Evidence on How Different Interventions Affect Juror Assessment of Auditor Legal Culpability and Responsibility for Damages After Auditor Failure to Detect Fraud

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August 2020

We appreciate helpful comments from EB Alterio, Tim Bauer, Sarah Bonner, Tony Bucaro, Nicole Cade, Brooke Elliott, Cassandra Estep, Kirsten Fanning, Gary Hecht, Frank Hodge, Kim Ikuta, Bob Lawless, Andy Leipold, Zoe-Vonna Palmrose, Jennifer Robbennolt, and Ken Trotman, as well as participants at the 2014 American Accounting Association Audit Midyear meeting, the 2015 International Symposium on Audit Research, the Indiana University Audit Readings Group, the University of Illinois College of Law Faculty Retreat, and workshop participants at University of Illinois at Urbana-Champaign, University of Southern California, and University of Washington.
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Abstract

Prior research shows that, under realistic conditions, jurors overly harshly evaluate audit firm culpability when financial statement fraud emerges after issuance of a clean audit opinion. In two experiments, we test theory-based predictions that three topical regulatory factors can reduce jurors’ assessments of audit firm culpability as well as predictions about two key mediators through which these factors effectively operate. The three factors are an auditor judgment rule (AJR) prohibiting juror second-guessing of auditor judgments made in good faith and with a reasonable basis, a critical audit matter (CAM) disclosure in the audit report that pertains to the disputed area, and a juror negligence training (JNT) in which jurors learn and apply legal concepts before the case evaluation. The two mediators are jurors’ perceptions that the audit firm missed a readily detectable fraud (detectability) and tacitly assented to management’s potentially fraudulent actions (acquiescence). Finally, we also test a “reactance-effects” prediction whereby, even while the AJR and JNT interventions decrease assessed auditor culpability on average, we expect the interventions will simultaneously increase assessed damages among the relatively small subset of jurors finding against the audit firm in their presence relative to jurors finding against the audit firm in their absence. Results support our predictions and also demonstrate that the mediators of perceived detectability and acquiescence can underlie these effects.
1. Introduction

Juror evaluations of audit firm culpability when material misstatements arise after issuance of clean audit opinions are critical tasks. Jurors receive instruction from judges as to the applicable legal standard(s), hear arguments from plaintiff and defendant attorneys, interpret complex evidence, and ultimately reach conclusions about culpability. Jurors’ conclusions, unfortunately, are error-prone and unfairly harsh on auditors under many realistic conditions (Donelson, Kadous, and McInnis 2014). One remarkable finding, for example, is that jurors hold auditors more culpable when they objectively perform higher quality audits (Reffett 2010; Backof 2015; Maksymov and Nelson 2017). Jurors’ dysfunctional culpability conclusions create incentives for auditors to engage in defensive auditing, such as avoiding clients who create value for society but present heightened auditor business risk and avoiding innovative audit tests that would better address underlying misstatement risk factors in favor of customary, standard tests (Peecher, Solomon, and Trotman 2013; Kang, Trotman, and Trotman 2015). Uncertainty about the soundness of jurors’ conclusions intensifies audit firms’ legal exposure, which heightens concern that top talent will leave the profession in favor of less litigious vocations (Turley 2007; Treasury 2008; Pozen 2008; Donelson 2013; DeFond and Zhang 2014; Petersen 2017). These collective concerns motivate continued investigation of interventions that can reduce jurors’ culpability assessments and the key mediators through which they operate.

Drawing from psychology research on lay persons’ judgments of blameworthiness (Nuñez, Laurent, and Gray 2014; Laurent, Nuñez, and Schweitzer 2016), we posit that two key mediators drive the extent to which jurors find defendant audit firms culpable: perceived fraud detectability and auditor acquiescence. We define detectability as juror beliefs supporting the idea that the auditor missed a readily detectable fraud, for example, because the auditor should
have foreseen that an alternative audit approach was warranted. We define *acquiescence* as juror beliefs supporting the idea that the auditor tacitly assented to management’s potentially fraudulent actions, for example, by permitting aggressive accounting. Nuñez et al. (2014) clarify that one can conceptualize both theorized mediators using culpable control theory, in particular, the “blame validation hypothesis.” This hypothesis posits that, absent any interventions, jurors’ cognitive processing favors concluding that the audit firm defendant is to blame for the outcome (Alicke 2000). Perceived *detectability* and *acquiescence* both elevate jurors’ perceived control that the audit firm had over detecting the material misstatement, which would have averted the third parties’ financial damages.

We advance the literature by examining three highly topical interventions that could reduce perceived *detectability* and *acquiescence* and that audit regulators, standard setters, or the courts could implement or already have begun to implement: an auditor judgment rule (AJR), critical audit matters (CAMs), and juror negligence training (JNT). An AJR has been proposed as a way to mitigate excessive auditor legal exposure (similar rules already exist for directors and psychotherapists), CAMs recently have become mandatory (PCAOB 2019), and juror trainings recently have been implemented in various jurisdictions (Civil Jury Project 2019). While our hypotheses focus on the individual effects of these three factors and corresponding mediators, we also explore research questions about how an AJR could interact with JNT and CAMs.

An AJR stems from the business judgment rule, which prescribes that corporate directors’ professional judgments should not be second-guessed, so long as the judgments are reasonable and made in good faith. The AJR aligns with arguments by audit commentators (e.g., Turley 2007; Treasury 2008), psychology scholars (e.g., Mumpower and Stewart 1996), and neuroscientists (e.g., Burton 2008) that the presence of alternative reasonable judgments (and
actions) that the auditor could have made are not, in themselves, signs of negligence. We expect the AJR to reduce jurors’ culpability assessments through weakening perceived *detectability*, the latter occurring as jurors more fully recognize that auditors must make tough judgment calls under conditions of high complexity and uncertainty. Such conditions favor the existence of multiple reasonable alternative audit actions and conclusions. Similarly, we expect the AJR’s directive to not second-guess auditors assuming that the auditor exercised good faith and made reasonable judgments to reduce culpability assessments through weakening perceived *acquiescence*, implicitly creating a default position that the auditor acted in good faith.

Our second regulatory factor is a CAM, a newly required disclosure in U.S. public company audit reports (PCAOB 2019). We expect that a CAM in the disputed area will reduce culpability assessments by weakening perceived *detectability*, as it will cause jurors to concede that the fraud remained undetected despite the audit firm having understood that the area was sufficiently complex and challenging to warrant public disclosure to creditors and investors. We also expect the CAM will reduce culpability assessments by weakening perceived *acquiescence*, as jurors likely will doubt that audit firms would disclose a CAM for an area in which they are tacitly assenting to potential management fraud.

Our third regulatory factor of JNT is whether jurors, prior to the case evaluation, complete a training on negligence concepts. An extensive line of legal literature has found that jury instructions confuse untrained jurors and fail to improve their understanding of legal concepts (e.g., Kramer and Koenig 1990, 429; see Gordon 2014). Practicing attorneys have echoed these concerns and have called for creative means to facilitate juror *learning* of legal concepts to apply to case facts (Aveni, Hood, and Sledge 2017). These practitioner views are consistent with legal scholar arguments that juror instructions are ineffective in large part
because they are not structured with juror learning in mind (see Gordon 2014). A JNT could compensate for these deficiencies by giving jurors an opportunity to apply concepts, in practice cases varying in complexity. Practice cases also could help jurors realize that cases are often not clear-cut and involve complexity, leading to less extreme judgments (see Gordon 2014). Anticipated advantages of a JNT vis-à-vis traditional juror instructions are likely one key reason that organizations like the Civil Jury Project at the New York School of Law are dedicated to developing and disseminating innovations such as JNT. Revisiting our hypothesis, we expect that JNT will reduce culpability assessments by weakening perceived detectability, as it will help jurors more fully realize that audit professionals must make tough judgment calls under uncertainty (i.e., limiting foreseeability) and that multiple reasonable audit judgments and actions typically exist. We expect the latter belief to also reduce assessed culpability by weakening perceived acquiescence.

Finally, while we predict that the AJR and JNT will, on average, reduce jurors’ culpability assessments, psychology theory motivates predicting that these interventions will cause reactance effects in a relatively small subset of jurors. These interventions implicitly advocate for the audit firm and could be viewed as prohibitive by some jurors; research has shown reactance in response to persuasive messages (e.g., Fitzsimons and Lehmann 2004; Pham, Mandel, and Morales 2016) as well as to legal admonitions to jurors (see Lieberman and Arndt 2000). Psychology theory predicts that jurors experiencing reactance will view these interventions as a threat against their autonomous freedom to evaluate the case and so experience motivated arousal to act against the threat (e.g., Brehm and Brehm 1981). As a result, a reasonable means of identifying jurors who likely experienced reactance is to focus only on those who found against the audit firm (in the presence of the intervention). Among these jurors
experiencing reactance, we predict their strong urge to “do something” to restore that freedom by acting against the intervention (Brehm and Brehm 1981, 392) will also lead them to assign greater damages (relative to jurors also finding against the audit firm, but in the absence of the intervention). Psychology theory suggests that this increase in damages could be driven by juror cognition or occur as a direct consequence of the intervention (see Rosenberg and Siegel 2018). Therefore, we predict that the effect of the AJR and JNT on jurors’ damage assessments will operate through perceptions of *detectability*, perceptions of *acquiescence*, and/or directly.

We conduct two experiments to test our predictions. Lay jurors (Mechanical Turk participants) assess an audit firm’s culpability in a lawsuit under U.S. state common law where management committed material financial-statement fraud that the audit firm failed to detect. In experiment one, we manipulate whether jurors make evaluations under an AJR (or simple ordinary negligence), and whether the audit firm has issued a CAM in the area of dispute (or CAMs do not exist). In experiment two, we again manipulate an AJR, and whether jurors complete a JNT (versus a control training). Our primary dependent variables are jurors’ culpability assessments (on a 100-point probability scale) and, among jurors finding against the audit firm, damages assessments (on a scale from $0 to $9 million). We use post-test questions to elicit jurors’ mediating beliefs related to perceived *detectability* and *acquiescence*.

As predicted, an AJR and a CAM each reduce assessed audit firm culpability in experiment one. Results in experiment two reproduce this AJR effect and reveal a diminishing-form interaction between the AJR and the JNT. Specifically, while the AJR and the JNT each decrease culpability assessments in isolation, neither does so in the presence of the other. Evidence indicates that the AJR, CAM, and JNT reduce culpability assessments by weakening perceived *detectability*. The AJR and JNT also operate by weakening perceived *acquiescence*. 
but a marginally significant interaction suggests that their joint effect is less than the sum of their individual effects. Also as predicted, the AJR and JNT cause reactance effects. Among the relatively smaller subset of jurors finding against the audit firm, assessed damages are higher given the presence than the absence of an AJR or JNT. Reactance arises as a result of the AJR effect elevating perceived *acquiescence* (experiment one) and *detectability* (experiment two). The latter mediating effect of perceived *detectability*, however, ebbs in the presence of the JNT. There is also a direct effect of the AJR, JNT, and their diminishing form interaction on damages.

Our theory and findings contribute to audit research and practice. We advance theory by grounding our hypotheses in recent advances in psychology about how lay persons actually think, which diverges from what the law stipulates, about intentional and unintentional drivers of negligence (Nuñez et al. 2014; Laurent et al. 2016). Specifically, we identify the conceptual mediators of perceived *detectability* and *acquiescence* and measure each with post-test questions that have the common thread of being *indicators* of juror thinking that maps into these conceptual mediators. Using factor analysis and SEMs, we support the validity of our measures and show that these mediators can underlie how our three manipulated factors affect jurors’ assessments of audit firm culpability and damages in the case of undetected fraud. Our findings build on prior auditor litigation research that has examined effects of individual indicators of perceived *detectability* (Reffett 2010; Cornell, Warne, and Eining 2009), as well as effects of perceived foreseeability directly elicited from jurors (Backof 2015; Gimbar, Hansen, Ozlanski 2016; Vinson, Robertson, and Cockrell 2019). There is a dearth of research finding effects of perceived *acquiescence* – our findings offer a new measure for future research to consider, and join Brandon and Mueller (2006) who develop a composite measure of acquiescence with indicators of audit firm objectivity, independence, and lack of self-interest. In addition to
researchers, audit firms and their attorneys would also find these results of interest. Awareness of specific blame-inducing mediators could help attorneys craft better arguments to win over jurors, improving their position in both trials and settlements (Maksymov et al. 2019).

