Kahneman and Miller 1986; Gilovich et al. 2002; Reffett 2010; Backof 2015). Additionally, it is easier to imagine someone not performing an act that was already completed than it is to imagine someone performing an act that was _not_ completed (Kahneman and Tversky 1982). As a result, actions taken during an evaluated event evoke stronger causal attributions than when such actions are not taken (Kahneman and Miller 1986; Roese 1997; Reffett 2010).

As a member of the public, the typical juror is generally unaware of auditing standards. As discussed above, auditing standards (e.g., AS No. 2201, AS No. 2605, ISA 610, CAS 610) permit auditor reliance on the IAF when the risk of misstatement is low and the IAF meets certain quality criteria, but requires that the "need for the auditor to perform his or her own work" increase as the risk of misstatement increases. When jurors receive instructions during trial proceedings, they are likely to interpret auditing standards to mean that when likelihood of a misstatement is lower, it is valid and normal for the auditors to rely on the client's IAF. Consequently, when auditors behave in this "normal" manner, they will be perceived as fulfilling their audit responsibilities and are, therefore, less negligent. However, when there is an increased likelihood of a misstatement, relying on the IAF will no longer be judged to be normal or prudent and the auditor will be judged as more negligent. Thus, juror's perceptions of how normal it is for auditors to rely on a client's IAF will depend on their

assessments of the likelihood of a misstatement and the perceived normality of auditors' behavior and, together, will inform jurors' evaluation of auditor negligence.

In a single location audit setting where the perceived likelihood of misstatement is lower (H1), jurors will be more accepting of auditor reliance on the client's IAF and interpret such reliance as a more normal event that is aligned with auditing standards and regulatory guidance. Given an audit failure, when the perceived likelihood of a misstatement is lower, juror assessments of auditor negligence are likely to be indifferent to whether the auditors relied or did not rely on the client's IAF. There will be no difference in assessed auditor negligence when the likelihood of misstatement is perceived to be low because auditing standards allow IAF reliance, thus it is normal for auditors to either perform the work themselves or obtain assistance from the client's IAF. However, in the multiple audit location setting when the misstatement risk is perceived to be higher, jurors' judgment will be influenced by the auditor's reliance decision – they will judge auditors' reliance on the client's IAF as less normal/more abnormal and that auditors did not conform to audit guidance. Accordingly, when there is audit failure, jurors will assess higher auditor negligence when the auditors rely versus do not rely on their client's IAF. Not relying on the client's IAF in the multi-location audit setting will be perceived as a more normal event than relying on the client's IAF. Further, this perception will persist despite the fact that relying on the IAF can enhance audit efficiency, and potentially increase effectiveness (Pizzini et al. 2015). Accordingly, we anticipate that in a multi-location audit setting, jurors' negligence assessments will be higher when auditors rely on the client's IAF than when they do not rely. Formally:

H2:   *Jurors' assessments of auditors' negligence will differ when auditors rely versus do not rely on the client's IAF on multi-location audits but not on single location audits. Further, in a multi-location audit setting, auditors who rely on the client's IAF will be judged as more negligent than auditors who do not rely on the client's IAF.*

Insert Figure 2 about here

III. Task Description and Experimental Design

Participants

We recruited four hundred and forty-two participants for an online experiment via Amazon Mechanical Turk.[8] Table 1 presents the descriptive statistics for the participants. The average age was about 35 years old, 49 percent were male, 40 percent indicated that a Bachelor's degree was the highest level of education, 2 percent had a doctorate degree, and 17 percent had investment experience.[9]

Insert Table 1 about here

Task Description and Experimental Procedures

Participants served as prospective jurors on a hypothetical auditor liability trial. Prior to receiving the case facts, participants completed a pre-experimental task to confirm that individuals in all conditions were, on average, susceptible to the numerosity heuristic, screened for U.S. juror eligibility, and received background education (on financial reporting and the roles of auditors) to evaluate the case. Figure 3 presents a timeline of the experimental procedures.

Insert Figure 3 about here

Numerosity Heuristic Pre-test: We measured participants' susceptibility to the numerosity heuristic processing using two lottery scenarios adapted from Denes-Raj and Epstein (1994) (see Appendix A). In the first lottery, the odds of winning are presented as one in one hundred (1:100), while in the second lottery, the odds are presented as ten in one thousand (10:1,000). By design, the

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[8] Brandon, Long, Loraas, Mueller-Phillips, and Vansant (2014), Farrell, Grenier, and Leiby (2017), and Maksymov and Nelson (2017) note that Amazon Mechanical Turk is an appropriate source for studies like ours that require "non-sophisticated" participants. Further, Kadous (2000) and Kadous and Mercer (2012) find that individual juror judgments "are a reasonable proxy for jury decisions." We configured settings in the Amazon Mechanical Turk application to bar pilot study participants from participating in this study. We also examined user IDs to confirm participants were unique and were not in the pilot. The approximate completion time was 25 minutes (same as observed in classroom pilot tests) and compensation was $2.

[9] Inferences from statistical analyses are unchanged when we control for demographic factors.

odds of winning are identical in the two lotteries in order to elicit whether participants fixate on the numerator. Participants were asked:

> 1) "How would <u>you</u> advise Ralph [a friend] about which lottery, if either, would be more likely to produce a winning ticket?"
> 2) "How do you think that <u>the typical person</u> would advise Ralph [a friend] about which lottery, if either, would be more likely to produce a winning ticket?"

In response to each question, participants chose among the options: (a) the first lottery (1:100), (b) the second lottery (10: 1,000), or (c) no preference.

Consistent with the established approach in the literature, we use the "others" prompt (i.e., what a typical person would do) to measure numerosity heuristic processing (e.g., Denes-Raj, Epstein, and Cole 1995; Alonso and Fernandez-Berrocal 2003; Pacini and Epstein 1999a, Pacini and Epstein 1999b; Denes-Raj and Epstein 1994; Kirkpatrick and Epstein 1992). Denes-Raj, Epstein, and Cole (1995) demonstrate that when asked about their own lottery choice, individuals exhibit weaker numerosity heuristic effects because they seek to preserve a rational self-presentation. When asked to opine on how others would respond, however, such self-presentation concerns do not arise and individuals draw on their own reaction tendencies to estimate others' reactions (Denes-Raj, Epstein, and Cole 1995; Kirkpatrick and Epstein 1992; Pacini and Epstein 1999b; Denes-Raj and Epstein 1994). Following prior studies (e.g., Pacini and Epstein 1999b), numerosity heuristic processing is measured by comparing the frequency of participants' lottery choices (i.e., Lottery 1 versus 2) when giving personal advice versus the typical person giving advice. A significant departure from equal proportions when the typical person gives advice towards selecting option (b), the choice with the larger numerator, indicates the numerosity heuristic effect.

Participant Qualification Pre-screening: Following the lottery, participants were screened for juror eligibility status (i.e., U.S. citizen, at least 18 years old, no felony convictions) and intellectual

competence based on three logic questions (two analogies and one number sequence). Individuals who failed any of these questions were dismissed from the study.

Financial Reporting and Auditing Education: We expect that like the typical juror, the participants are not informed about common business practices (e.g., financial statements and auditors). Accordingly, eligible participants reviewed three sets of educational information about financial statement reporting and the external audit process, as well as background information about the company in the litigation case. At the end of each information set, participants responded to vetting questions (six in total) which verified that they understood the information presented. Participants could only advance in the study after they had answered the education questions correctly.

