

Can identifying and investigating fraud risks increase auditors' liability?

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Abstract

Recent auditing standards encourage auditors to identify fraud risks early in the audit process and then design audit procedures to investigate the identified risks. While identifying and investigating fraud risks should help auditors detect fraud, attribution theory and norm theory both suggest such actions may also increase auditors' legal liability in the event of an audit failure. To examine this issue, I conducted two experiments in which participants, acting as individual jurors, decided whether an audit firm that failed to detect a material fraud is liable for plaintiff losses. In the experimental cases, I manipulated whether the auditors identified the perpetrated fraud as a fraud risk (during a SAS 99 fraud brainstorming session) and whether the auditors performed procedures to investigate for (but still failed to detect) the fraud. Consistent with theory, participants were more likely hold auditors liable for losses when the auditors identified the perpetrated fraud as a fraud risk and performed procedures to investigate for the fraud, relative to when the auditors did neither. Thus, consistent with AICPA (2004) and Coffee (2004), my study suggests that the legal system may, in certain situations, effectively penalize auditors for identifying and investigating fraud risks. This troubling possibility highlights the need for future related research.

Key words: fraud risks, SAS No. 99, auditor liability, juror judgment, attribution theory, norm theory

Introduction

In recent years, auditing standard setters have encouraged auditors to actively identify fraud risks during the planning stage of their audits and then design audit procedures to investigate the identified risks.¹ While identifying and investigating fraud risks should help auditors detect fraud, psychology theory suggests such actions may also increase auditors' liability in the event of an audit failure. Specifically, attribution theory (Kelley, 1972, 1973) and norm theory (Kahneman and Miller, 1986) both suggest that if an auditor fails to detect a material fraud, jurors will be more likely to hold the auditor liable for plaintiff losses if, at some point during the audit, the auditor identified the perpetrated fraud as a fraud risk. Furthermore, these theories suggest that once an auditor identifies a particular fraud as a fraud risk, performing audit procedures to investigate for that particular fraud is unlikely to reduce, and could further increase the auditors' liability in the event of an audit failure.

Several publications have recently expressed similar concerns. In particular, a SAS 99 implementation guide advises auditors to not document the specific fraud risks they identify during the required fraud brainstorming sessions because doing so "may provide unnecessary litigation exposure to the firm" (AICPA, 2004). Similarly, a law study examining the causes of recent accounting scandals proposes that current securities laws create an incentive for auditors "not to inquire too closely—lest one acquire information that should put one on notice" (Coffee, 2004). In essence, these publications suggest that the current system of auditor liability may effectively penalize auditors for actively identifying and investigating fraud risks. However, there is little to no systematic empirical evidence to indicate whether such concerns are warranted.

¹ See Statement on Auditing Standards (SAS) 99 (AICPA, 2002) and SASs 104-111 (AICPA, 2006).

To examine these issues, I conducted two experiments in which participants, acting as individual jurors, decided whether an audit firm that failed to detect a material fraud is liable for plaintiff losses.² In the experimental case, I manipulated whether the auditors identified the perpetrated fraud as a fraud risk (during a fraud brainstorming session) and whether the auditors performed audit procedures to investigate for (but still failed to detect) the fraud. The results of my experiments are generally consistent with theory. Specifically, in both experiments, participants were more likely to hold the auditors liable for losses when the auditors identified the perpetrated fraud as a fraud risk and performed investigative procedures, relative to when the auditors did neither.

Overall, the theory and empirical evidence presented in this paper indicate that identifying and investigating fraud risks will, under certain conditions, increase auditors' liability in the event of an audit failure. Thus, my study contributes to the accounting literature by providing systematic empirical evidence that indicates concerns over the potential legal hazards of identifying and investigating fraud risks are likely warranted. In doing so, my study suggests that the current system of auditor liability may, in certain situations, create incentives that undermine standard setters' efforts to encourage auditors to more actively identify and investigate fraud risks. This troubling possibility, as I discuss in the conclusion, raises several important questions for future research.