We also advance the literature by hypothesizing and experimentally examining how three factors, two being new to the audit litigation literature—an AJR and a JNT— influence juror assessments of auditor culpability and damages. Moreover, while prior studies also have shown that CAMs can decrease culpability assessments (Brasel, Doxey, Grenier, and Reffett 2016; Kachelmeier, Rimkus, Schmidt, and Valentine 2019), their focus is on how CAMs alter evaluators’ beliefs related to plaintiffs (i.e., the plaintiff was warned). While we also demonstrate that CAMs decrease culpability, we focus on how CAMs reduce culpability assessments by generating more positive beliefs about the audit firm’s conduct.

Our theory and findings related to reactance effects offer contributions as well. To our knowledge, research identifying interventions to reduce unwarranted auditor legal exposure (e.g., Kadous 2001; Clarkson, Emby, and Watt 2002; Cornell et al. 2009; Grenier, Lowe Reffett, and Warne 2015) have not considered that some interventions that reduce culpability assessments on average can trigger reactance effects at the same time. We predict reactance to prevail among a small subset of jurors who, as a consequence of the interventions, find against the audit firm and then assign greater damages (relative to had the intervention been absent). Moreover, our identification of reactance as a source of greater damages contributes new evidence to the few auditor litigation studies focusing on damage awards, as those studies instead examine factors that logically align with greater assessments of audit firm responsibility (Brandon and Mueller 2006; Piercey and Peecher 2008; Lyubimov, Arnold, and Sutton 2013; Backof 2015) or reflect the “deep pockets” argument (Lowe, Reckers, and Whitecotton 2002). This finding is also highly
relevant to the topical debate over whether defendants such as audit firms ought to face the same versus separate jurors or juries to decide on culpability versus damages (e.g., Abramowicz and Abramowicz 2018). Indeed, our findings suggest that, in the presence of interventions such as an AJR or JNT, adding new jurors or an entirely new jury for damages may well result in damage assignments that are more consistent with the law.

Finally, we also build on the legal literature in motivating our predictions for reactance (e.g., Lieberman and Arndt 2000). While older legal studies examine stark factors such as commands to disregard previous convictions (Pickel 1995) or inadmissible evidence (Wolf and Montgomery 1977), newer studies consider more subtle factors such as tactical attorney objections (Reed and Bornstein 2018). By studying reactance effects for the first time in an audit litigation setting, we also contribute to the broader legal literature. We show that an AJR (which is specifically applicable to auditing) and a JNT (which is a stiffer litmus test for reactance, as it is applicable only in a general sense) both can trigger reactance, underscoring a fairly pervasive need to account for reactance effects.

2. Theoretical Development

2.1. Background on auditor litigation and theory for juror evaluations

Litigation is a key disciplining force motivating auditors to provide high quality audits for investors and other stakeholders (Palmrose 1988). When a material misstatement emerges after issuance of an audit firm’s clean opinion, both sides of a dispute want to understand how jurors would evaluate audit firm culpability. As part of their evaluation process, jurors receive instructions from judges as to the applicable legal standard(s), hear plaintiff and defendant

1 While most auditor litigation is settled (e.g., Palmrose 1991; Donelson 2013), it remains foundational to understand how various factors influence judgments of lay jurors (Donelson et al. 2014). Further, experienced attorneys approach each dispute as if it would go to trial and, when deciding on settlement terms, focus on the uncertain expectations of juror assessments of auditor culpability and damages (Maksymov et al. 2019).
attorney arguments, interpret complex evidence, and, ultimately, reach conclusions about the extent to which the audit firm is culpable. Unfortunately, substantial evidence indicates that jurors’ evaluations are frequently susceptible to cognitive biases, rife with judgment errors and deviations from legal standards, and tend to be unfairly harsh on audit firms under many realistic conditions (Donelson et al. 2014).

Jurors’ volatile and unfairly harsh conclusions can undermine incentives to provide high-quality audits. They encourage defensive auditing, which can entail avoiding clients who create value for society but pose greater business risk, relying only on standardized audit tests and ignoring innovative tests that are higher quality (Peecher et al. 2013; Kang et al. 2015), and even doing less investigatory work (Reffett 2010). Related, high litigation risk can motivate top talent to leave the audit profession (Treasury 2008; Pozen 2008; Donelson 2013; DeFond and Zhang 2014; Maksymov et al. 2019). These consequences—and annual legal costs increasing approximately 2 billion from 1999-2007 for Big 4 audit firms—have prompted calls for litigation reforms (Treasury 2008; Donelson et al. 2014). As a result, studies have identified interventions to reduce jurors’ culpability assessments, such as redirecting negative affect that jurors feel during trial deliberations away from defendant auditors (Kadous 2001), stressing the seriousness of jurors’ evaluation task (Clarkson et al. 2002), apology and first-person justification tactics by audit firms (Cornell et al. 2009), and using credible court-appointed experts (Grenier et al. 2015).

The above-mentioned concerns about juror biases also resonate with culpable control theory’s blame validation hypothesis (Alicke 2000). This hypothesis holds that jurors evaluating

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2 One legal expert, who is a former in-house legal counsel of nineteen years at a Big n firm (Petersen 2017), believes that a nontrivial likelihood exists that catastrophic audit litigation will wipe out another large audit firm. Donelson (2013) develops a range of estimated likelihoods that runs from remote (0.6 percent over five years) to considerably higher (14.1 percent over five years) if partner retirement benefits were removed as this would result in a less stringent threshold for liquidation (i.e., whereby a majority of partners rationally would vote to liquidate the firm).
a defendant’s culpability when a negative outcome occurs (e.g., an auditor when a material misstatement due to fraud leads to plaintiff losses) will enter “blame validation mode,” in which their cognitive processing is geared towards blaming the defendant (Alicke 2000). Under _volitional outcome control_ (Alicke 2000), jurors will engage in greater cognitive processing to assign blame to the defendant to the extent that their beliefs support the idea that the defendant could control the negative event (e.g., the auditor could control whether the fraud was detected).

Indeed, recent psychology research on lay persons’ judgments of blameworthiness (Nuñez et al. 2014; Laurent et al. 2016) suggests that jurors’ supportive beliefs will be of two kinds: those supporting the idea that the audit firm’s actions led to missing a readily _detectable_ fraud and those supporting the idea that the audit firm _acquiesced_ to management’s potential perpetuation of the fraud, that is, tacitly assented.\(^3\) Nuñez et al. (2014) draw on culpable control theory (Alicke 2000) and intentionality research (Malle and Knobe 1997; Malle and Nelson 2003; Malle and Holbrook 2012) to develop and test a framework about factors that influence lay persons’ beliefs of negligence. Key factors in their framework are: (1) _knowledge_ of the action-consequence relationship (e.g., evaluators’ assessments of whether the auditor understood that their approach, such as taking a sample, _in theory_ could lead to undetected fraud), (2) _awareness_ of the possible scope of their actions (e.g., evaluators’ assessments of whether the auditor _should have been aware_ that their actions enhanced the chance of fraud surviving the audit), and _desire_

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\(^3\) While it may seem incredulous that jurors would believe that audit firms would tacitly assent to potential fraud, there is little evidence auditors have dominating incentives to detect fraud. Auditors are ineligible for _qui tam_ rewards, and regulators pay no fraud-finding fees. Much fraud is thought to go undetected (Dyck, Morse, and Zingales 2017). When auditors successfully detect fraud, they face expensive lawsuits in which plaintiffs allege that auditor negligence kept them from finding it earlier, suspension of payment of audit fees, and dismissal as the auditor of record (Peecher et al. 2013). Recent evidence suggests that the market penalizes audit firms for detecting lesser infractions than financial statement fraud – audit firms who report a material weakness in one client have a harder time finding new clients at competitive fees (Cowle and Rowe 2019). Indeed, some claim that auditors’ best defense in the case of undetected fraud is ignorance or plausible deniability (Coffee 2004), which aligns with the finding that jurors penalize auditors more for investigating fraud risks (Reffett 2010).
for the outcome (e.g., evaluators’ assessments of whether the auditor acquiesced to management’s fraud). Negligence is higher when knowledge and awareness are higher; intentionality is higher when all three are higher (Nuñez et al. 2014).\textsuperscript{4}

Applying this theory to auditor litigation, our first theoretical mechanism is detectability, defined as jurors’ beliefs supporting the idea that the auditor missed a readily detectable fraud. These beliefs relate to awareness, whereby jurors perceive that the auditor should have foreseen that their actions would lead to the fraud going undetected, increasing blame (Lagnado and Channon 2008; Nuñez et al. 2014).\textsuperscript{5} Key is that the juror does not need to believe that the auditor was aware of the fraud, but rather, that they should have been aware that their decisions could lead to fraud surviving the audit. Our second theoretical mechanism is acquiescence, which relates to desire. Jurors engaging in this reasoning will perceive that the auditor tacitly assented to management’s potential fraudulent actions (Nuñez et al. 2014). Indeed, practicing attorneys have analogized auditors missing material fraud as the proverbial “ostrich putting its head in the sand” – depicting the auditor as a willfully disinterested ostrich (Aveni et al. 2017, 12).\textsuperscript{6}

To summarize, we theorize that jurors’ assessments of audit firm defendant culpability will operate through beliefs that the audit firm missed a readily detectable fraud and acquiesced

\textsuperscript{4} Given the audit firm’s status as a professional expert, we expect jurors to perceive the knowledge dimension to be consistently high in the audit litigation setting.

\textsuperscript{5} For example, if a person firing a gun harms someone, evaluators may assess high foreseeability even if the person believed that the gun was not loaded (as the person should have checked whether the gun was loaded) (Nuñez et al. 2014). Given auditors are professionals, we expect jurors will engage in this thinking (as would occur with a gun expert in the example; see Nuñez et al. 2014).

\textsuperscript{6} At a theoretical level, we position detectability and acquiescence to be conceptually different constructs. Jurors could believe that the audit firm should have foreseen that their actions would lead to missing fraud without believing that the audit firm did so knowingly. Moreover, if jurors believe that the audit firm acquiesced to management, whether the auditors also designed a substandard audit approach for detecting fraud becomes less relevant. Relatedly, Laurent, Nuñez, and Schweitzer (2015) find in a case with similar characteristics to ours (i.e., the agent had limited actual awareness) that lay persons’ beliefs about desire and awareness are unrelated. Nonetheless, the constructs can be related; Laurent et al. (2015) also document a positive relation between perceived awareness and desire in a case whereby the agent had full awareness (i.e., was aware that she was cooking with an oil containing an allergen of a dinner guest). We thus theoretically assume that detectability and acquiescence readily differ, but examine whether there is empirical overlap in a factor analysis reported in the method section.
to management’s potential fraud. Following, we propose hypotheses for how the regulatory factors of an auditor judgment rule (AJR), critical audit matters (CAMs), and a juror negligence training (JNT) will reduce jurors’ culpability assessments through weakening perceived detectability and acquiescence. We then develop theory and propose hypotheses for how we expect the AJR and JNT to trigger reactance among a subset of jurors, leading to, among those jurors who find against the audit firm, greater damages as a consequence of these interventions.

2.2. The effect of an auditor judgment rule (AJR)

An AJR would stipulate that jurors should not second-guess audit firm judgments, provided the judgments were made in good faith and with a reasonable basis. An AJR aligns with arguments by audit commentators (Turley 2007; Treasury 2008), psychology scholars (e.g., Mumpower and Stewart 1996), and neuroscientists (e.g., Burton 2008) that the presence of alternative reasonable judgments (and actions) that the auditor could have made are not, in themselves, signs of inferior performance. We base our AJR on the existing business judgment rule (e.g., Arsh 1979; Bainbridge 2004), which mandates that corporate directors who make judgments with a reasonable basis and with good faith must not have their judgments second-guessed or be held liable for third-party losses. A variant of this rule has been extended to psychotherapists who likewise need considerable latitude in professional judgment (Peecher et al. 2013). While the rule does not extend to all medical professionals, some legal scholars have argued that it should (O’Connell and Boutros 2002), and the “two schools of thought” doctrine for medical malpractice lawsuits similarly recognizes discretion in professional judgment (Brown 1993). Also of relevance is Kang et al. (2015), who find that an AJR (pertaining to courts and inspectors) increases audit committee members’ level of accountability, and that an AJR makes them more comfortable with auditors’ use of innovative audit procedures.
We predict that an AJR will reduce assessed auditor culpability by weakening jurors’ perceptions of *detectability* and *acquiescence*. The *detectability* mechanism pertains to jurors’ motivation to develop beliefs that the fraud was readily anticipatable and detectable had the auditor selected alternative or incremental audit actions. However, an AJR emphasizes that society recognizes that auditors have to make tough judgment calls that inherently are fraught with substantial uncertainty (i.e., limiting detectability). An AJR also implies that *multiple* judgments simultaneously are reasonable, which we predict to weaken perceived *detectability*.