The first segment on financial statement education described information that is provided in financial statements, who uses them and how they can be used to gauge the financial health of a company. The second segment described the role of external auditors, the audit process, and key audit concepts (e.g., definition of financial misstatements, materiality, audit opinions and reasonable assurance). The third segment provided preliminary information about Big Time Gravel (the company that is the subject of the case) which noted that the company's inventory consisted of granite stone and operationalization of the single versus multiple location manipulation of the inventory storage. Before proceeding through the study, participants evaluated the likelihood that the company's inventory balance could be misstated because it was important to capture the perceived likelihood of misstatement prior to participants learning that an actual misstatement was the basis of a litigation case.[10] Subsequently, participants learned that Big Time Gravel has an IAF, which the auditors can choose to use to assist them (if risk of misstatement is low, degree of subjectivity of amounts tested is low and the IAF is judged to be competent and objective), that the auditors had deemed it appropriate

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[10] Participants' perception of misstatement likelihood is captured *before* they proceed to the auditor litigation case facts because Kadous (2000) finds that jurors' decisions are affected by knowledge of the defendant's loss. Thus, it is important to measure perceptions of misstatement likelihood *before* jurors learn about the defendant's loss.

for the IAF to assist them with inventory testing during the financial audit, and that the auditors reviewed all work performed on the audit before opining on the financial statements.

Auditor Litigation Case: The case, adapted from Kadous (2000, 2001) and Reffett (2010), involves a lawsuit between a bank (the plaintiff) and an audit firm (the defendant). The case facts reveal that the audit firm (defendant) had issued a clean audit opinion on Big Time's financial statements, but a year later it was uncovered that the inventory balance was materially overstated. Following the news of the inventory misstatement, Big Time experienced financial difficulties and entered bankruptcy. As a result, Big Time was unable to repay its loan to the bank (plaintiff). We focus on testing of the physical inventory (as opposed to the obsolescence reserve) because it is widely considered a low risk area where auditors routinely rely on the IAF to achieve audit efficiencies especially in multiple location settings (PCAOB 2007a; AICPA 2014; IFAC 2013; CPAC 2013).

To enhance external validity and following Kadous (2000, 2001), the flow of the case conforms to the natural order of testimony and the structural features of actual jury trials. Specifically, it presents the plaintiff's opening statement, an independent audit partner serving as an expert witness for the plaintiff, the cross examination of the plaintiff's expert witness, the defense's opening statement, an independent audit partner serving as an expert witness for the defense, the cross examination of the defense's expert witness and closing statements by both the plaintiff and defense attorneys. These case facts include the IAF reliance manipulation and reinforce the previous number of inventory locations manipulation.

Independent Variables

We employed a 2 X 2 between-subjects full-factorial design that manipulated auditors' reliance on the IAF as direct assistants for audit testing (*Reliance on IAF*) and the number of inventory locations audited (*Audit Locations*). *Reliance on IAF*, is manipulated on two levels (*Rely* versus *Not Rely*). In the *Rely* condition, the IAF acted as direct assistants to the auditors for their inventory testing

procedures while in the *Not Rely* condition, the auditors performed all inventory testing procedures with no help from IAF. The manipulation was presented in the key case facts and reinforced in the oral arguments and expert witness testimony (see Appendix B for details of the manipulation):

> Jones Auditors' audit staff *performed* {***did not perform***} all inventory testing at the… warehouse – they used their own staff and *did not obtain* {***obtained***} inventory testing help from Big Time's internal audit staff.

The second independent variable, *Audit Locations* (*Single* versus *Multiple*), manipulated the number of warehouses where the inventory was stored and the audit procedures performed. In the *Single Audit Location* condition, inventory was stored in one warehouse near the client's main operations, and 55 percent of the total inventory dollar value was audited. In the *Multiple Audit Locations* condition, the total inventory dollar value was equally distributed among 20 warehouses in surrounding counties, such that each warehouse held approximately 5 percent of the total inventory value and all warehouses followed the *same strict standard inventory management process*. The auditors tested inventory in 11 of the 20 warehouses, which was equivalent to 55 percent of the total inventory value. The *Audit Locations* manipulation was presented in the company background information and then reinforced in the presentation of the litigation case:

> Big Time stored its inventory in *one warehouse location* {***20 warehouse locations in surrounding counties***} near its main operations. ***{Each warehouse is the same size so that approximately 5% of the total inventory dollar value is contained in each of the 20 warehouses}***. During their audit, Jones Auditors sampled 55% of the total dollar value of Big Time's inventory *for testing from the sole warehouse* {***for testing which approximately equates to inventory stored in 11 of the 20 warehouses***}.

Our design holds constant the proportion of inventory tested (55 percent) across the two conditions. We consulted with statisticians to confirm the equivalency of the misstatement probability in the two conditions. The inventory, inventory processes, and percentage of audited inventory value was the same across conditions, thus ceteris paribus, the probability of a misstatement would be equally distributed across the single location just as it would be across the 20 locations. Accordingly, the

potential number of erroneous items/value, or the potential for a misstatement, is the same across both *Audit Location* scenarios in the context of this study. Importantly, because our participants (like jurors in the real-world environment), lack audit expertise or knowledge about client risk, they are ideally suited to provide judgments based on the facts of the case rather than the general risks (including audit risks) that are likely to be confounded in the natural environment (Maksymov et al. 2017).

Experimental Instrument Design Related to Risk of Misstatement in Audit Locations

An advantage of the approach we use to investigate our research question is the ability to control for effects that are normally confounded in the natural environment (Bonner 2008). In practice, there is diversity in operations across locations which typically results in a higher risk of misstatement on multi-location than single location audits. Informed by the prior literature and a panel of experts with group/multi-location audit expertise, we experimentally control for factors associated with misstatement risk across the single versus multi-location audits by incorporating the following features in the design (Bedard and Downey 2018). First, the misstatement risk due to location diversity (Allen et al. 1998) is held constant by informing all participants that each warehouse carries the same granite stone inventory, follows "the same strict standard inventory management process" and that warehouse operations are centralized and have homogenously controlled processes (i.e., consistent with a lower risk; Allen et al. 1998; Asare, Fitzgerald, Graham, Joe, Negangard 2013). Second, in the multi-location condition inventory dollar values are evenly distributed across locations making "it is less likely that a material error will occur because it would have to be the aggregate of errors across many locations" (Allen et al. 1998 p. 6; Stewart and Kinney 2013). Third, an expert panel (senior managers, partners and executive directors at multinational audit firms) reviewed our case materials and confirmed that from an audit perspective, the risk of misstatement was equivalent across the single versus multi-audit

locations.[11] Consistent with Stewart and Kinney (2013), some experts observed that, if any, it would be the single audit location condition that could be seen to have higher risk because there is a higher likelihood of a misstatement at a location holding the total inventory balance being material, but misstatement risk at each multi-location engagement is capped at 5 percent. Last, the type of inventory (granite stone) is bulky and relatively difficult and time consuming to transport, which minimizes the risk of inventory transfer fraud and obsolescence concerns in this setting.

Dependent and Process Variables

The primary dependent variable, *Negligence,* is based on jurors' assessment of auditor negligence using a dichotomous choice scale. Participants assess auditors as either "guilty" or "not guilty" of negligence, and then provide an assessment of the degree to which the auditor is "guilty" or "not guilty" of negligence using a scale from 50% to 100% to prevent any internally inconsistent responses. Following Hoffman, Joe, and Moser (2003) and Joe (2003), we reverse code responses on the "not guilty" scale (i.e., 0% "not guilty" to 50% "not guilty") to create a continuous measure of assessed auditor negligence for all participants. Consistent with prior studies (e.g., Kadous 2000; Reffett 2010), we focus our analyses on the second component of the negligence assessment - the assessed degree of auditors' guilt (or non-guilt).