My study also extends prior accounting research examining auditors' legal responsibility to detect fraud. Bonner et al. (1998) predicts, based on attribution theory, that jurors are more likely to hold auditors liable for failing to detect fraud when the jurors believe that other auditors, if put in the same position, would have detected the perpetrated fraud. However, the archival evidence they examine does not allow for a

² See section III for a discussion of the reasons for conducting two experiments.

direct empirical test of their theory. Participants in my experiment, in addition to making decisions of auditor liability, also provided probability assessments as to whether other auditors would have detected the perpetrated fraud. I find that the probability of participants holding auditors liable for losses is positively related to their probability assessments as to whether other auditors would have detected the fraud. Thus, my study empirically tests and provides support for the theory presented in Bonner et al. (1998).

In addition, Bonner et al. (1998) predicts that when auditors fail to detect fraud, jurors are more likely to believe that other auditors would have detected the fraud when it is a common, versus an uncommon fraud. In my study, I find empirical evidence that indicates jurors are more likely to believe that other auditors would have detected a perpetrated fraud when the actual auditors did, versus did not, identify the given fraud as a fraud risk. Thus, my study extends Bonner et al. (1998) by providing empirical evidence that suggests jurors' beliefs as to whether other auditors would have detected a particular fraud are not only affected by the nature of the fraud, but also by the actual auditors' apparent knowledge of the given fraud as a misstatement risk. As I discuss in the conclusion, these findings raise interesting questions for future research regarding a possible connection between risk based auditing and the expectations gap.

Finally, my study extends prior psychology research examining norm theory and counterfactual thinking.³ In particular, by examining evaluator judgment in a setting where the narrowness with which a negative outcome (i.e. audit failure) occurs is potentially diagnostic of the level of care provided, I test a previously unexamined potential boundary condition of the negative effects of "near misses" on evaluator judgment as predicted by norm theory (section II).

³ Counterfactual thinking refers to thoughts of alternative outcomes to past occurrences (Roese, 1997).

Section II– Theory and hypotheses development

Background Information

Prior analytical research assumes, based on current auditor liability laws, that increasing the quality of an audit will reduce auditors' liability in the event of an audit failure (Radhakrishnan, 1999; Smith & Tidrick, 1998).⁴ Therefore, to the extent that identifying and investigating fraud risks increases the quality of an audit, one might assume that such actions would reduce auditors' liability in the event of an audit failure. However, experimental research suggests that jurors often lack the information and/or capacity to make decisions that are consistent with legal standards (Robbennolt et al., 2003). Thus, information disclosed during a trial does not necessarily affect jurors' decisions in a manner that is consistent with legal standards. In an audit setting, information that should increase juror assessments of audit quality will not necessarily do so; and increased juror assessments of audit quality will not necessarily reduce auditor liability (Kadous, 2000). It is with this general understanding that I examine the conditions under which attribution theory and norm theory suggest that identifying and investigating fraud risks will increase auditors' liability in the event of an audit failure.

Attribution theory

Attribution theory indicates that evaluators assess the extent to which a person rather than external circumstance is responsible for an outcome by considering how comparable persons would have acted in the given circumstance (Kelley 1967, 1972, 1973). When evaluators believe comparable persons would have acted differently in a given circumstance, evaluators tend to attribute responsibility for an outcome to the person. Conversely, when evaluators believe comparable persons would have acted

⁴ Audit quality is defined as the joint probability of detecting and reporting all material misstatements (DeAngelo, 1981).

similarly, evaluators tend to attribute responsibility for the outcome to the situation. For example, assume an accounting student failed an exam. If an evaluator believed other accounting students would have passed the exam, the evaluator would likely attribute the students' failing grade to the student, e.g. the student failed because he did not adequately prepare. However, if the evaluator believed other accounting students would have also failed, the evaluator would likely attribute the students' failing grade to the situation, e.g. the student failed because the exam was too difficult.