We also expect an AJR to weaken jurors’ beliefs that the audit firm acquiesced to management’s potential fraud. The AJR implicitly stipulates a default assumption that the audit firm acted in good faith absent contrary evidence. While absent an AJR, jurors may intuitively reach beliefs consistent with the audit firm tacitly assenting to management’s potentially fraudulent actions, we expect an AJR’s imposition of this default of good faith will reduce this tendency. We also expect that an AJR’s emphasis on multiple, reasonable judgments will counter juror reasoning that the audit firm intentionally selected a lax audit approach or permitted use of a questionable accounting treatment, both of which suggest acquiescence to the client steps potentially used to perpetuate the fraud. These collective arguments lead to our first hypothesis:

**Hypothesis 1a.** Jurors evaluating audit firm culpability under an AJR will make lower culpability assessments than jurors evaluating culpability under simple ordinary negligence.

**Hypothesis 1b.** The above hypothesized effect will operate through weakening perceived *detectability* and *acquiescence*.

In the following subsections, we consider two additional regulatory factors that could reduce jurors’ culpability assessments: a critical audit matter disclosure (CAM) in the auditor’s report and a juror negligence training (JNT). We hypothesize effects of each factor individually, as well as pose research questions for whether they could interact with an AJR.
2.3. *The effect of CAM disclosures*

CAM disclosures in the auditor’s report are required for accelerated filers and are defined as matters arising during the audit that were communicated to the audit committee and pertain to accounts or disclosures that are material and involve particularly challenging, subjective, or complex professional judgment (PCAOB 2019). Understanding how CAMs affect jurors is important as there have been concerns that CAMs unfairly could increase audit firms’ legal exposure (see Tysiak 2013; Gaetano 2014; Katz 2014). Audit firms’ comment letters about the CAM requirement emphasize such concerns (Deloitte 2016; EY 2016; PwC 2016; KPMG 2016). One letter notes that CAM information could be “fodder” for plaintiffs (EY 2016). Another letter suggests that disclosure of actions taken to address CAM risk areas could undermine auditors’ professional judgment when others allege that they should have performed additional, or different, procedures (PwC 2016).

We examine effects of whether the audit firm issued a CAM in the area under dispute, compared to a regime without CAMs. We predict that a CAM will reduce jurors’ culpability assessments by weakening perceived *detectability* and *acquiescence*. By disclosing a CAM (in the area under dispute), the audit firm is publicly communicating to creditors and investors that they view *the area under dispute* as difficult, subjective, and complex. Indeed, by making such a publicly observable disclosure to financial-statement users of the steps used to address the area of the audit (PCAOB 2019), the audit firm is signaling a belief that their audit action steps were

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7 CAMs will be required for all filers, starting as of fiscal year-end December 15, 2020. They are already required for accelerated filers with a year-end date of June 30, 2019 or later. CAMs must include (1) the area of the CAM, (2) the principal considerations that led the auditor to determine that the matter is a CAM, (3) how the CAM was addressed in the audit, and (4) reference to the relevant financial statement accounts or disclosures (PCAOB 2019).

8 Our focus on CAMs as an action audit firms can take to reduce their legal exposure resonates with prior studies examining other relief-inducing mechanisms such as auditor use of a high-quality decision aid (Lowe, Reckers, and Whitecotton 2002), compliance with industry norms (Kadous and Mercer 2012), use of a technical expert (Grenier, Pomeroy, and Stern 2015), documentation in workpapers that they complied with audit standards (Backof 2015), and use of an external specialist (Brown, Grenier, Pyzoha, and Reffett 2019).
appropriate to address any fraud risk as well as their understanding that the area was particularly risky and difficult to audit. Thus, we expect CAMs to weaken jurors’ belief that the audit firm missed a readily detectable fraud. We also expect that CAMs will weaken perceived acquiescence. We conjecture that jurors would consider it unlikely that an audit firm would be so bold as to give acquiescence for management to perpetuate fraud that pertains to an area that they themselves highlight to users via a CAM. In addition, the active nature of disclosing a CAM is inconsistent with the avoidant nature of tacitly assenting to management’s potential fraud. These collective arguments lead to our second hypothesis:

**Hypothesis 2a:** Jurors evaluating audit firm culpability when the audit firm disclosed a CAM in their report will make lower culpability assessments than jurors evaluating culpability in a regime in which CAMs do not exist.

**Hypothesis 2b:** The above hypothesized effect will operate through weakening perceived detectability and acquiescence.

Our prediction for CAMs features a priori tension. Prior research shows that jurors may view CAMs as evidence that plaintiffs were warned that the area under dispute was potentially problematic (Brasel et al. 2016; Kachelmeier et al. 2019). While these studies show this “plaintiff warning effect” leads to CAMs reducing jurors’ culpability assessments (i.e., by elevating the fraud’s foreseeability to plaintiffs), it also is plausible that when considering jurors’ assessments of *audit firm conduct*, a CAM could increase blame assigned to auditors. That is, a CAM could make it seem to jurors that the auditors should have invested more effort as they were well aware the area was potentially problematic. If so, this finding would support earlier concerns that CAMs could increase second-guessing of auditor judgments (e.g., PwC 2016).9

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9 Relatedly, studies have documented CAMs increasing culpability assessments by elevating perceptions of auditor foreseeability (Gimbar et al. 2016; Backof, Bowlin, and Goodson 2018). Kachelmeier et al. (2019) document that CAMs increase culpability when the area involves dichotomous classification (due to counterfactual reasoning), but decrease culpability when the area involves measurement uncertainty as is the case in our study (by warning the plaintiff). Vinson et al. (2019) find that removing a CAM, and issuing multi-year CAMs, increases culpability.
We also investigate whether a CAM and AJR could interact. An AJR and CAM have differing characteristics that could lead to distinct main effects. For example, an AJR is an intervention that is administered as a part of the trial, whereas a CAM is an action taken by the auditor prior to any lawsuit. Nonetheless, they could interact. For example, an AJR highlights the importance of considering the reasonableness of the auditor’s judgment process – if a CAM signals the auditor’s confidence that their actions were reasonable, this could lead to a stronger effect of the AJR in the presence of a CAM. Due to this ambiguity, we pose a research question:

**Research Question 1:** Will the effects of a CAM and AJR on culpability assessments interact? Will any observed interaction operate through perceived *detectability* and *acquiescence*?

2.4. *The effect of JNT*

The third regulatory factor that we examine is whether jurors complete a negligence training prior to the case evaluation. A JNT would be intended to overcome deficiencies in juror judgment that have been observed repeatedly with traditional juror instructions. Specifically, a stream of literature shows that jury instructions are confusing for jurors, and as such, fall short of facilitating comprehension of legal concepts critical for jurors’ evaluations (e.g., Kramer and Koenig 1990, 429; Gordon 2014). One key identified reason for this deficit is that instructions simply communicate information such as pertinent definitions; that is, they are missing critical structure and elements that have been shown in educational psychology to facilitate learning, such as realistic examples and opportunities to apply defined concepts (see Gordon 2014).10 This concern has been echoed by practicing attorneys (Aveni et al. 2017). Indeed, legal scholars argue that first letting jurors apply concepts in several cases (some more complex), would help

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10 Psychology theory supports that learners can apply acquired knowledge from cognitive elaboration that occurs earlier when operationalizing concepts using examples (e.g., Ward and Sweller 1990; Paas and Van Merrienboer 1994). Examples provide concrete memory traces so that learners can more easily access and apply concepts during subsequent reasoning processes (Bonner 1999).
them better understand concepts and more fully realize that cases frequently are not clear-cut and involve complexity, reducing the extremity of judgments (Gordon 2014).

A JNT provides the above advantages over traditional instructions, which is likely a key reason why organizations such as the Civil Jury Project at the New York School of Law, which has a network of over 300 state and federal judges as advisors, develop and disseminate trial innovations like our JNT (Civil Jury Project 2019). Also, several real-world courts have begun implementing such innovations. Examples include the District Court of Western Washington, which currently administers a juror training (including a video) on how to effectively perform their task and avoid unconscious bias (U.S. District Court of Western Washington 2019), as well as the District Court of Northern Illinois, which administers a (different) JNT video as part of juror orientation (U.S. District Court of Northern Illinois 2019).

Importantly, the JNT that we examine includes the above advantages. Thus, we expect our JNT to reduce culpability assessments by weakening perceived detectability and acquiescence. More specifically, JNT will help jurors better realize that audit professionals make tough judgment calls under high uncertainty (i.e., by imparting this concept and having jurors work through a complex case involving professionals), weakening perceived detectability. Working through multiple cases, and considering each side, will likely also help jurors more readily understand that multiple reasonable audit approaches exist, also weakening perceived detectability. We expect the latter aspect of JNT will also weaken perceived acquiescence, countering beliefs that the auditor deliberately selected a lax audit approach or permitted client use of a questionable accounting treatment. This leads to the third hypothesis:

**Hypothesis 3a.** Jurors who have completed a JNT will make lower culpability assessments than jurors who have not completed a JNT.
**Hypothesis 3b.** The above hypothesized effect will operate through weakening perceived detectability and acquiescence.

We also investigate whether JNT and AJR could interact. An AJR and JNT have differing characteristics that could lead to distinct main effects. For example, an AJR is a regulatory directive that is administered as a part of the trial, whereas a JNT is an intervention jurors experience before the trial. Nonetheless, due to their overlap, they could interact. For example, an AJR and JNT both highlight the importance of considering reasonableness of the auditor’s judgment process, such that there may be little incremental effect of one intervention in the presence of the other. Due to this ambiguity, we pose a research question:

**Research Question 2:** Will the effects of a JNT and an AJR on culpability assessments interact? Will any observed interaction operate through perceived detectability and acquiescence?

**2.5. Considering reactance effects induced by the AJR and JNT interventions**

Above, we develop hypotheses that, on average, the AJR and JNT will cause jurors to reduce culpability assessments. However, we now develop theory to predict that a subset of jurors will experience reactance effects in response to the dictatorial aspects of the AJR and JNT interventions. Reactance theory posits that when an individual feels that their freedom to behave as chosen is restricted by a source, they will enter a motivational state to regain the restricted freedom by acting against the source of the threat (Brehm 1966). The AJR and JNT implicitly advocate for the audit firm. For example, the AJR mandates that audit firms cannot have their judgments second-guessed so long as they were made in good faith and with a reasonable basis. The JNT advises jurors about how they should analyze and interpret evidence, specifically directing them to consider that professionals must make difficult judgments and recognize that there are often no clear correct answers. Thus, jurors who experience reactance

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11 We do not expect a CAM to cause reactance since, unlike the AJR and JNT, it does not stipulate constraints on how jurors should think and reason. However, we do explore whether disclosure of a CAM influences damages.
to the AJR or JNT are likely to, as a consequence, find against the audit firm. Importantly, comparing jurors finding against the audit firm in the presence of the intervention (a proxy for reactance to the intervention) to jurors finding against the audit firm absent the intervention (who were not reacting to the intervention) allows for observing reactance effects.

Two streams of literature are germane to our theory. One, psychology researchers have identified reactance in response to persuasive messages (even subtle or implied pressure, such as a one-sided messages), recommendations, and informational appeals (e.g., Reich and Robertson 1979; Fitzsimons and Lehmann 2004; Pham et al. 2016). The AJR and JNT could be viewed through this lens, given that they implicitly advocate for the audit firm. Two, legal studies have identified reactance among jurors who receive admonitions or seemingly prohibitive instructions related to their case evaluations (see Lieberman and Sales 1997; Lieberman and Arndt 2000). For example, jurors receiving prohibitive admonitions that they must disregard legally irrelevant factors, such as previous convictions (Pickel 1995), pre-trial publicity (Kerr, Kramer, Carroll, and Alfini 1991), inadmissible testimony (Wolf and Montgomery 1977), and the defendant’s race (Shaw and Skolnick 1995) weight that factor more heavily, relative to jurors not receiving the admonition. These studies theorize that jurors view such admonitions as a threat to their capability to evaluate the evidence “fairly” (i.e., as they personally see fit) and if so, may reassert control by rejecting the admonition and showing an amplified response in the opposite direction than advocated for by the admonition.