We evaluate several variables to test the process through which participants' perceptions of misstatement likelihood, and normal auditor behavior influence their negligence assessments. Recall that we capture the participants' assessment of the subjective probability that the inventory balance

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[11] Our panel consisted of two Executive Directors, three Partners, and three Senior Managers from three multinational audit firms. The panel received key facts about the audit (nature of the inventory, and the location manipulations, including that in the multiple location condition the company used a standardized inventory control process and the inventory value was equally distributed across the 20 locations). The experts evaluated whether the two sets of location facts would result in an equivalent level of misstatement risk but did not review any of the litigation facts or the IAF manipulation. Several experts observed that, contrary to popular misperception, the multiple location environment by itself, does not result in an increased risk of material misstatement. Rather, additional risk would arise from the differences in operational/control processes that are often present in the multi-location audit environment (all of which are held constant in our experimental design).

was misstated after they read the company background information but <u>before</u> they learn that there is a misstatement and the litigation case facts. Participants' subjective probability assessments, *Misstatement Likelihood*, are based on a seven-point scale where 1 = Very Unlikely and 7 = Very Likely in response to the question: "Based on what you have read about Big Time and its inventory storage, how likely do you think it is that an inventory misstatement or an inventory error could occur?"

Consistent with studies relying on norm theory (e.g., Koonce, Miller, and Winchel 2015), we measure participants' perceptions of normal behavior, in this case how "normal" it was for the auditors to rely on the client's IAF given the degree of geographic dispersion of the client's audit locations. *Normal Auditor Behavior*, was based on responses to: "Considering the facts of this case, do you agree that a typical auditor who is careful and competent would have made the same judgment as Jones Auditors about using Big Time's internal audit department in inventory testing?" and measured on a seven-point scale (1 = Strongly Disagree and 7 = Strongly Agree that Jones [Auditors] acted as a typical auditor).

IV. Results and Analyses

Manipulation Checks

To test the manipulation of auditors' reliance on the IAF, we analyze the potential participants' Yes/No responses to the following question: "Did Jones Auditors use Big Time's internal audit staff to help perform inventory testing?" Of the 442 participants, 89 percent correctly reported the auditors' reliance on the client's IAF in accordance with their assigned experimental condition. The test of the manipulation of the number of locations reveals that 96 percent of the potential participants correctly identified the number of warehouses in which inventory was stored. Overall, 87 percent (384 participants) passed both manipulation checks. These proportions indicate successful manipulations for both Reliance on IAF ($\chi^2 = 267.7$, $p < 0.001$) and Audit Locations ($\chi^2 = 380.3$, $p < 0.001$). Our inferences are qualitatively similar when we exclude participants who failed one or both manipulation

checks and we find no significant or systematic differences along the demographic dimensions or across any of the experimental conditions. We present analyses that includes all 442 participants.

Susceptibility to Numerosity Heuristics Effects

Before hypotheses testing, we validate that, on average, this study's participants are susceptible to numerosity heuristic processing before exposing them to the litigation case facts and experimental manipulations (see Figure 3). Recall, the participants review two statistically equivalent lotteries where the odds of winning are identical. The only difference is the first lottery presents a lower absolute value numerator (1:100) than the second lottery (10:1,000). We follow the method established in prior research to measure numerosity effects (e.g., Denes-Raj, Epstein, and Cole 1995; Kirkpatrick and Epstein 1992; Pacini and Epstein 1999b). As presented in Table 2 Panel B, there is no statistical difference in the participants' *own advice* to a friend on Lottery 1 versus Lottery 2 ($\chi^2_{[1, N=249]} = 0.197$; $p = 0.657$). However, participants' judgments about the *typical person's recommendation* reveals a preference for Lottery 2 – the lottery containing a higher absolute value in the numerator ($\chi^2_{[1, N=395]} = 10.696$; $p = 0.001$; Table 2 Panel B). These results, which follow the established measures of the numerosity heuristic, indicate that this study's participants are, on average, susceptible to numerosity heuristic processing. Importantly, there is no difference in participants' susceptibility to numerosity heuristic processing across the treatment groups, confirming that random assignment was achieved in the experiment ($\chi^2_{[1, N=442]} = 7.50$; $p = 0.28$; not tabulated).

<div align="center">*Insert Table 2 about here*</div>

Hypothesis Testing

Hypothesis 1 predicts that due to generalized difficulty processing and interpreting numeric data and risk estimates, and susceptibility to numerosity heuristic processing, participants in the multi-location conditions will assess a higher likelihood of inventory misstatement than participants in the single audit location conditions. Recall that we capture assessments of misstatement likelihood before

jurors learn about the defendant's losses to prevent hindsight bias effects observed in Kadous (2000).

Table 3 reveals that participants in the *Multiple Audit Location* conditions had higher assessments of *Misstatement Likelihood* than the participants in the *Single Audit Location* conditions (means = 3.53 versus 2.90, respectively; t $_{[440]}$ = 4.83; p < 0.01). Consistent with numerosity heuristic processing, participants focused on the total number of auditable units with little regard for the size of the units in the multiple versus single audit settings (Pelham et al. 1994). These results that jurors perceive a higher likelihood of a financial statement misstatement when the number of audited locations is greater (ceteris paribus) provide support for H1. In addition, as we discuss later, these assessments of inventory misstatement risk correlate significantly with jurors' negligence judgments.

Insert Table 3 about here

H2 anticipates that in the multi-location setting, jurors will assess auditors as more negligent when they rely on the client's IAF for direct assistance with testing versus when they do not, but that auditors' reliance would not affect participants' assessments of auditor negligence in the single setting. Consistent with our predictions, Figure 4 and Table 4 present the results, which show that jurors assess auditors as more negligent on multi-location audits when they rely on the client's IAF than when they do not. The overall ANOVA model reveals a significant interaction effect of *Reliance on IAF* x *Audit Locations* (F $_{[1,438]}$ = 6.61; p = 0.005). The simple effects analysis indicates a significant difference (t $_{[217]}$ = 2.24; p = 0.013) in auditor negligence assessments in the *Multiple Audit Location* setting, where assessed *Negligence* in the *Rely* condition (mean = 51.73) is higher than in the *Not Rely* condition (mean = 41.23). Additionally, consistent with expectations, there is no difference in assessed *Negligence* in the *Rely* (mean = 39.56) versus *Not Rely* (mean = 46.58) conditions in the *Single Audit Location* setting (t $_{[221]}$ = -1.37; p = 0.170).[12] Our analyses, following recommendations from

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[12] Statistical inferences are unchanged when we control for various participant perceptions of the IAF's competence, objectivity, jurors' counterfactual thoughts, whether jurors blamed the auditors or the IAF more for the audit failure, and that auditors rely on the client's IAF because auditors are trying to exert less effort on the audit or reduce costs

Guggenmos, Piercey, and Agoglia (2018), reveal a good visual fit between the pattern of results and our predicted pattern (-1, -1, -1, 3). Analyses of the contrast and its residual also show that the contrast was significant (F $_{[1,438]}$ = 6.75, p = 0.010) while the residual was not significant (F $_{[2,438]}$ = 0.95, p = 0.390; not tabulated). Finally, we find that 78 percent of the systematic variance is explained by the contrast pattern (R^2 = 0.78; not tabulated). Thus, taken together, these findings support H2 and indicate that relying on the client's IAF in multi-location contexts that are perceived to be higher risk can adversely affect auditors' legal liability.