Bonner et al. (1998) applies this theory to an audit setting and proposes that when an auditor fails to detect a fraud, jurors are more likely to attribute this failure to auditor negligence when they believe that other auditors, if put in the same situation, would have detected the fraud. Thus, Bonner et al. (1998) predicts that jurors will be more likely to hold auditors liable for failing to detect fraud when the jurors believe other auditors would have detected the given fraud. Bonner et al. (1998) also predicts that when auditors fail to detect fraud, jurors are more likely to believe that other auditors would have detected the fraud when it is a common, as opposed to an uncommon fraud. Collectively, these two predictions indicate that jurors will be more likely to hold auditors liable for failing to detect common, versus uncommon frauds. Based on this expectation, Bonner et al. (1998) then predicts that auditors are more likely to be sued when they fail to detect common, versus uncommon, frauds.⁵ Evidence from the litigation records corresponding to 390 cases of undetected fraud supports this prediction.

In my study, I expect that in cases of undetected fraud, jurors' beliefs as to whether the other auditors would have detected the perpetrated fraud are not only

⁵ Bonner et al. (1998) assumes that plaintiff attorneys are more likely to file auditor negligence lawsuits when they believe the jury will find against the auditors.

positively related to the frequency of the fraud, but are also positively related to whether the actual auditors identified the fraud as a fraud risk. I base this expectation on the notion that a particular fraud will appear to outside observers to be more obvious, and thus, more likely to have been detected by other auditors when the actual auditors did, versus did not, identify the given fraud as a fraud risk. Based on this expectation, and on Bonner et al.'s application of attribution theory, I predict that when an auditor fails to detect a fraud, jurors will be more likely to hold the auditor liable for losses when the auditor did, versus did not, identify the perpetrated fraud as a fraud risk. In the following paragraphs, I discuss how norm theory offers similar predictions.

Norm theory

Norm theory identifies factors that determine the ease with which alternatives to reality can be imagined or constructed (Miller and McFarland, 1986). One such factor is how narrowly a particular outcome occurred. Specifically, norm theory indicates that it is easier to imagine an alternative to a given outcome when that outcome occurred by a narrow, as opposed to a wide, margin. For example, when your favorite basketball team loses, it is easier to imagine that they actual won when they lost by one, versus thirty points. The ease with which one can imagine alternatives to reality, in turn, affects one's propensity to do so. Thus, norm theory predicts that individuals are more likely to imagine alternatives to real outcomes, i.e. engage in counterfactual thinking, when those outcomes occur by narrow, as opposed to wide, margins (Kahneman and Miller, 1986).

One assumption of norm theory is that the greater the availability of imagined alternatives to an event, the stronger will be the affective reaction elicited by the event. (Miller and McFarland, 1986; Markman et al., 1993; Medvec, Madey, & Gilovich, 1995).

In other words, norm theory indicates that imagining a negative outcome was avoided tends to increase the negative affect individuals experience.⁶ Similarly, Sanna and Turley-Ames (2000) finds that negative affect increases with the intensity of one's counterfactual thoughts. Overall, norm theory indicates that evaluators are more likely to engage in counterfactual thinking, and, thus, tend to experience stronger negative emotions when negative outcomes occur by narrow, as opposed to wide, margins. In support of norm theory, Kahneman and Tversky (1982) empirically demonstrate that evaluators attribute greater negative emotion to a traveler who missed a flight by several minutes than a traveler who missed the same flight by an hour.

Norm theory is relevant to the current study because prior research indicates that affect significantly influences juror decision making. Specifically, affect can influence jurors in at least three ways: 1) by affecting information processing strategies, 2) by inclining judgments in the direction of the emotion 3) by providing cues as to the proper decision (Feigenson & Park, 2006). In an audit context, Kadous (2001) finds that jurors use negative affect as a cue for auditor blameworthiness in cases of audit failure. Thus, research on the effects of affect on juror decision making combined with norm theory suggests that jurors will render harsher decisions when evaluating negative outcomes that occurred by narrow, as opposed to wide, margins. In support of this summary, Miller and McFarland (1986) finds, in an experimental setting, that jurors in airline wrongful death lawsuits award greater damages to victims' families when the victim was close to, as opposed to far from, receiving potentially life saving medical help at the time of death.

⁶ The relationship between counterfactual thinking and negative affect appears to be attributable to contrast effects that result from comparing the actual outcome to an alternative outcome that is clearly better, i.e. an actual negative outcome is judged to be worse when a more desirable outcome is salient (Roese, 1997).