Importantly, not all jurors will experience reactance; we expect that jurors on average will comply with the AJR and JNT, reducing culpability assessments (and verdicts against the audit firm). However, psychology theory motivates that the subset of jurors who do

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12 We identify reactance using a proxy of jurors who find against the audit firm in the presence of the intervention. Psychology research suggests that jurors most likely to experience reactance are those who had initial expectations
experience reactance in response to the intervention have entered a state of motivational arousal, invoking the urge to “do something” that opposes the ideas advocated by the intervention (Brehm and Brehm 1981, 392). As a consequence, we predict these jurors will assess greater damages for the audit firm to pay, relative to jurors also finding against the audit firm, but in the absence of the intervention. Psychology theory suggests that reactance effects could operate through juror cognition and/or as a direct consequence of the intervention. Thus, the interventions could increase damages through elevating perceived detectability and/or acquiescence. The AJR and JNT could also directly increase damages.13,14 Stated formally:

**Hypothesis 4a.** Among jurors finding against the audit firm, jurors making their evaluations under an AJR will assign more damages than jurors making their evaluations under simple ordinary negligence. This effect could operate through perceived detectability, through perceived acquiescence, and/or directly.

**Hypothesis 4b:** Among jurors finding against the audit firm, jurors who have completed a JNT will assign more damages than jurors who have not completed a JNT. This effect could operate through perceived detectability, through perceived acquiescence, and/or directly.

Finally, we investigate whether an AJR and JNT interact. Psychology research on reactance has shown that, as the burden imposed by the threat increases, for example due to a request requiring more cognitive resources from the individual (Rains and Turner 2007), reactance effects can amplify. If jurors view the AJR and JNT as additive threats (i.e., each that they would have large autonomy in their case evaluation (Brehm and Brehm 1981), are highly committed to the juror task (Zemback-Rugar, Moore, and Fitzsimons 2017), and have predisposed notions toward the plaintiff being culpable so are personally committed to finding against them (Fitzsimons 2000; Fitzsimons and Lehman 2004). Recent research also finds that jurors low in need for cognition are more prone to reactance (Matsuo and Itoh 2017).

13 Only a few studies have identified factors leading to higher damages, and these factors generally logically align with greater assessments of audit firm responsibility. The factors include higher perceived audit firm responsibility (Lowe et al. 2002), client importance conveying lack of independence (Brandon and Mueller 2006), lack of documentation supporting compliance with standards (Backof 2015), outsourcing (Lyubimov et al. 2013), and domestic insourcing (Lyubimov et al. 2013). An exception is larger audit firm size (Lowe et al. 2002), which reflects the “deep pockets” argument. The dearth of evidence on damages in the studies discussed earlier on interventions may be due to an implicit assumption that the interventions will have similar directional effects on culpability assessments and damages, and not separately considering jurors based on whether or not they experienced reactance.

14 It is an interesting question as to whether, within the subsample of jurors finding against the audit firm, reactance could lead jurors experiencing the intervention to incrementally assess greater auditor firm culpability (i.e., on a continuous scale), relative to jurors not experiencing the intervention. We explore this possibility in the results.
imposing a distinct burden), they may not interact. However, because an AJR and JNT communicate similar concepts, one might not present any an incremental threat in the presence of the other, suggesting an interaction. Due to this ambiguity, we pose a research question.

**Research Question 3:** Will the effects of an AJR and JNT on damages assessments interact? Will any observed interaction operate through perceived *detectability*, through perceived *acquiescence*, and/or directly?

### 3. Method

#### 3.1. Participants and task overview

We conduct two experiments. Experiment one (two) includes 239 (353) participants from Amazon’s Mechanical Turk (MTurk) who act as jurors. MTurks have been shown to be representative of the general U.S. population (Paolacci et al. 2010). We required our participants to be U.S. citizens, which captures jury-eligibility. We also required them to have a 95 percent approval rate (Brandon et al. 2014), which increased our confidence that they diligently would complete the experiment. As an *ex post* check, participants had to answer review questions periodically throughout the case evaluation (n=21); in support of diligent completion, their accuracy rates are quite high at 96 (92) percent in experiment one (two).

Participants in both experiments assume the role of a juror in a trial under U.S. state common law and are given background information (i.e., about the audit process, what happens in the event of an audit failure, and the standard of care they should use in their evaluation). They read a case about the audit of a mining company, a fraud perpetuated by management that the audit firm failed to detect, and a lawsuit filed by a creditor who lost money due to reliance on

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15 Participants spend roughly one hour on the task and receive $5.00 ($6.00) compensation in experiment one (two), resulting in a reasonable effective hourly wage relative to MTurk norms (see Brandon et al. 2014; also see Grenier, Reffett, Simon, and Warne 2018).

16 Results for tests of main hypotheses are similar when including accuracy as a covariate in the ANOVAs.

17 See Donelson et al. (2014), and more recently, Grenier et al. (2018), for discussion supporting examining assessments made by individual jurors as a proxy for deliberating juries.
the materially misstated financial statements. They then read a transcript, including opening and closing arguments from plaintiff and defense attorneys, expert testimony on behalf of the plaintiff and defendant, and cross-examination of expert witnesses.  

3.2. Design and manipulations

Both experiments use a 2 x 2 between-participants design. In experiment one, we manipulate whether jurors make evaluations under an auditor judgment rule (AJR) versus simple ordinary negligence, and whether the audit firm issued a critical audit matter (CAM) in the area of dispute versus CAMs do not exist. In experiment two, we again manipulate an AJR, and whether jurors complete a juror negligence training (JNT) versus control training.

To manipulate an AJR (in both experiments), we alter the standard of care that participants are directed to use in evaluating the audit firm’s culpability (see Appendix 1). In the no AJR condition, participants are directed to use an ordinary negligence standard, in which they are to compare the audit firm’s judgments and behaviors to those that would be employed by a reasonable, prudent audit firm in the same circumstances. In the AJR condition, participants are directed that, so long as the auditor had good faith and a reasonable basis for their decisions, they generally cannot have their judgments second-guessed by the courts or be held responsible for third-party losses. We provide an illustrative example in both conditions, in light of the earlier discussion that examples are necessary to facilitate juror comprehension of legal concepts (Gordon 2014). In experiment one, we make the case materials realistic by reinforcing the manipulated standard in attorney arguments, consistent with practice, whereas in experiment

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18 The basic case is from Kadous (2000), and adaptations have been used in later studies examining juror evaluations of auditors (e.g., Reffett 2010; Hetrick, Peecher, Reffett, and Zimbelman 2019). We adapt the case for our setting and manipulations.

19 We include manipulation checks in both experiments. For all manipulations, a chi-square test supports the distribution being different across conditions (all $p < 0.001$). Results include all participants, and are robust to controlling for whether the participant passed manipulation checks.
two, we use a starker manipulation that, though less realistic, enhances internal validity. Together, our two AJR manipulations provide a reproducibility and robustness test, consistent with recent calls underscoring the importance of reproducibility (Hail, Lang, and Leuz 2020).

To manipulate a CAM (experiment one only), we alter whether the auditor disclosed a CAM (in the disputed area, as well as an unrelated area), compared to a regime in which CAMs do not exist. Participants in the CAM condition are informed about this requirement and view the CAMs in the audit firm’s report, while participants in the No CAM condition view a standard auditor’s report (see Appendix 2). We hold information about audit firm actions constant across conditions by communicating to all participants that the audit firm identified two important issues in the audit (the two issues disclosed as CAMs). All participants view auditor communications about these issues with the audit committee, which includes the information disclosed in the audit firm’s report (i.e., in the CAM condition).

To manipulate JNT (experiment two only), we alter whether participants complete a training on negligence concepts before the case evaluation. Participants in the JNT condition learn about the concepts of negligence and reasonableness. They apply these concepts in four legal cases, two simple and two more complex (one with professionals), from actual law school materials (Robbennolt 2012). Participants in the no JNT condition complete a training on social

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20 For example, in experiment one, in the no AJR condition, the plaintiff attorney argues that the auditor did not exercise the same degree of care that other prudent auditors would have used (i.e., meets the criteria of ordinary negligence), but in the AJR condition, the plaintiff attorney argues that the auditor lacked a reasonable basis and good faith for their decisions (i.e., is not entitled to protection under the AJR). We use a similar approach with the CAM manipulation to realistically capture how CAMs would emerge in practice. By contrast, in experiment two, jurors are simply informed of the relevant standard; it is not reinforced in the attorney arguments.

21 While the CAM standard was not finalized as of the time we conducted the experiment, we drafted our CAMs based on the PCAOB’s intended requirements, and they largely reflect the finalized standard (PCAOB 2019).

22 An additional 173 participants completed a JNT that also included, for the two ambiguous cases, verdicts and the court’s reasoning in support of their decision (both ruling in favor of the defendant). We report results only for the version of the JNT without this verdict information, as (1) it has higher internal validity (given it does not also manipulate provision of court-approved verdicts and reasoning) and (2) it is most comparable to the control training (which does not include an authority figure’s decision and reasoning). However, we note that culpability
norms, the unwritten rules of society (Cialdini and Trost 1998), that is similar on key dimensions except the central issue being social norms. At least four hours later, participants complete their case evaluations. Importantly, the multiple-hour delay reduces the salience of the specific cases discussed in the materials, clears working memory, and rules out simple priming as an alternative explanation, while allowing the overall concepts presented in the training to remain.

3.3. Dependent variable and other measures

Both experiments use the same measures. The first dependent variable is assessed Audit Firm Culpability. We ask participants “On a scale between 0 and 100, how probable is it that Jones & Company [the audit firm] was negligent in their performance of Big Time Gravel’s audit (0 = Jones & Co. was certainly not negligent, 100 = Jones & Company was certainly negligent).” The second dependent variable is Audit Firm Damages. We ask participants “Imagine that you will be able to impose damages on Jones & Company to pay to compensate Bierhoff Inc. [the plaintiff] for its $9 million loss. On the scale below, please indicate how much assessments are no different across the two versions of the JNT ($p = 0.653$). Results for tests of hypotheses are similar when including these participants in the JNT condition. We do not discuss this additional training further.

We chose this setting for the control training to hold effort required and factors of concern constant. However, it could have invoked additional concern about social welfare, which could itself increase culpability assessments vis-à-vis the JNT condition. That participants in this condition (relative to the JNT condition) report that they thought less about the training while completing their case evaluation in the second stage of the experiment ($p < 0.001$) and that the training was less relevant to the case evaluation task ($p < 0.001$) helps to rule out this happening consciously. Importantly, culpability assessments of jurors in the first experiment (in the No CAM condition), none of whom received a training, are similar to culpability assessments of jurors in the second experiment who receive the control training (means of 48.28 and 46.84 in the No AJR condition, and means of 35.07 and 35.00 in the AJR condition). The similarity in culpability assessments helps to rule out this alternative explanation.

Consistent with prior auditor litigation studies using SEM (Reffett 2010; Backof 2015), we use the continuous measure of jurors’ culpability assessments as the dependent variable given it is more appropriate for SEM (e.g., Kline 2005). Results for tests of hypotheses are similar with an alternate dependent variable combining Audit Firm Culpability and the juror’s verdict decision. We combine these variables using a factor score based on a polychoric correlation matrix, which appropriately combines dichotomous and continuous variables (see Lorenzo-Seva and Ferrando 2015). In addition, we note that, with the exception of the effect of the CAM, tests for direct effects of our independent variables (i.e., not considering mediation) obtain using the binary dependent variable of jurors’ verdicts. With respect to the CAM effect, its result is directionally correct, but not statistically significant (one-tailed $p = 0.197$). Stronger results using our continuous measure of assessed culpability is consistent with Grenier et al.’s (2018) observation that continuous measures of juror culpability assessments have the advantage of being more sensitive than binary measures at detecting the presence of hypothesized effects.
money, if any, you would be willing to require that Jones & Company pay Bierhoff Inc.? Remember that the principle of proportional liability applies (as discussed earlier).” Participants indicate an amount between $0 and $9 million, in $1 million increments.25

To capture our hypothesized mediator of perceived Detectability, we ask participants five questions (on 100-point scales). Other Audit Firm Detect Fraud is measured with: “What percentage of other auditors would have detected the environmental restoration liability fraud if they had conducted the audit of Big Time Gravel’s financial statements?” Other Audit Firm Anticipate Fraud is measured with: “How likely do you believe it is that other auditors would have anticipated the possibility that Big Time Gravel might fraudulently understate their environmental restoration liability by lying about the number of quarries that could be restored using the lake method?” These questions capture beliefs that other audit firms would have detected the fraud, thus reflecting higher perceived detectability. Alternative Actions Leading to Detection is measured with: “Please indicate how frequently, while making your judgments, you thought about actions the auditors could have taken or done differently, which may have allowed the auditors to detect the fraud perpetuated at Big Time Gravel?” Close to Detecting Fraud is measured with: “How close or far do you believe the auditors from Jones & Company were to detecting the fraud?” These questions capture indicators of counterfactual thinking (see Reffett 2010), which reflects beliefs that the negative outcome could have been avoided, such that the fraud was perceived as more detectable. Finally, Fraud Was Detectable is measured with: “Based on the information presented, what was the auditor’s level of responsibility to detect that Big Time Gravel had understated their restoration liability by lying about the number of quarries

25 Proportionate liability is consistent with the U.S. Private Securities and Litigation Reform Act of 1995 and instructs jurors to allocate damages based on the auditor’s share of the responsibility for the plaintiff’s loss (see King and Schwartz 1997). Jurors are typically given discretion in this task (Wissler, Hart, and Saks 1999).
that could be restored using the lake method?” This question captures a belief that the audit firm was capable of detecting the fraud, indicating higher perceived detectability.