Insert Figure 4 and Table 4 about here

Mediation and Casual Path Analyses

Our theory predicts that jurors' assessments of the likelihood of misstatement influence their perceptions of normal auditor behavior and these joint and serial effects will mediate the relationship between the interaction of *Audit Locations* x *Reliance on IAF* and *Negligence.* To investigate the indirect effects of *Misstatement Likelihood* and *Normal Auditor Behavior,* we apply the Hayes and Preacher (2014) bootstrapped mediation technique. We use 5,000 bootstrap sampling iterations of the data to calculate a bias-corrected 95 percent confidence interval for the indirect effect we propose, which yields the same inferences as Structural Equation Modeling (SEM).[13] Figure 5 illustrates the mediation model, the path coefficients, and the confidence interval for the hypothesized indirect effect. Consistent with our theoretical expectations, *Misstatement Likelihood* and *Normal Auditor Behavior* mediate the relationship between the interaction effect of *Audit Locations* x *Reliance on IAF* on

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as well as participant affect towards auditors (Reffett 2010; Kadous 2001). Statistical inferences are unchanged when we analyze the binary guilty/not guilty negligence assessment variable. Statistical inferences are also unchanged when we control for unequal cell sizes.

[13] As employed in Bol and Leiby (2017) and DeZoort, Wilkins, and Justice (2017), the Hayes and Preacher (2014) approach is a more refined and robust serial mediation analysis than earlier mediation analysis techniques (e.g., Baron and Kenny 1986; see Hayes 2009). We employ Process Model number six. We also confirm that Structural Equation Modeling (SEM) of the causal path yields the same mediator and inferences. Goodness of fit statistics indicate that the SEM fits very well: χ^2 = 1.79, p = 0.40; GFI = 0.99; AGFI = 0.99; RMSEA = 0.00 (see Tabachnick and Fidell 2013).

Negligence (95% CI = LL: 0.06; UL: 2.02; where the confidence interval excludes zero, which indicates a significant mediation).

Recall we find support for H1 which posited that, consistent with numerosity heuristic processing, the number of locations influenced jurors' perceptions of differences in misstatement likelihood across the two treatment groups. To further investigate numerosity heuristic effects, the participants in the two multi-location treatment conditions rated the case facts that most influenced their judgment of auditor negligence from a list of the following four options: (a) the auditors tested 11 locations, (b) the auditors tested 11/20 locations, (c) the auditors tested 55% of the locations, (d) other, please explain. Options (a) and (b) reference the numerator – with (b) engaging a numerator/ denominator presentation, and option (c) presents the information in a probability/relationship format. We find that participants whose response indicated that they were most influenced by focus on the numerosity effects [the number of locations (option a) or the number of locations tested out of the total (option b)] had higher auditor negligence judgments (mean = 56.19) than participants who selected option (c) [mean = 37.47; $t_{[177]}$ = 3.696; $p < .001$]. Further, we find a significant correlation between participants who selected options (a) or (b) compared to (c), a post-treatment measure of numerosity heuristic effects, and participants who exhibited extreme numerosity heuristic effects in our pre-treatment measure of this construct in the pre-experimental Lottery ($r = 0.156$; $p = 0.037$).[14] We also find that these participants whose response indicated they were influenced by the numerator (chose option a or b) had judgments that showed a stronger correlation with their negligence assessments than the participants who selected option (c) [$p < .001$].[15]

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[14] We derive the measure of extreme numerosity heuristic effects in the pre-experiment Lottery scenario as participants who selected lottery option (b) as their response to both recommendation questions (i.e., "How would you advise Ralph…" and "How would the typical person advise Ralph…") versus selecting any of the other options.
[15] Note that if we make the same comparison of negligence verdicts between people responding (a) or (b) to those who responded (c) or (d) [because (d) is also suggestive of not being influenced by the numerosity heuristic], participants who chose (a or b) had significantly higher negligence assessments than the remaining participants (t_{217}=3.264, p=0.001).

Taken together, these results extend the literature by providing evidence that jurors consider the risk context when evaluating whether auditors' actions conform to their expectations of normal behavior. Even when auditors take actions encouraged by audit regulators, factors related to the client's environment can, nonetheless, influence jurors' perceptions of how auditors should conduct the audit (i.e., what is normal and when reliance on the IAF is appropriate).

Insert Figure 5 about here

V. Conclusion and Implications

We extend prior studies which examine whether auditor behavior that is implied by or consistent with audit standards can limit auditors' legal liability. We investigate whether auditor actions that are explicitly encouraged by regulators can have unintended consequences due to jurors' susceptibility to numerosity heuristic and norm theory cognitive processing. Our study presents evidence that when auditors make judgments that follow explicit encouragement from regulators, auditors' decisions can actually yield the unintended consequence of increasing auditors' litigation risk exposure. We explore our research question in the context of the auditor's reliance on a client's IAF for direct assistance on low risk audit tests, in single versus multi-location audit settings. Auditors' use of the client's IAF on low risk multi-location audits is specifically encouraged by the PCAOB (PCAOB 2007a) and other regulators and, more generally, clients consistently push auditors to utilize their IAF (Cohn 2011).

Consistent with our predictions informed by numerosity heuristic processing and norm theory, jurors' assessments of misstatement risk and what constitutes normal auditor behavior are driven by the joint effects of the number of client locations and the auditor's decision to rely on the client's IAF. Even though the actual risk of misstatement was held constant (as evaluated by experts), jurors perceived an increased misstatement risk in the multi-location versus single location setting. Accordingly, they judged auditor reliance on the client's IAF for testing as less normal behavior in the

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multi-location setting. Further, jurors found auditors to be more negligent when they relied on the client's IAF on a multi-location audit than the single location and non-reliance scenarios. While we examined numerosity heuristic processing and norm theory in the multi-location context, these effects are likely to apply to other audit areas such as audit sampling, internal control testing and component audit settings. Numerosity heuristic and norm theory processing could lead jurors to judge that, even if sampling risk and the proportion/dollar amount of the balance tested is held constant, auditors who considered fewer stratification levels or attributes made less normal judgments than auditors who considered greater stratification levels/attributes. Thus, our findings provide evidence that, in the event of an audit failure, auditors can be held to a higher level of legal liability when juror's susceptibility to numerosity heuristic processing influences assessments of audit negligence. Further, such auditor litigation risk exposure is not limited even when it is explicitly encouraged by regulators. An interesting aspect of our finding is that we tested auditors' reliance on the client's IAF in the less risky scenario permissible under the standards. This implies that auditors could face an even higher level of legal liability when they elect to rely on work performed by the client's IAF (i.e., IAF work papers) to reduce the amount of audit testing permitted under the standards, conditioned on audit effectiveness constraints.

We advance and provide evidence of a theoretical path that describes how juror susceptibility to numerosity heuristic processing can influence their judgments about what is normal auditor behavior and this in turn increases auditors' litigation risk. This study also provides the first evidence on potential negative and unintended consequences that auditors can incur when they act consistently with regulators' urgings in multi-location settings. We focus on the specific context where regulators explicitly encourage auditors to adopt an audit approach that increases audit efficiency while maintaining audit effectiveness. The decision of whether or not to rely on the client's IAF on an audit engagement lies solely with the auditor. Yet regulators, commentators, and clients express frustration

at perceived auditors' reluctance to utilize the client's IAF more extensively. Our theory consistent findings provide support that the auditors' reluctance is a rational response to minimize litigation risk exposure. Future research could examine how auditors trade off the risk of increased regulatory scrutiny versus litigation and/or reputational risk, and the factors that can mitigate versus escalate the auditor's liability when following regulatory recommendations.