To capture our hypothesized mediator of perceived Acquiescence, we ask participants three questions (on 100-point scales). Audit Firm Knew About Fraud is measured with: “How likely do you believe it is that the auditors from Jones & Company knew about Big Time Gravel’s fraud prior to issuing an unqualified opinion for Big Time Gravel’s financial statements?” Regulator Challenges Accounting Treatment is measured with: “Based on the information presented in the case, how frequently do you believe the EPA prevents mining companies from using the lake method to restore one of their inactive quarries?” Audit Firm Chose Inappropriate Test is measured with (reverse-score): “How appropriate is hiring an environmental testing laboratory to test for hazardous materials in Big Time Gravel’s inactive quarries as a test for understatement of environmental restoration liabilities?” The first question reflects perceived auditor complicity; the latter two reflect perceived acquiescence to management by allowing a questionable accounting treatment and choosing a lax audit approach.

To substantiate the appropriateness of our theoretical assignment of indicators to Detectability or Acquiescence, we conduct a preliminary factor analysis (see Table 1). We use a principal components analysis with quartimax rotation, which simplifies interpretation and aligns with our expectation that only two factors will emerge (e.g., Abdi 2003). As shown in Panel A (for experiment 1) and Panel B (for experiment 2), two factors do emerge, and the indicators load strongly on their assigned factors; all loadings are greater than 0.40 (see Nunnally 1978). This analysis supports our assignment of the indicators to the respective factors.26

26 Since we posit that Detectability and Acquiescence differ, we exclude covariances between these two overall latent factors in subsequently discussed SEMs. However, to improve fit, we incorporate three error term covariances between particular questions and latent factors in these SEMs. One, Audit Firm Chose Inappropriate Test also negatively loads on Detectability, which could reflect a view that, to the extent the auditor’s testing approach was
4. Results

4.1. Tests of hypotheses for culpability assessments – experiment one

Descriptive statistics for the dependent variable of Audit Firm Culpability are presented graphically in Figure 1 and tabulated in Table 2, Panel A. Panel B reports results of an Analysis of Variance (ANOVA) to test Hypotheses 1-2 with independent variables indicating whether the juror made evaluations under an AJR and whether the auditor’s report included a CAM. In support of Hypothesis 1a, there is a main effect of the AJR reducing assessed Audit Firm Culpability ($p = 0.009$) (43.53 vs. 33.08 percent). In support of Hypothesis 2a, there is a main effect of the CAM reducing assessed Audit Firm Culpability ($p = 0.038$) (42.39 vs. 34.15 percent). With respect to RQ1, the AJR x CAM interaction is insignificant (two-tailed $p = 0.378$).

We next conduct a structural equations model (SEM) to test the hypothesized mediators of jurors’ beliefs about detectability and acquiescence. Figure 2 displays the model. The chi-squared test reveals good fit ($\chi^2(34) = 44.35, p = 0.110$), as do other standard measures (Comparative Fit Index, CFI = 0.99; Root Mean Square Error of Approximation, RMSEA = 0.036; Standardized Root Mean Square Residual, SRMR = 0.043) (Parry 2019). The AJR and CAM each weaken jurors’ perceived Detectability ($p$’s of 0.042 and 0.028), and the AJR also weakens jurors’ perceptions of Acquiescence ($p = 0.022$). Perceived Detectability and Acquiescence each increase assessed Audit Firm Culpability (both $p < 0.001$).

27 All $p$-values are one-tailed for directional predictions unless otherwise specified.
28 Consistent with the factor analysis, all indicators significantly load on their assigned latent factors in the SEMs.
29 Given evidence that negative affect can strengthen jurors’ assessments of auditor culpability (Kadous 2001), we examine effects of including a mediator variable capturing jurors’ self-reported negative feelings toward the auditor, as well as the plaintiff. All model results for experiment one and two are robust to inclusion of these mediators.
4.2. Tests of hypotheses for culpability assessments – experiment two

We now turn to tests of Hypothesis 3 and of the reproducibility and robustness of Hypothesis 1 (i.e., given we manipulate an AJR in both experiments). Descriptive statistics for the dependent variable of Audit Firm Culpability are graphically presented in Figure 3 and tabulated in Table 3, Panel A. Panel B reports results of an ANOVA with independent variables for the AJR and whether the juror completed JNT. With respect to RQ2, there is a diminishing form AJR x JNT interaction (two-tailed \( p = 0.047 \)) – the AJR and JNT each reduce culpability assessments, but their joint effect is less than the sum of their individual effects. Given this interaction, we examine simple effects for hypothesis tests when only one intervention is present (see Table 3, Panel C). Again in support of Hypothesis 1a, there is a simple effect of the AJR reducing assessed Audit Firm Culpability (\( p = 0.006 \)) (46.84 vs. 35.00 percent). In support of Hypothesis 3a, there is a simple effect of the JNT reducing assessed Audit Firm Culpability (\( p = 0.018 \)) (46.84 vs. 36.99 percent). There is no significant effect of either intervention in the presence of the other (smallest two-tailed \( p = 0.484 \)), such that the results collectively support the diminishing form interaction.

We conduct a SEM to test the hypothesized mediators, also including the AJR x JNT interaction term. Figure 4 displays the model. The model shows good fit (\( \chi^2(38) = 48.73, p = 0.114; \) CFI = 0.99; RMSEA = 0.028; SRMR = 0.037). The AJR and JNT each reduce perceived Detectability (respective \( p \)’s of 0.020 and 0.001), which increases assessed Audit Firm Culpability (\( p < 0.001 \)). There is a diminishing form AJR x JNT interaction on Acquiescence that approaches marginal significance (two-tailed \( p = 0.125 \)), and the JNT also reduces perceived Acquiescence (\( p = 0.003 \)); perceived Acquiescence increases assessed Audit Firm Culpability (\( p < 0.001 \)). Finally, there is a marginally significant, diminishing form AJR x JNT interaction that
directly affects assessed Audit Firm Culpability (two-tailed $p = 0.068$), and also a significant, negative direct effect of the AJR on assessed Audit Firm Culpability ($p = 0.013$).

4.3. Tests of hypotheses for damages assessments – experiment one

We now test our reactance prediction for the AJR, that is, Hypothesis 4a. We also explore whether the CAM affects damages. Descriptive statistics for the dependent variable of Audit Firm Damages (for jurors finding against the auditor) are presented graphically in Figure 5 and tabulated in Table 4, Panel A. Panel B reports results of an ANOVA with the independent variables of AJR and CAM. In support of Hypothesis 4a, there is a main effect of the AJR increasing assigned Audit Firm Damages ($p = 0.040$) (4.43 vs. 5.43 million). As expected, there is no main effect of the CAM ($p > 0.500$) (4.78 vs. 4.85 million). Figure 6 displays a SEM to explore mediation. The model shows good fit ($\chi^2(43) = 50.78$, $p = 0.194$; CFI = 0.96; RMSEA = 0.045; SRMR = 0.073). The AJR increases perceived Acquiescence ($p = 0.050$), which increases assessed Audit Firm Culpability ($p = 0.047$), which increases Audit Firm Damages ($p < 0.001$); Acquiescence also marginally increases Audit Firm Damages directly ($p = 0.064$).

4.4. Tests of hypotheses for damages assessments – experiment two

We now test our reactance prediction for the JNT, that is, Hypothesis 4b, and test the reproducibility of Hypothesis 4a. Descriptive statistics for the dependent variable of Audit Firm Damages (for jurors finding against the auditor) appear in Panel A of Table 5, and graphically in Figure 7. Panel B reports results of an ANOVA with the independent variables of AJR and JNT. In support of Hypothesis 4a, there is a marginally significant main effect of the AJR increasing

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30 While the CAM does not affect damages assessments, the SEM shows that it marginally increases perceived Acquiescence (two-tailed $p = 0.070$); this is consistent with the earlier counterargument that jurors could assess high blame if an audit firm identifies an area as a CAM but fails to perform sufficient procedures to address this known risky area (and empirically, this invokes suspicion of tacit permission). The lack of overall increase in damages with a CAM is likely because the CAM also marginally reduces culpability assessments (two-tailed $p = 0.104$). The latter finding may reflect jurors’ application of proportionate liability. That is, while deeming the audit firm culpable, jurors may also believe that the audit firm deserves at least some proportionate credit for warning investors.
Audit Firm Damages ($p = 0.066$) (5.00 vs. 5.79 million). In support of Hypothesis 4b, there is a significant main effect of the JNT increasing Audit Firm Damages ($p = 0.034$) (4.94 vs. 5.86 million). For RQ3, there is an AJR x JNT diminishing form interaction that is beginning to approach marginal significance (two-tailed $p = 0.154$). Panel C shows that the simple effect of the AJR (absent the JNT) is significant ($p = 0.016$), as is the simple effect of the JNT (absent the AJR) ($p = 0.008$); however, there is little effect of either in the presence of the other (smallest $p = 0.390$). Overall, the findings mirror the interactive findings for culpability assessments.

Figure 8 displays an SEM to explore mediation, also including the AJR x JNT interaction. The model shows good fit ($\chi^2(50) = 54.84$, $p = 0.296$; CFI = 0.99; RMSEA = 0.026; SRMR = 0.058). There is a diminishing form AJR x JNT interaction (two-tailed $p = 0.014$) and marginally significant, positive effect of the AJR ($p = 0.060$) on perceived Detectability, which positively affects assessed Audit Firm Culpability ($p = 0.028$), which then increases assigned Audit Firm Damages ($p < 0.001$). Moreover, there is also a direct effect of the AJR x JNT diminishing form interaction (two-tailed $p = 0.065$) on assigned Audit Firm Damages, as well as positive direct effects of the AJR ($p = 0.002$) and the JNT ($p = 0.002$) on Audit Firm Damages.

Collectively, the findings from both experiments suggest that reactance (1) can be activated by the AJR or JNT, (2) does not appear to be additive across the interventions, (3) can operate through elevated perceptions that the auditor missed a readily detectable fraud or tacitly assented to management’s potential fraud, and (4) can occur directly. For the direct effect, it is unclear whether jurors are consciously reacting against the interventions and penalizing the audit

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31 Within jurors finding for the audit firm, the AJR reduces culpability assessments (respective one-tailed $p$’s in experiment 1 and 2 of 0.038 and 0.050). Moreover, the JNT (in experiment 2) reduces culpability assessments in this subsample as well (one-tailed $p = 0.032$). This test compares jurors not experiencing reactance in response to receiving the intervention to jurors finding for the audit firm (even though not receiving the intervention). That the interventions continue to have an effect in this subsample underscores their power.
firm as a consequence, or doing so subconsciously; future research is needed to explore this question, given its ramifications for potential interventions that could mitigate reactance effects.

**Discussion and Conclusions.**

Despite being highly susceptible to error and often unfairly harsh on auditors in realistic conditions (Donelson et al. 2014), anticipated juror conclusions about auditor culpability and responsibility for damages for undetected financial-statement fraud substantially influence trial outcomes and out-of-court settlements (Maksymov et al. 2019). Dysfunctional juror conclusions also heighten the risk of actions that impair audit quality, such as defensive auditing and talent leaving the audit profession for alternative vocations (Turley 2007; Treasury 2008; Peecher et al. 2013; DeFond and Zhang 2014; Petersen 2017). At the same time, three topical factors have emerged that could reduce jurors’ assessments of auditor culpability: an auditor judgment rule (AJR), critical audit matter (CAM) disclosures, and a juror negligence training (JNT). We examine effects of these three factors, guided by advances in psychology theory about how lay individuals naturally assess negligence (Nuñez et al. 2014). By doing so, we not only predict that each factor will decrease culpability assessments but also predict two key mediators that reveal _how_ this decrease arises – by weakening jurors’ perceptions of fraud _detectability_ and auditor _acquiescence_. Finally, we examine whether the AJR and JNT interventions can cause _reactance_ in a subset of jurors, predicting that this will lead to higher damages assigned to the auditor by jurors finding against the audit firm despite the presence (versus absence) of the interventions.