Our study offers a substantive extension of the existing literature on auditor litigation risk when auditors rely on the prior work of the client's IAF (e.g., Arel, Jennings, Pany, and Reckers 2012).[16] Prior studies show that some actions taken to improve audit quality can nonetheless increase auditor liability (e.g., exercising due care [Kadous 2000]; using decision aids [Lowe et al. 2002]; investigating fraud risk [Reffett 2010], documenting audit decisions [Backof 2015], and increasing audit effort [Maksymov and Nelson 2017]). We show that, in some client settings, conforming to regulator preferences can have the unintended consequence of increased auditor liability. Our examination of litigation risk in a multi-location setting also responds to Asare et al.'s (2013) call for more research on factors that can influence auditors' decisions about testing in multi-location audits. From the practitioner perspective, our findings that reliance on the client's IAF can increase litigation exposure, even in low risk contexts, can bolster auditor arguments for non-reliance on the client's IAF particularly when clients seek fee concessions based on the use of their IAF. Last, we provide evidence to standard setters of an unintended consequence that can arise from direct guidance given to practitioners. In addition to the client's IAF, auditors routinely rely on/use "the work of others" (e.g., specialists and other third parties; PCAOB 2015) to achieve a desired balance of audit effectiveness

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[16] This study is distinct from research on auditor legal liability when work is off-shored or outsourced (e.g., Lyubimov, Arnold, and Sutton 2012), or the disclosure of participating auditors (e.g., Dee, Lulseged, and Zhang 2014). We examine auditor use of the IAF, an internal client resource whereas the prior studies examine use of third-party independent auditors or the auditor's employees who are located overseas (Lyubimov et al. 2012). Prior literature finds that perceived independence can impact audit litigants (e.g., Schmidt 2012), and financial statement users (e.g., Frankel, Johnson, and Nelson 2002).

and efficiency while managing the auditor's business risk. Regulators might consider how their recommendations, deficiencies in inspection reports, and changes to audit standards, can influence auditors' business risk (e.g., litigation and reputational risks).

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Appendix A - Excerpt of the Lottery Scenario used to Measure Numerosity Heuristic Processing

Imagine two lottery scenarios. In both cases, a winning number pays $50 million. Now imagine that Ralph Jones, a friend of yours, thinks of all the things he could buy with the money, like a new car, and all he can do with the money, such as take his dream vacation. These thoughts and images make Ralph desperately want to win the lottery. In one of the lotteries, a single winning number is selected from 100 numbers. In the other, 10 winning numbers are selected from 1,000 numbers. Although you know the proportions are identical, you might have the feeling that it is more likely that Ralph will get a winning number in one lottery than in the other.

Ralph asks your advice about which lottery to buy. How would you advise Ralph about which lottery, if either, would be more likely to produce a winning ticket? (If you cannot make a choice, select "No Preference" below).

a)   The first lottery (1 winning number in 100)
b)   The second lottery (10 winning numbers in 1,000)
c)   No Preference

How do you think that the typical person would advise Ralph about which lottery, if either, they thought would be more likely to produce a winning ticket? (If you cannot make a choice, select "No Preference" below).

a)   The first lottery (1 winning number in 100)
b)   The second lottery (10 winning numbers in 1,000)
c)   No Preference

Appendix B - Excerpts of the Independent Variable Manipulations

Company Background

(**Single Location Condition** / *Multiple Location Condition)*: Big Time's inventories of granite stone are stored in **one large warehouse located** (*20 warehouses located in surrounding counties*) near its main operations. **This warehouse contains 100% of the total inventory dollar value. This warehouse operates following one strict standard inventory management process.** (*Each warehouse is the same size so that approximately 5% of the total inventory dollar value is contained in each of the 20 warehouses {i.e., 100% of the total inventory dollar value is stored in all warehouses taken together}. All warehouses operate following the same strict standard inventory management process*.)

Litigation Case Transcript

Case Introduction:
*(***Single Location** / *Multiple Location / **Rely** [Not Rely]* Condition*)*: Big Time stored its inventory in **one warehouse location** (*20 warehouse locations*) close to its main operations. During their audit, Jones Auditors sampled **55% of the total dollar value** *(55% of the total dollar value)* of Big Time's inventory for testing (*which approximately equates to inventory stored in 11 of the 20 warehouses*) **from the sole warehouse**. Jones Auditors' audit staff ***did not perform*** [*performed*] all inventory testing at **the sole warehouse** (*all 11 of the sampled warehouses)* – they used their own staff and ***obtained** [did not obtain]* inventory testing help from Big Time's internal audit staff.

Expert Witness for the Plaintiff:
*(***Single Location** / *Multiple Location / **Rely** [Not Rely]* Condition*):* Considering that Big Time has **one warehouse** *(many warehouses)*, if Jones Auditors had been more diligent and conducted the inventory tests **with assistance** *[themselves without obtaining assistance]* from Big Time's internal auditors, they might have discovered the material misstatement in the inventory amount that was reported to unsuspecting investors and lenders.

Expert Witness for the Defense:
*(***Single Location** / *Multiple Location / **Rely** [Not Rely]* Condition*):* Furthermore, although Big Time has **one warehouse** *(many warehouses)*, **obtaining** *[not obtaining]* assistance from Big Time's internal auditors and using the inventory testing procedures Jones Auditors selected are allowed by auditing standards.

Plaintiff Lawyer Closing Statement:
*(***Single Location** / *Multiple Location / **Rely** [Not Rely]* Condition*):* We know that Big Time has **one** *(many)* inventory warehouses. Information in their working papers indicates that Jones Auditors selected **55% of the inventory dollar value in the sole warehouse** *(inventory at 11 of the 20 warehouses {55% of inventory dollar value})* for testing. We also know that to perform the actual tests, Jones Auditors used their own staff ***plus obtained** [and did not obtain]* assistance from Big Time's internal audit staff to perform testing procedures.

Appendix B - continued

*(***Single Location** / *Multiple Location* / ***Rely*** *[Not Rely]* Condition*):* Given that Big Time stores inventory in **one warehouse** *(many warehouses)*, it is clear that Jones Auditors were negligent in staffing the inventory testing – they should ***not*** *[they should]* have obtained assistance from Big Time's internal auditors.

Defense Lawyer Closing Statement:
*(***Single Location** / *Multiple Location* / ***Rely*** *[Not Rely]* Condition*):* Auditing standards allow the external auditors to perform testing ***with*** *[without]* assistance from the client's internal auditors even if the client stores inventory in **one location** *(many locations)*.

Figure 1 Hypothesized Model of Juror Judgment
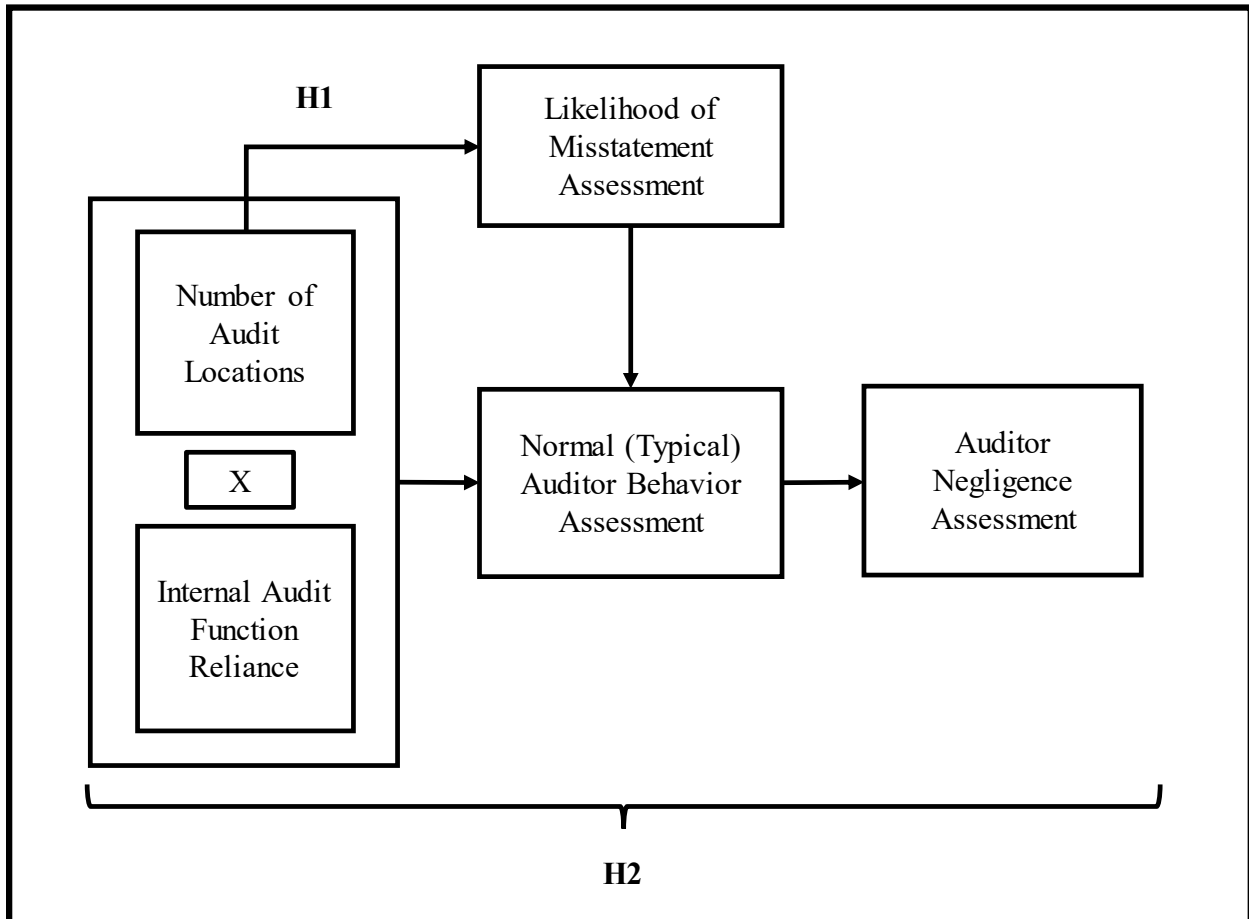
Variable Definition:
- Number of Audit Locations x Internal Audit Function Reliance = The interaction of the *Audit Location* and the *Reliance on IAF* conditions.
- Likelihood of Misstatement Assessment = Participant assessment of the risk of misstatement given the number of inventory locations.
- Normal (Typical) Auditor Behavior Assessment = Participant perceptions of the IAF reliance decision the typical auditor would make.
- Auditor Negligence Assessment = Participant assessment of auditor negligence.
- H1: Ceteris paribus, jurors will assess an increased likelihood of an account misstatement when the audit client is a multi-location engagement than when the audit client is a single location engagement.
- H2: Jurors assessments of auditors' negligence will differ when auditors rely versus do not rely on the client's IAF on multi-location audits but not on single location audits. Further, in a multi-location audit setting, auditors who rely on the client's IAF will be judged as more negligent than auditors who do not rely on the client's IAF.

Figure 2 Hypothesized Pattern of Juror Assessment of Auditor Negligence[a] (H2)
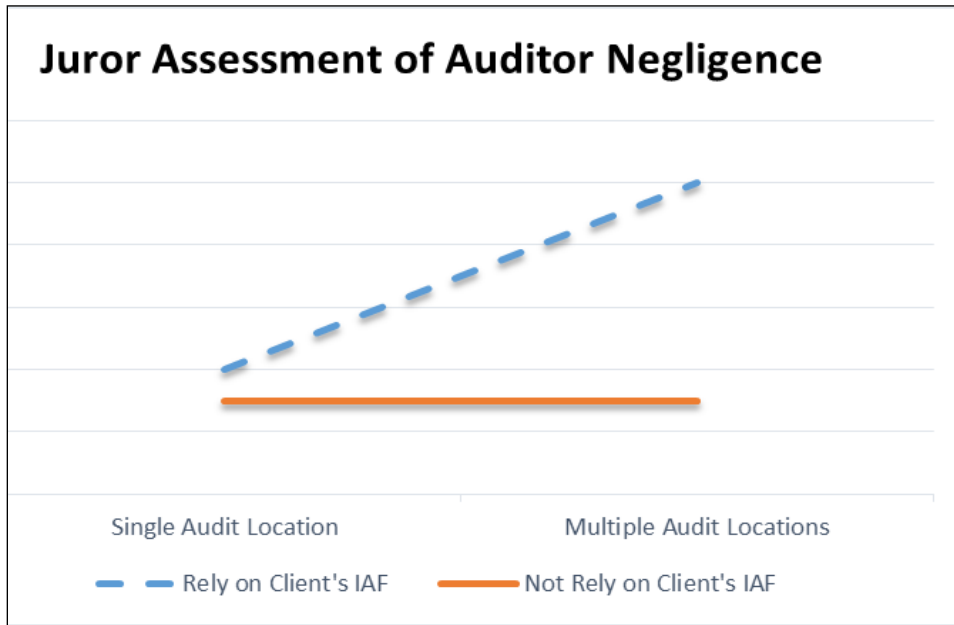
[a]Figure 2 presents the predicted pattern of effects based on the following hypothesis:
Auditors will be assessed as more negligent when they rely on the client's IAF in a multiple location audit setting than when they do not; however, IAF reliance will have no effect on auditor negligence assessments in a single location audit setting