Results from two experiments show that the AJR, CAM, and JNT each reduce jurors’ culpability assessments. There is also a diminishing form interaction whereby the AJR and JNT each decrease culpability assessments in isolation, but neither does so in the presence of the other. SEM findings show that the AJR, CAM, and JNT each reduce culpability assessments
through weakening perceived *detectability*; the AJR and JNT also operate through weakening perceived *acquiescence*, though a marginally significant interaction suggests that their joint effect is less than the sum of their individual effects. Consistent with reactance, among jurors finding against the audit firm, those experiencing the AJR or JNT assign higher damages. SEMs reveal that the AJR effect can operate through elevated perceived *acquiescence* and *detectability*, with the latter effect ebbing in the presence of the JNT. There is also a direct effect of the AJR, JNT, and their diminishing form interaction on damages.

Our findings illuminate the complexity of implementing juror-based interventions as a means to reduce auditor legal exposure: while these interventions may reduce culpability assessments for the average juror, it is altogether possible that a subset of jurors could view the stipulations within the interventions as a threat to their autonomy to evaluate the case facts as they see fit, experience reactance, and as a consequence, find against the audit firm and assign greater damages (relative to had the interventions been absent). Our identification of robust reactance effects with two distinct interventions—an AJR that pertains to auditing specifically and appears as a directive in the case evaluation, and a JNT that is not specific to auditing and administered in advance of the case evaluation—provide evidence of the robustness of reactance effects. This finding is concerning: while interventions like an AJR and JNT may reduce perceptions of auditor culpability *on average*, litigation costs in *expectation* may not actually decrease as a result. We also note that, had the interventions not induced reactance, even more jurors likely would have found for the audit firm as a result of their presence.

This study’s findings highlight the value of future research examining antecedents and moderators of reactance effects. We identify reactance using an *empirical proxy* of jurors who find against the audit firm in the presence of the intervention, and future research could shed
insight on theoretical attributes of those jurors most likely to exhibit reactance. Future research could also test the effectiveness of theoretically motivated reducers of reactance effects, perhaps reducers of jurors’ expectations of having high autonomy in the first place. Relatedly, the legal literature suggests reducers such as additional explanation as to the reason underlying the directive, or encouraging jurors to make a public commitment to honor the directive (Lieberman and Arndt 2000). Building on this research, future studies could examine other forms of our AJR and JNT that seem less dictatorial to jurors and/or incorporate these reducers in an attempt to identify a boundary condition to the reactance effects that our study documents.

We believe that our theory and findings contribute to the audit litigation literature and to audit practice. We introduce an AJR and JNT to the audit litigation literature, and practitioners likely will have an interest in the reactance effects we document. Further, audit researchers and regulators also may find our CAM results to be interesting. Our findings reinforce results from prior studies that CAMs can reduce auditor legal liability (Brasel et al. 2016; Kachelmeier et al. 2019), and offer new evidence that, in addition to providing relief through beliefs that plaintiffs (e.g., investors) were warned, CAMs can also reduce culpability assessments by weakening jurors’ beliefs that the auditor missed a highly detectable fraud. More generally, our theory on jurors’ perceptions of detectability and acquiescence advances the audit litigation literature by being grounded in recent psychology research showing how lay persons actually think about negligence (Nuñez et al. 2014), and we expect our method could be adapted by future researchers in this area. Importantly, the psychology research we rely on is based on lay person views of negligence more generally, and is not confined to litigation. Given the ubiquitous nature of blame when decisions turn out poorly, researchers could adapt our theoretical mediators and indicators for other areas of accounting. As one example, researchers could examine whether
investors’ blaming of CEOs after events such as restatements (e.g., Elliott, Hodge, and Sedor 2012) operates via perceived *detectability* (i.e., the CEO should have foreseen the errors and/or irregularities) and *acquiescence* (i.e., the CEO tacitly approved the errors and/or irregularities).

Our study is subject to limitations that in turn offer opportunities for future research. One limitation is reliance on lay jurors, which motivates questions about how our interventions would influence participants with greater legal knowledge who are involved in audit disputes. Along these lines, we explored (as a follow up of experiment one) how novice attorneys (i.e., law students) reacted to an AJR and CAM. Findings (untabulated) show that law students’ culpability assessments are *unaffected* by an AJR, consistent with these more sophisticated participants already understanding the concepts communicated by the AJR. Interestingly, the law students reacted to CAMs quite differently depending on the date of data collection, which spanned two years. Those in the earlier group, which coincided with robust, public debate about whether CAMs would be an unfair roadmap to litigation versus a relief-inducing aid for audit firms (PCAOB 2014), were more likely to *find for* the audit firm with a CAM. By contrast, those in the later group, which occurred during a lengthy lull period in which CAMs were not (publicly) discussed, were more likely to *find against* the audit firm with a CAM. These divergent findings raise the possibility that changing environmental factors can influence how sophisticated parties react to CAMs. They also build on Kachelmeier et al. (2019) who identify group-specific differences in how analysts, business attorneys, and plaintiff attorneys respond to CAMs.

These exploratory findings with law students, when coupled with our theory and experimental findings pertaining to lay jurors, motivates research that moves beyond the litigation setting to shed light on how other participants react to regulatory factors such as a CAM and AJR, and mediators of these effects. Reflecting this, Kang, Piercey, and Trotman
(2020) document a backfiring effect whereby an AJR—by activating auditors’ directional goals pertaining to defensibility of their judgments—causes them to avoid innovative procedures and choose customary tests, particularly when audit risk is high. Underscoring its robustness, this finding occurs in spite of the auditors viewing the innovative procedures as more effective, and even when the auditors are provided national office assurance of the procedures’ reasonableness. Thus, while our findings indicate that an AJR would likely reduce juror second-guessing (at least among jurors not experiencing reactance), it appears that auditors’ behavior reflects a divergent belief that an AJR invokes greater need to defend their professional judgments to third parties.

In addition to Kang et al.’s (2020) proposal to examine valuable interventions aimed at remedying this effect of an AJR, a natural next step would be melding the literature streams related to these two regulatory factors and considering how an AJR affects auditors’ judgments about which areas to select for CAM disclosure. Future research could examine whether auditors believe that CAMs weaken jurors’ or investors’ perceptions of detectability and/or acquiescence if a material fraud were to come to light later, and whether an AJR’s activation of defensibility concerns affects auditors’ strategy of which areas to select as CAMs – for example, enacting a strategy of issuing many CAMs versus a strategy of selectively issuing CAMs in the areas that auditors view as introducing the greatest fraud risk. However, if auditors’ views instead reflect the earlier-discussed audit firm concerns about CAMs leading to third party second-guessing, the effect of an AJR on auditors’ CAM-related decisions could be diametrically different.
References


Backof, A., Bowlin, K., & Goodson, B. (2018). The importance of clarification of auditors’ responsibilities under the new audit reporting standards. Working Paper, University of Virginia, University of Mississippi, Clemson University


FIGURE 1. Main Effects of an AJR and a CAM on Jurors’ Culpability Assessments – Experiment One

The above graphs display descriptive statistics for the dependent variable of jurors’ culpability assessments in experiment one. Specifically, we ask jurors to report, on a scale from 0 to 100, how probable it is that the audit firm was negligent in their performance of the audit (where 0 indicates certainly not negligent and 100 indicates certainly negligent). Jurors determine an audit firm’s culpability in a lawsuit under U.S. state common law. Management committed material financial-statement fraud that the audit firm failed to detect. We manipulate whether jurors are making evaluations under an auditor judgment rule (AJR) versus simple ordinary negligence, and whether the audit firm issued a critical audit matter (CAM) in the area of dispute versus CAMs do not exist. In light of Hypothesis 1a and Hypothesis 2a predicting main effects, we display the results for each independent variable collapsed across the other independent variable. The first graph displays the effect predicted in Hypothesis 1a: that an AJR will reduce jurors’ culpability assessments. The second graph displays the effect predicted in Hypothesis 2a: that a CAM will reduce jurors’ culpability assessments.
Figure 1 describes the experimental setting, independent variables, and dependent variable. The SEM above displays (within the full sample) how the AJR and CAM each reduce juror assessments of Audit Firm Culpability. Detectability and Acquiescence are latent factors representing, respectively, jurors’ perceptions that the audit firm defendant missed a readily detectable fraud and jurors’ perceptions that the audit firm defendant tacitly assented to management’s potential fraud. Table 1, Panel A defines the indicators for each latent variable and displays a preliminary factor analysis supporting the assignment of indicators to their respective factors. All indicators load significantly on their assigned factor. The model shows good fit ($\chi^2(34) = 44.35, p = 0.110; \text{CFI} = 0.99; \text{RMSEA} = 0.036; \text{SRMR} = 0.043$). The paths depicted with green (blue) bolded arrows represent support for our hypotheses that our independent variables will reduce culpability assessments through weakening perceived detectability (acquiescence). $P$-values are one-tailed for directional predictions.
The above graphs display descriptive statistics for the dependent variable of jurors’ culpability assessments in experiment two. The dependent variable and experimental setting are the same as in experiment one (see Figure 1). We manipulate whether jurors are making evaluations under an auditor judgment rule (AJR) versus simple ordinary negligence, and whether the juror completed a juror negligence training (JNT) versus control training on social norms in advance of the case evaluation. In light of the observed diminishing form AJR x JNT interaction, we present the effect of each intervention in the absence of the other intervention. The first graph displays our reproducibility test of the effect predicted in Hypothesis 1a: that an AJR will reduce jurors’ culpability assessments (within the No JNT condition). The second graph displays the effect predicted in Hypothesis 3a: that a JNT will reduce jurors’ culpability assessments (within the No AJR condition).
Figures 1 and 3 describe the experimental setting, independent variables, and dependent variable. The SEM above displays (within the full sample) how the AJR and JNT (and their interaction) influence Audit Firm Culpability. Detectability and Acquiescence are latent factors representing, respectively, jurors’ perceptions that the audit firm missed a readily detectable fraud and tacitly assented to management’s potential fraud. Table 1, Panel B defines the indicators for each latent variable and displays a preliminary factor analysis supporting the assignment of indicators to their respective factors. All indicators load significantly on their assigned factor. The model shows good fit ($\chi^2(38) = 48.73, p = 0.114$; CFI = 0.99; RMSEA = 0.028; SRMR = 0.037). The paths depicted with green (blue) bolded arrows represent support for our hypotheses that our independent variables will reduce audit firm culpability through weakening perceived detectability (acquiescence). Paths depicted with black bolded arrows are other theory-consistent significant paths. To minimize clutter, the direct JNT to Audit Firm Culpability link ($p > 0.500$) is not tabulated. $P$-values are one-tailed for directional predictions, except those with a *.
FIGURE 5. Main Effects of an AJR and a CAM on Jurors’ Damages Assessments – Experiment One

The above graphs display descriptive statistics for the dependent variable of jurors’ damages assessments (for jurors finding against the audit firm) in experiment one. Specifically, we ask jurors to report, on a scale from $0 to $9 million, the amount of damages that the audit firm (under proportionate liability) should be required to pay the plaintiff. The independent variables are defined in the notes to Figure 1. In light of predicting only a main effect of the AJR, we display the results for each independent variable collapsed across the other independent variable. The first graph displays the effect predicted in Hypothesis 4a: that an AJR will increase jurors’ damages assessments. For completeness, the second graph displays the effect of a CAM, which we expect to be insignificant.
Figures 1 and 5 describe the experimental setting, independent variables, and dependent variable. The SEM above displays (for jurors finding against the audit firm) how the AJR and CAM influence Audit Firm Damages. Figures 2 and Table 1, Panel A define the latent factor mediators of perceived Detectability and Acquiescence. All indicators load significantly on their assigned factor. The model shows good fit ($\chi^2(43) = 50.78$, $p = 0.194$; CFI = 0.96; RMSEA = 0.045; SRMR = 0.073). The paths depicted with blue bolded arrows represent effects due to elevated perceived Acquiescence in response to the independent variables; the path depicted with a purple bolded arrow shows how the CAM directly, marginally reduces Audit Firm Culpability. Paths depicted with black bolded arrows are other theory-consistent significant paths. $p$-values are one-tailed for directional predictions, except those with a *.
FIGURE 7. Simple Effects of an AJR and a JNT on Jurors’ Damages Assessments – Experiment Two