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Variable Definition:
-   Juror Assessment of Auditor Negligence = Assessment of auditor negligence is presented as a continuous scale such that the 0 represents "100% completely not guilty" and 100 represents "100% completely guilty."
-   Reliance on IAF = Auditors in the Rely (Not Rely) condition relied on the client's internal audit function for direct assistance with inventory audit testing.
-   Audit Location(s) = In the Single Location (Multiple) Location condition, there is (are) one (20) auditable inventory location(s).
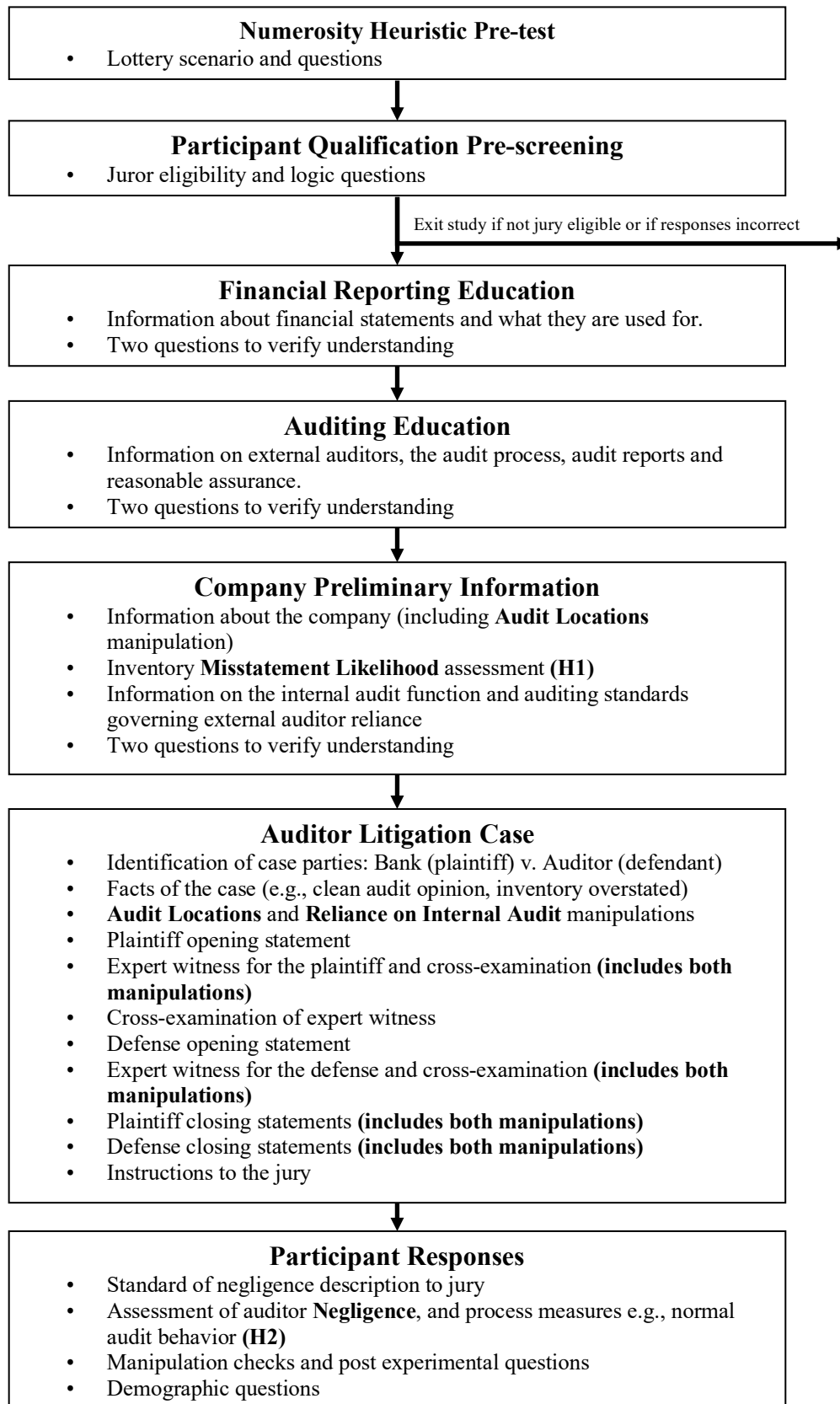
Figure 3 Sequence of Experimental Procedures

Numerosity Heuristic Pre-test
- Lottery scenario and questions

↓

Participant Qualification Pre-screening
- Juror eligibility and logic questions

→ Exit study if not jury eligible or if responses incorrect

↓

Financial Reporting Education
- Information about financial statements and what they are used for.
- Two questions to verify understanding

↓

Auditing Education
- Information on external auditors, the audit process, audit reports and reasonable assurance.
- Two questions to verify understanding

↓

Company Preliminary Information
- Information about the company (including **Audit Locations** manipulation)
- Inventory **Misstatement Likelihood** assessment **(H1)**
- Information on the internal audit function and auditing standards governing external auditor reliance
- Two questions to verify understanding

↓

Auditor Litigation Case
- Identification of case parties: Bank (plaintiff) v. Auditor (defendant)
- Facts of the case (e.g., clean audit opinion, inventory overstated)
- **Audit Locations** and **Reliance on Internal Audit** manipulations
- Plaintiff opening statement
- Expert witness for the plaintiff and cross-examination **(includes both manipulations)**
- Cross-examination of expert witness
- Defense opening statement
- Expert witness for the defense and cross-examination **(includes both manipulations)**
- Plaintiff closing statements **(includes both manipulations)**
- Defense closing statements **(includes both manipulations)**
- Instructions to the jury

↓

Participant Responses
- Standard of negligence description to jury
- Assessment of auditor **Negligence**, and process measures e.g., normal audit behavior **(H2)**
- Manipulation checks and post experimental questions
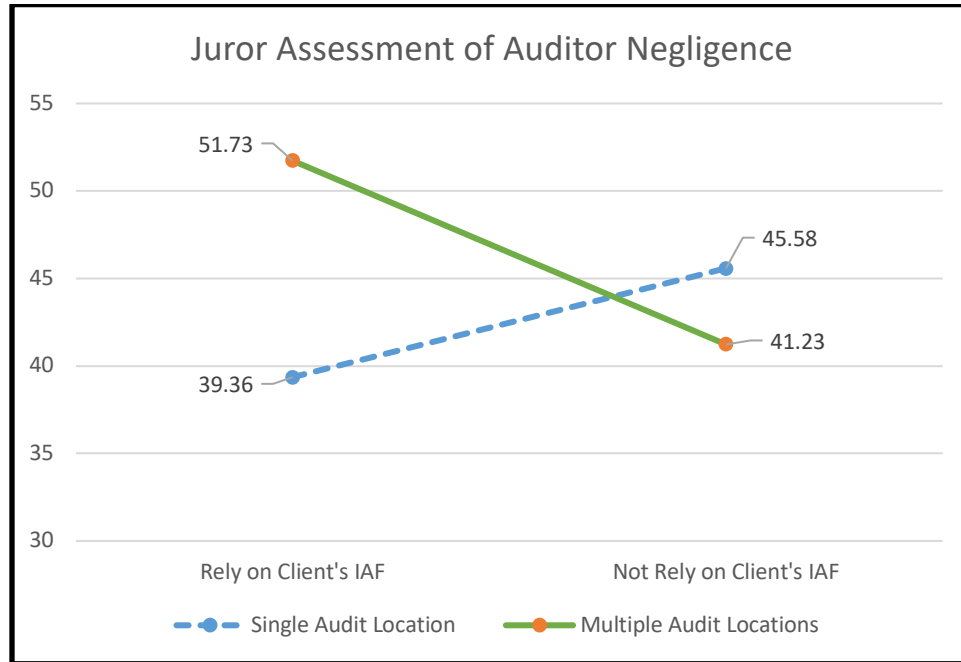- Demographic questions

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Figure 4 Experimental Results of Juror Assessment of Auditor Negligence

Variable Definition:
- Juror Assessment of Auditor Negligence = Assessment of auditor negligence is presented as a continuous scale such that the 0 represents "100% completely not guilty" and 100 represents "100% completely guilty."
- Reliance on IAF = Auditors in the Rely (Not Rely) condition relied on the client's internal audit function for direct assistance with inventory audit testing.
- Audit Location(s) = In the Single Location (Multiple) Location condition, there is (are) one (20) auditable inventory location(s).

Figure 5 Model of the Indirect Effects of Mediating Variables on Auditor Negligence Assessments
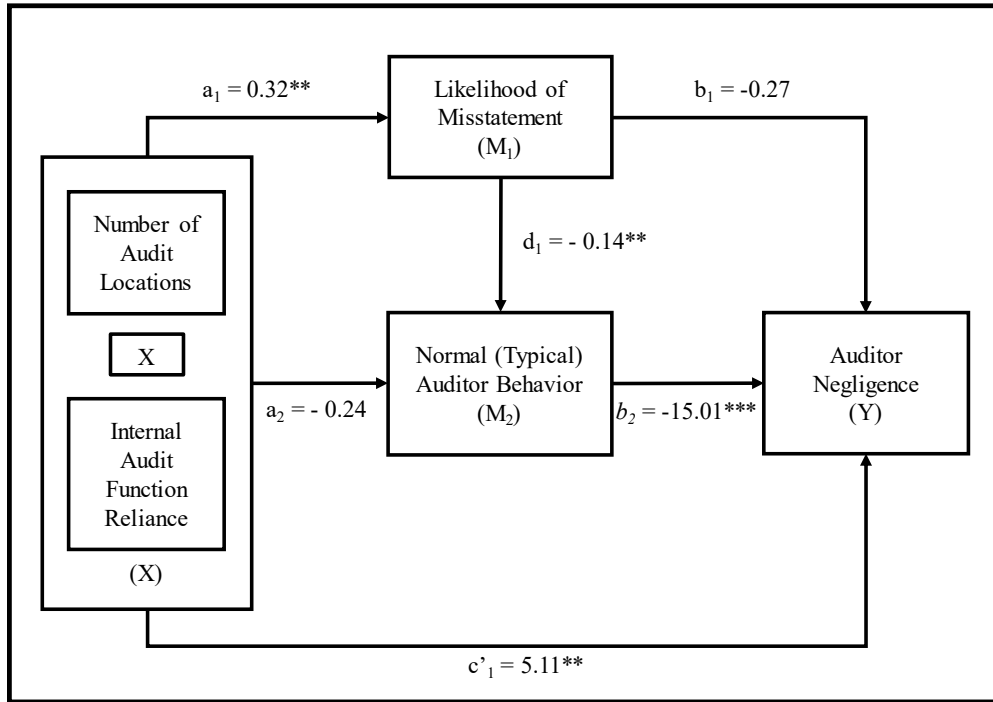
$*$, $**$, $***$ denotes significance at the .05, .01 and .001 levels (all *p*-values are one-tailed).

Indirect effect of *Audit Locations* x *Reliance on IAF* on *Auditor Negligence* through *Misstatement Likelihood* and *Normal Auditor Behavior*

	Effect	SE (boot)	95% CI (Lower Limit)	95% CI (Upper Limit)
Interaction of the *Audit Locations* and *Reliance on IAF*	0.72	0.48	0.06	2.02

Note: Results using a bias-corrected 95% confidence interval with 5,000 bootstrap re-samples. See Hayes and Preacher (2014) and Hayes (2013) for overviews of this mediation test method.

Variable Definition:
- Number of Audit Locations x Internal Audit Function Reliance = The interaction of the *Audit Locations* and the *Reliance on IAF* conditions.
- Likelihood of Misstatement Assessment = Participant rating response to the question: "Based on what you have read about Big Time and its inventory storage, how likely do you think it is that an inventory misstatement or an inventory error could occur?" Responses are based on seven-point anchored scale where 1 = Very Unlikely and 7 = Very Likely.
- Normal (Typical) Auditor Behavior Assessment = Participant rating response to the question: "Considering the facts of this case, do you agree that a typical auditor who is careful and competent would have made the same judgment as Jones Auditors about using Big Time's internal audit department in inventory testing? Responses are based on seven-point anchored scale where 1 = Strongly Disagree and 7 = Strongly Agree.
- Auditor Negligence Assessment = Assessment of auditor negligence is presented as a continuous scale such that the 0 represents "100% completely not guilty" and 100 represents "100% completely guilty."

TABLE 1
Participant Demographics
n=442

Demographic	Mean (Standard deviation)
Age (range 18 to 72 years)	35.9 (11.9)
Gender: Male	49.3%
Highest Level of Education:	
- High School Diploma / GED	23.0%
- Trade / Professional School	4.8%
- Associates Degree	18.1%
- Bachelor's Degree	40.7%
- Master's Degree	10.4%
- Doctorate Degree	2.5%
- None of the above	0.5%
Percentage of Participants with past experience as:	
- Inventory Specialist	1.8%
- Investor	17.6%

TABLE 2
Lottery Choice Pre-Test
Descriptive Statistics and Results

Panel A: Frequency of Lottery Option Selection (Proportion of the Total)

	Personal Advice to Friend	Typical Person's Advice to Friend
Lottery 1 (1:100)	121 (27.4%)	165 (37.3%)
Lottery 2 (10:1,000)	128 (29.0%)	230 (52.0%)
No Preference	193 (43.6%)	47 (10.7%)
Total	442 (100%)	442 (100%)

Panel B: Chi-Square Test Results for Lottery Selection

Factor	Lottery 1 (1:100)	Lottery 2 (10:1,000)	df	χ^2 Value	p-value[a]
Personal Advice to Friend	121	128	1	0.197	0.657
Typical Person's Advice to Friend	165	230	1	10.696	0.001

[a] p-value is two-tailed

Variable Definitions:
- Personal Advice to Friend = Participant response to the question: "How would YOU advise Ralph about which lottery, if either, would be more likely to produce a winning ticket?"
- Typical Person's Advice to Friend = Participant response to the question: "How do you think the typical person would advise Ralph about which lottery, if either, would be more likely to produce a winning ticket?"

TABLE 3
Perception of the Likelihood of Misstatement
Descriptive Statistics and Hypothesis 1 Tests
Mean (Standard Deviation) [Number of participants]

	Single Location Condition	Multiple Location Condition	df	t-value	p-value[a]
Likelihood of Misstatement	2.90 (1.39) [223]	3.53 (1.35) [219]	440	4.83	< 0.01

[a] p-value is two-tailed

Variable Definitions:
- Likelihood of Misstatement = Participant response to the question: "Based on what you have read about Big Time and its inventory storage, how likely do you think it is that an inventory misstatement or an inventory error could occur?" Responses based on seven-point anchored scale where 1 = Very Unlikely, and 7 = Very Likely.
- Audit Location(s) = In the Single Location (Multiple) Location condition, there is (are) one (20) auditable inventory location(s).

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TABLE 4
Juror Assessment of Auditor Negligence
Descriptive Statistics and Hypothesis 2 Tests

Panel A: Mean (Standard Deviation) [Number of Participants]

	Rely on IAF	Not Rely on IAF	Total
Single Audit Location	39.36 (32.52) [110]	45.58 (34.80) [113]	42.51 (33.76) [223]
Multiple Audit Locations	51.73 (34.67) [113]	41.23 (34.45) [106]	46.64 (34.88) [219]
Total	45.63 (34.12) [223]	43.47 (34.62) [219]	44.56 (34.35) [442]

Panel B: ANOVA Results Juror Assessment of Auditor Negligence

Factor	df	Type III Sum of Squares	F-value	p-value[a]
Reliance on IAF	1	507.51	0.43	0.255
Audit Locations	1	1772.63	1.52	0.109
Reliance on IAF*Audit Locations	1	7709.03	6.61	0.005
Error	438	1165.00		

[a] p values are one-tailed

Panel C: Results for Simple Effects of Juror Assessment of Auditor Negligence

Factor	Rely on IAF	Not Rely on IAF	t-value	p-value
Single Audit Location	39.36 (32.52)	45.58 (34.80)	-1.37	0.170[a]
Multiple Audit Locations	51.73 (34.67)	41.23 (34.45)	2.24	0.013[b]

[a] p values are two-tailed
[b] p values are one-tailed

Variable Definitions:
- Juror Assessment of Auditor Negligence = Assessment of auditor negligence is presented as a continuous scale such that the 0 represents "100% completely not guilty" and 100 represents "100% completely guilty."
- Reliance on IAF = Auditors in the Rely (Not Rely) condition relied on the client's internal audit function for direct assistance with inventory audit testing.
- Audit Location(s) = In the Single Location (Multiple) Location condition, there is (are) one (20) auditable inventory location(s).