The above graphs display descriptive statistics for the dependent variable of jurors’ damages assessments (for jurors finding against the audit firm) in experiment two. The dependent variable and experimental setting are the same as in experiment one (see Figure 5). The independent variables are defined in Figure 3. In light of the potential diminishing form AJR x JNT interaction, we present the effect of each intervention in the absence of the other intervention. The first graph displays our reproducibility test of the effect predicted in Hypothesis 4a: that an AJR will increase jurors’ damages assessments (within the No JNT condition). The second graph displays the effect predicted in Hypothesis 4b: that a JNT will increase jurors’ damages assessments (within the No AJR condition).
FIGURE 8. Structural Equations Models to Test Hypothesis 4a, Hypothesis 4b, and Research Question 3 – Experiment Two

Figures 1, 5, and 7 describe the experimental setting, independent variables, and dependent variable. The SEM above displays (within jurors finding against the audit firm) how the AJR and JNT (and their interaction) influence Audit Firm Damages. Figure 4 and Table 1, Panel B define the latent variable mediators of perceived Detectability and Acquiescence. All indicators load significantly on their assigned factor. The model shows good fit ($\chi^2 = 54.84, p = 0.296$; CFI = 0.99; RMSEA = 0.026; SRMR = 0.058). The paths depicted with green bolded arrows represent effects due to elevated perceived Detectability in response to the independent variables (and their interaction). Paths depicted with black bolded arrows are other theory-consistent significant paths. $P$-values are one-tailed for directional predictions, except those with an *. To minimize clutter, the AJR, JNT, and AJR x JNT links to Acquiescence are not tabulated (all $p > 0.500$); as such, the link from Acquiescence to Audit Firm Culpability is also not tabulated.
TABLE 1. Preliminary Factor Analysis (Principal Components) to Support Theoretical Assignment of Indicators on Assigned Latent Factors

Panel A. Preliminary Factor Analysis for Experiment 1

<table>
<thead>
<tr>
<th>Panel A. Preliminary Factor Analysis for Experiment 1</th>
<th>Detectability</th>
<th>Acquiescence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Other Audit Firm Anticipate Fraud</strong></td>
<td>0.75</td>
<td>0.27</td>
</tr>
<tr>
<td><strong>Alternative Actions Leading to Detection</strong></td>
<td>0.72</td>
<td>-0.05</td>
</tr>
<tr>
<td><strong>Fraud Was Detectable</strong></td>
<td>0.66</td>
<td>0.31</td>
</tr>
<tr>
<td><strong>Other Audit Firm Detect Fraud</strong></td>
<td>0.63</td>
<td>0.59</td>
</tr>
<tr>
<td><strong>Close to Detecting Fraud</strong></td>
<td>0.48</td>
<td>-0.14</td>
</tr>
<tr>
<td><strong>Audit Firm Knew About Fraud</strong></td>
<td>0.25</td>
<td>0.79</td>
</tr>
<tr>
<td><strong>Regulator Challenges Accounting Treatment</strong></td>
<td>-0.10</td>
<td>0.72</td>
</tr>
<tr>
<td><strong>Audit Firm Chose Inappropriate Test</strong></td>
<td>-0.57</td>
<td>0.43</td>
</tr>
</tbody>
</table>

Panel B. Preliminary Factor Analysis for Experiment 2

<table>
<thead>
<tr>
<th>Panel B. Preliminary Factor Analysis for Experiment 2</th>
<th>Detectability</th>
<th>Acquiescence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Other Audit Firm Anticipate Fraud</strong></td>
<td>0.77</td>
<td>0.14</td>
</tr>
<tr>
<td><strong>Alternative Actions Leading to Detection</strong></td>
<td>0.62</td>
<td>-0.16</td>
</tr>
<tr>
<td><strong>Fraud Was Detectable</strong></td>
<td>0.79</td>
<td>0.04</td>
</tr>
<tr>
<td><strong>Other Audit Firm Detect Fraud</strong></td>
<td>0.76</td>
<td>0.44</td>
</tr>
<tr>
<td><strong>Close to Detecting Fraud</strong></td>
<td>0.61</td>
<td>-0.10</td>
</tr>
<tr>
<td><strong>Audit Firm Knew About Fraud</strong></td>
<td>0.43</td>
<td>0.72</td>
</tr>
<tr>
<td><strong>Regulator Challenges Accounting Treatment</strong></td>
<td>0.07</td>
<td>0.79</td>
</tr>
<tr>
<td><strong>Audit Firm Chose Inappropriate Test</strong></td>
<td>-0.39</td>
<td>0.68</td>
</tr>
</tbody>
</table>

The above factor analysis uses principal components analysis with quartimax rotation and supports our theoretical assignment of each indicator to its respective factor. The bolded factor loadings represent the loading of the indicator on its assigned factor. Panel A (Panel B) displays the rotated factor loadings for experiment 1 (experiment 2). Detectability is a latent factor composed of (on 100-point scales) jurors’ (1) beliefs that other audit firms would have detected the fraud (Other Audit Firm Detect), (2) beliefs that other audit firms would have anticipated the fraud (Other Audit Firm Anticipate Fraud), (3) frequency of thinking about alternative actions the audit firm could have taken (Alternative Actions Leading to Detection), (4) beliefs that the audit firm was close to detecting the fraud (Close to Detecting Fraud), and (5) beliefs that the audit firm was responsible for detecting the fraud (Fraud Was Detectable). Theoretically, this mediator represents jurors’ perceptions that the audit firm missed a readily detectable fraud. Acquiescence is a latent factor composed of (on 100-point scales) jurors’ beliefs that (1) the audit firm knew about the fraud prior to issuing the unqualified opinion (Audit Firm Knew About Fraud), (2) the regulator frequently challenged the client’s accounting treatment (Regulator Challenges Accounting Treatment), and (3) the audit firm’s testing approach was inappropriate (Audit Firm Chose Inappropriate Test). Theoretically, this mediator represents jurors’ perceptions that the audit firm tacitly assented to management’s potentially fraudulent actions.
TABLE 2. Tests of Hypotheses 1a and 2a, and of Research Question 1 – Experiment One.

Panel A. Descriptive Statistics for Jurors’ Assessed Audit Firm Culpability: Mean, Standard Deviation, Number of Participants

<table>
<thead>
<tr>
<th>CAM</th>
<th>AJR</th>
<th>No Auditor Judgment Rule</th>
<th>Auditor Judgment Rule</th>
<th>Collapsed Across AJR</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Critical Audit Matter</td>
<td>48.28 (32.40) n=67</td>
<td>35.07 (30.70) n=54</td>
<td>42.39 (32.20) n=121</td>
<td></td>
</tr>
<tr>
<td>Critical Audit Matter</td>
<td>37.51 (28.76) n=53</td>
<td>31.42 (31.51) n=65</td>
<td>34.15 (30.33) n=118</td>
<td></td>
</tr>
<tr>
<td>Collapsed Across CAM</td>
<td>43.53 (31.18) n=120</td>
<td>33.08 (31.06) n=119</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Panel B. ANOVA Results

<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>Sum of Squares</th>
<th>Mean Square</th>
<th>F statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>AJR (Hypothesis 1a)</td>
<td>1</td>
<td>5504.39</td>
<td>5504.39</td>
<td>5.73</td>
<td>0.009</td>
</tr>
<tr>
<td>CAM (Hypothesis 2a)</td>
<td>1</td>
<td>3077.07</td>
<td>3077.07</td>
<td>3.20</td>
<td>0.038</td>
</tr>
<tr>
<td>AJR × CAM (Research Question 1)</td>
<td>1</td>
<td>747.89</td>
<td>747.89</td>
<td>0.78</td>
<td>0.378*</td>
</tr>
<tr>
<td>Error</td>
<td>235</td>
<td>225752.35</td>
<td>960.65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>238</td>
<td>236106.19</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

We conduct an ANOVA to test Hypotheses 1a and 2a, and Research Question 1. The dependent variable is assessed Audit Firm Culpability. We ask jurors to report, on a scale from 0 to 100, how probable it is that the audit firm was negligent in their performance of the audit (where 0 indicates certainly not negligent and 100 indicates certainly negligent). Jurors determine an audit firm’s culpability in a lawsuit under U.S. state common law. Management committed material financial-statement fraud that the audit firm failed to detect. We manipulate whether jurors are making evaluations under an auditor judgment rule (AJR) versus simple ordinary negligence, and whether the audit firm issued a critical audit matter (CAM) in the area of dispute versus CAMs do not exist. Descriptive statistics are reported in Panel A. Panel B reports our test of Hypothesis 1a, that is, the main effect of the AJR reducing Audit Firm Culpability. Panel B also reports our test of Hypothesis 2a, that is, the main effect of the CAM reducing Audit Firm Culpability. Panel B also reports our test of Research Question 1, that is, the AJR x CAM interaction. P-values are one-tailed for directional predictions, except those with a *.
TABLE 3. Tests of Hypotheses 1a and 3a, and of Research Question 2 – Experiment Two

Panel A. Descriptive Statistics for Jurors’ Assessed Audit Firm Culpability: Mean, Standard Deviation, Number of Participants

<table>
<thead>
<tr>
<th>JNT / AJR</th>
<th>No Auditor Judgment Rule</th>
<th>Auditor Judgment Rule</th>
<th>Collapsed Across AJR</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Juror Negligence Training</td>
<td>46.84 (34.81) n=85</td>
<td>35.00 (29.88) n=90</td>
<td>40.75 (32.81) n=175</td>
</tr>
<tr>
<td>Juror Negligence Training</td>
<td>36.99 (30.11) n=89</td>
<td>38.24 (28.54) n=89</td>
<td>37.61 (29.26) n=178</td>
</tr>
<tr>
<td>Collapsed Across JNT</td>
<td>41.80 (32.77) n=174</td>
<td>36.61 (29.18) n=179</td>
<td></td>
</tr>
</tbody>
</table>

Panel B. ANOVA Results

<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>Sum of Squares</th>
<th>Mean Square</th>
<th>F statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>AJR (Hypothesis 1a)</td>
<td>1</td>
<td>2472.18</td>
<td>2472.18</td>
<td>2.59</td>
<td>0.054</td>
</tr>
<tr>
<td>JNT (Hypothesis 3a)</td>
<td>1</td>
<td>963.66</td>
<td>963.66</td>
<td>1.01</td>
<td>0.158</td>
</tr>
<tr>
<td>AJR × JNT (Research Question 2)</td>
<td>1</td>
<td>3774.20</td>
<td>3774.20</td>
<td>3.96</td>
<td>0.047*</td>
</tr>
<tr>
<td>Error</td>
<td>349</td>
<td>332664.73</td>
<td>953.19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>352</td>
<td>339725.14</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Panel C. Simple Effects

| AJR (within No JNT condition) (Hypothesis 1a) | t(352) = -2.53; p = 0.006 |
| AJR (within JNT condition)                  | t(352) = 0.27; p = 0.788* |
| JNT (within No AJR condition) (Hypothesis 3a) | t(352) = -2.10; p = 0.018 |
| JNT (within AJR condition)                  | t(352) = 0.70; p = 0.484* |

We conduct an ANOVA to test Hypotheses 3a, the reproducibility of Hypothesis 1a, and Research Question 2. The dependent variable and experimental setting for experiment two are the same as in experiment one (see Table 2). We manipulate whether jurors are making evaluations under an AJR (or simple ordinary negligence), and whether the juror completes a JNT (or control training) prior to the case evaluation. Descriptive statistics are reported in Panel A. Panels B and C report our test of the reproducibility of Hypothesis 1a, that is, the effect of the AJR reducing Audit Firm Culpability. Panels B and C also report our test of Hypothesis 3a, that is, the effect of the JNT reducing Audit Firm Culpability. Panel B reports our test of Research Question 2, that is, the AJR × JNT interaction. P-values are one-tailed for directional predictions, except those with a *.
TABLE 4. Tests of Hypothesis 4a – Experiment One

Panel A. Descriptive Statistics for Jurors’ Assigned *Audit Firm Damages* (for Jurors Finding Against the Audit Firm): Mean, Standard Deviation, Number of Participants

<table>
<thead>
<tr>
<th></th>
<th>No Auditor Judgment Rule</th>
<th>Auditor Judgment Rule</th>
<th>Collapsed Across AJR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CAM</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Critical Audit Matter</td>
<td>4.41 (2.65) n=32</td>
<td>5.44 (2.36) n=18</td>
<td>4.78 (2.57) n=50</td>
</tr>
<tr>
<td>Critical Audit Matter</td>
<td>4.46 (2.50) n=24</td>
<td>5.41 (2.85) n=17</td>
<td>4.85 (2.66) n=41</td>
</tr>
<tr>
<td>Collapsed Across CAM</td>
<td>4.43 (2.56) n=56</td>
<td>5.43 (2.57) n=35</td>
<td></td>
</tr>
</tbody>
</table>

Panel B. ANOVA Results

<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>Sum of Squares</th>
<th>Mean Square</th>
<th>F statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AJR (Hypothesis 4a)</strong></td>
<td>1</td>
<td>21.18</td>
<td>21.18</td>
<td>3.14</td>
<td>0.040</td>
</tr>
<tr>
<td><strong>CAM</strong></td>
<td>1</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.986*</td>
</tr>
<tr>
<td><strong>AJR × CAM</strong></td>
<td>1</td>
<td>0.04</td>
<td>0.04</td>
<td>0.01</td>
<td>0.940*</td>
</tr>
<tr>
<td><strong>Error</strong></td>
<td>87</td>
<td>586.24</td>
<td>6.74</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Corrected Total</strong></td>
<td>90</td>
<td>607.82</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

We conduct an ANOVA to test Hypothesis 4a. The dependent variable is jurors’ assigned *Audit Firm Damages*. Specifically, we ask jurors to report, on a scale from $0 to $9 million, the amount of damages that the audit firm (under proportionate liability) should be required to pay the plaintiff. The independent variables and experimental setting are defined in Table 2. Descriptive statistics are reported in Panel A. Panel B reports our test of Hypothesis 4a, that is, the main effect of the AJR increasing *Audit Firm Damages*. *P*-values are one-tailed for directional predictions, except those with a *. 

55
<table>
<thead>
<tr>
<th>JNT</th>
<th>AJR</th>
<th>No Auditor Judgment Rule</th>
<th>Auditor Judgment Rule</th>
<th>Collapsed Across AJR</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Negligence Training</td>
<td>AJR</td>
<td>4.45 (2.39) n=47</td>
<td>5.70 (2.81) n=30</td>
<td>4.94 (2.62) n=77</td>
</tr>
<tr>
<td></td>
<td>JNT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negligence Training</td>
<td>AJR</td>
<td>5.84 (2.22) n=31</td>
<td>5.88 (2.47) n=32</td>
<td>5.86 (2.33) n=63</td>
</tr>
<tr>
<td></td>
<td>JNT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collapsed Across JNT</td>
<td>AJR</td>
<td>5.00 (2.41) n=78</td>
<td>5.79 (2.62) n=62</td>
<td></td>
</tr>
</tbody>
</table>

### Panel B. ANOVA Results

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>df</th>
<th>Sum of Squares</th>
<th>Mean Square</th>
<th>F statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>AJR (Hypothesis 4a)</td>
<td>1</td>
<td>14.08</td>
<td>14.08</td>
<td>2.31</td>
<td>0.066</td>
</tr>
<tr>
<td>JNT (Hypothesis 4b)</td>
<td>1</td>
<td>20.79</td>
<td>20.79</td>
<td>3.41</td>
<td>0.034</td>
</tr>
<tr>
<td>AJR × JNT (Research Question 3)</td>
<td>1</td>
<td>12.54</td>
<td>12.54</td>
<td>2.06</td>
<td>0.154*</td>
</tr>
<tr>
<td>Error</td>
<td>136</td>
<td>829.61</td>
<td>6.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>139</td>
<td>887.85</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Panel C. Simple Effects

- **AJR** (within *No JNT* condition) (Hypothesis 4a): \( t(139) = 2.17; p = 0.016 \)
- **AJR** (within *JNT* condition): \( t(139) = 0.06; p = 0.477 \)
- **JNT** (within *No AJR* condition) (Hypothesis 4b): \( t(139) = 2.44; p = 0.008 \)
- **JNT** (within *AJR* condition): \( t(139) = 0.28; p = 0.390 \)

We conduct an ANOVA to test Hypothesis 4b, the reproducibility of Hypothesis 4a, and Research Question 3. The dependent variable and experimental setting for experiment two are the same as in experiment one (see Table 2 and Table 4). The independent variables are defined in Table 3. Descriptive statistics are reported in Panel A. Panels B and C report our tests of the reproducibility of Hypothesis 4a, that is, the effect of the *AJR* increasing *Audit Firm Damages*. Panels B and C report our test of Hypothesis 4b, that is, the effect of the *JNT* increasing *Audit Firm Damages*. Panels B and C report our test of Research Question 3, that is, the *AJR x JNT* interaction. *P*-values are one-tailed for directional predictions, except those indicated by a *. 
APPENDIX 1. Auditor Judgment Rule (AJR) Manipulation

No AJR Condition:

Auditor Standard of Care:

Assume that, when an audit failure occurs, jury members should evaluate auditors using an ordinary negligence standard. Liability under ordinary negligence compares the auditor’s judgments and behaviors to those that would be reached by a “reasonable, prudent auditor.” Public accountants who audit financial statements hold themselves out as possessing special skills and knowledge as commonly possessed by other auditors in the auditing profession.

If the auditor fails to exercise due care that a reasonable, prudent auditor would exercise in the same circumstances, the auditor can be held liable to investors and other third parties for ordinary negligence. For example, if an auditor fails to detect a material overstatement in accounts receivable because of failure to examine subsequent cash receipts from customers, but a reasonable, prudent auditor would have examined subsequent cash receipts, the auditor is negligent.

If a jury finds that an auditor failed to exercise due care (was guilty of ordinary negligence), the jurors will then decide the amount of damages the auditor will be required to pay the plaintiffs.

AJR Condition:

Auditor Standard of Care:

Assume that, when an audit failure occurs, jury members should evaluate auditors using an auditor judgment rule standard. Liability under an auditor judgment rule is similar in spirit to a business judgment rule, which specifies that directors of a company who make judgments that are within their authority and for which there is a reasonable basis generally cannot have their judgments second-guessed by the courts or be held responsible for subsequent third-party losses. The only exceptions are when directors do not act in good faith or intentionally do not act in the best interest of the company.

Assume that the auditor judgment rule now exists because the long-standing business judgment rule recently was extended to auditor judgment via a landmark appellate court case, Smith & Co. Accounting Firm vs. United States (2012):

In the auditor judgment rule, courts will now defer to the decisions of independent auditors absent their bad faith or self-interest. Many of the considerations cited as justifications for the business judgment rule are applicable to the present case. For example, as with business decisions, the court is not particularly qualified to review auditors’ decisions, which often require significant judgment and are made under uncertainty…and ‘after the fact litigation is a most imperfect device to evaluate’ those decisions, as in the corporate setting…Finally, policy considerations favor giving auditors, as well as corporate directors, significant discretion to use the best
judgment, recognizing that ‘a rule which penalizes the choice of seemingly riskier alternatives may not be in the interest’ of parties or society.

In summary, the auditor judgment rule specifies that auditors making decisions in good faith, with a reasonable basis for such decisions, generally cannot have their judgments second-guessed by the courts or be held responsible for third-party losses.

Even if one or more other reasonable, prudent auditors would have reached a different judgment or act differently in the same circumstances, the auditor still is not necessarily liable to investors or other third parties under the auditor judgment rule. For example, if an auditor fails to detect a material overstatement in accounts receivable because of failure to examine subsequent cash receipts from customers, but another reasonable, prudent auditor would have examined subsequent cash receipts, the auditor still would not be held liable so long as he decided to not examine cash receipts in good faith and had a reasonable basis for not doing so. The auditor judgment rule recognizes that reasonable persons can reach different, good-faith judgments.

If a jury finds that an auditor failed to make decisions in good faith, or lacked a reasonable basis for their decisions (was guilty of negligence, i.e., not protected under the auditor judgment rule), the jurors will then decide the amount of damages the auditor will be required to pay the plaintiffs.
APPENDIX 2. Critical Audit Matter (CAM) Manipulation

No CAM Condition:

Report of Jones & Company Public Accounting Firm

We have audited the accompanying balance sheets of Big Time Gravel as of December 31, 2011 and 2010, and the related statements of income, retained earnings, and cash flows for the years then ended. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Big Time Gravel as of December 31, 2011 and 2010, and the results of its operations and its cash flows for the years then ended in conformity with accounting principles generally accepted in the United States of America.

Jones & Company

February 28, 2012

CAM Condition:

Report of Jones & Company Public Accounting Firm

We have audited the accompanying balance sheets of Big Time Gravel as of December 31, 2011 and 2010, and the related statements of income, retained earnings, and cash flows for the years then ended. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.
In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Big Time Gravel as of December 31, 2011 and 2010, and the results of its operations and its cash flows for the years then ended in conformity with accounting principles generally accepted in the United States of America.

Critical Audit Matters

The standards of the PCAOB require that we communicate in our report critical audit matters relating to the audit of the current period's financial statements or state that we determined that there are no critical audit matters. Critical audit matters are those matters addressed during the audit that (1) involved our most difficult, subjective, or complex judgments; (2) posed the most difficulty to us in obtaining sufficient appropriate evidence; or (3) posed the most difficulty to us in forming our opinion on the financial statements. The critical audit matters communicated below do not alter in any way our opinion on the financial statements, taken as a whole.

Environmental Restoration Liability

We determined that our evaluation of Big Time Gravel’s (the Company’s) environmental restoration liability was a critical audit matter in the audit of the Company’s financial statements as of and for the fiscal year ended December 31, 2011.

The Company has seven inactive quarries that will need to be restored back to an environmentally friendly state. Accordingly, the Company has recorded an environmental restoration liability of $2 million dollars. Management has taken the position that all seven quarries can be restored by allowing each quarry to fill up with water to create a lake, which is known as the “lake method” of restoration. However, if any of the inactive quarries tap into hazardous materials, the Environmental Protection Agency (EPA) will likely not allow the Company to use the lake method. If this occurs, the Company will be required to restore any quarry that tapped into hazardous materials by filling that quarry with dirt and planting grass & trees, which is significantly more expensive than the lake method. Because the Company will likely have to pay more than the amount of the environmental restoration liability if the EPA determines that the Company cannot use the lake method to restore all seven of their inactive quarries, we determined that there is a high degree of uncertainty associated with this liability.

To evaluate if the Company’s assumption that all seven quarries can be restored using the lake method is appropriate, we judgmentally performed a portfolio of audit procedures around the environmental restoration liability throughout the course of our fieldwork. These procedures consisted of interviews with Company management and hiring an environmental specialist to conduct testing in this area. Because of the uncertainty associated with the environmental restoration liability, we had to make difficult and subjective judgments in evaluating if the
Company’s assumption that all seven quarries can be restored using the lake method is appropriate. This uncertainty also created difficulty as we were obtaining sufficient appropriate evidence to support management’s assumption that the lake method can be used to restore all seven quarries.

The Company’s accounting policy for the environmental restoration liability is discussed in Note 1 to the financial statements.

**Property Valuation**

We determined that our evaluation of Big Time Gravel’s (the Company’s) property valuation was a critical audit matter in the audit of the Company's financial statements as of and for the fiscal year ended December 31, 2011.

Approximately 50% of the Company’s Property, Plant, and Equipment is 100,000 acres of land that is recorded at a value of $18 million. The dollar amount recorded for this land is based on the assertion that the land is capable of being mined. However, certain factors, such as being close to a residential neighborhood or local environmental regulations, could compromise the land’s suitability for being mined. If any such factors exist, it is probable that the land’s value would be overstated and would need to be written down. Therefore, we determined that there is a high degree of uncertainty with respect to the recorded value of the land.

To evaluate the Company’s assumption that the land is capable of being mined, we judgmentally performed a portfolio of audit procedures around the land’s value. These procedures consisted of interviews with Company management and hiring a specialist to conduct further testing in this area. Because of the uncertainty associated with the land’s value, we had to make difficult and subjective judgments in evaluating if the Company’s assumption that the land is suitable for mining is appropriate. This uncertainty also created difficulty as we were obtaining sufficient appropriate evidence to support management’s assumption that the land is capable of being mined.

The Company's accounting policy for property valuation is discussed in Note 3 to the financial statements.

Jones & Company
February 28, 2012