In my study, I predict that when auditors fail to detect fraud, jurors will perceive auditors who identified the perpetrated fraud as a fraud risk as having been closer to detecting the fraud than auditors who did not identify the perpetrated fraud as a fraud risk. Thus, based on norm theory, I predict that jurors evaluating auditors in cases of undetected fraud will have stronger counterfactual thoughts, will experience stronger negative emotion, and thus, will be more likely to hold the auditors liable for losses when the auditors did, versus did not, identify the perpetrated fraud as a fraud risk.⁷ This, combined with my expectations based on attribution theory, leads to H1 (see figure 1):

H1: The probability of jurors holding auditors liable for losses in cases of undetected fraud (when the auditors did not perform procedures to investigate for the undetected fraud) will be greater when the auditors did, versus did not, identify the perpetrated fraud as a fraud risk prior to completing the audit.

The effects of investigating fraud risks

In my study, I also predict that in cases of undetected fraud, jurors' probability assessments as to whether other auditors would have detected the fraud will be greater, and that jurors will perceive that the auditors were closer to detecting the fraud, when the auditors identified the perpetrated fraud as a fraud risk and performed procedures to investigate for the fraud relative to when the auditors identified the perpetrated fraud as a fraud risk but did not perform investigative procedures. Thus, based attribution theory and norm theory as described above, I also make the following prediction (see figure 1):

⁷ Prior research has not tested norm theory in contexts, such as auditing, where the narrowness with which a negative outcome occurs is potentially diagnostic of the level of care provided. In such contexts, it is possible that negative emotions triggered by "near misses" may either be offset or dominated by more favorable evaluator assessments of the level of care provided. Thus, when the narrowness with which a negative outcome occurs is diagnostic of the level of care provided, it is unclear whether evaluator judgment will be more or less harsh when negative outcomes occur by narrow, as opposed to wide margins.

H2: The probability of jurors holding auditors liable for losses in cases of undetected fraud (when the auditors identified the perpetrated fraud as a fraud risk) will be greater when the auditors did, versus did not, perform substantive procedures to investigate the fraud risk.

Hypotheses one and two imply the following hypothesis:

H3: The probability of jurors holding auditors liable for losses in cases of undetected fraud will be greater when the auditors identified the perpetrated fraud as a fraud risk and performed substantive procedures to investigate the fraud risk relative to when the auditors neither identified the perpetrated fraud as a fraud risk nor performed substantive procedures.

Section III - Outline of empirical tests

To test my hypotheses, I conducted two experiments in which participants, acting as individual jurors, decided whether an audit firm that failed to detect a material fraud is liable for plaintiff losses. Participants in both experiments received a case packet to read and complete. The case provided background information regarding the purpose of financial statements and the external audit process, the details of an audit of a fictional mining company, the details of the financial statement fraud the auditors failed to detect, and the transcript from a subsequent negligence lawsuit.⁸ The fraud described in the case relates to the mining company's intentional understatement of their environmental restoration liability.⁹ Specifically, the company claimed that the cost they would have to incur to restore several inactive quarries to an environmentally acceptable state was significantly less than what they believed they would eventually incur.

⁸ My experimental case was adapted from the cases used in Peecher and Piercey (2006) and Kadous (2000).

⁹ Discussions with several practicing auditors, who have experience auditing mining companies, indicated that the fraud described in my experimental case represents a realistic fraud risk for mining companies.

Conducting two experiments, as opposed to one, allowed me to investigate a potential moderating variable. I expect that identifying a particular fraud as a fraud risk will increase an auditors' liability to detect that fraud to a greater extent when it is easy, as opposed to difficult, to investigate for the given fraud. In other words, when it is apparent that the auditors identified the perpetrated fraud as a fraud a fraud risk, I expect that the decision to not investigate this risk will seem less reasonable to jurors when it would have been easy for the auditors to investigate the identified risk. In experiment one, the experimental case indicates that to detect the perpetrated fraud the auditors simply needed to call the EPA. However, in experiment two, the experimental case indicates that to detect the perpetrated fraud, the auditors needed to have soil at the inactive quarries tested for hazardous materials, which is a relatively more difficult audit procedure versus calling the EPA. Thus, conducting two experiments allowed me to examine whether the effects of identifying fraud risks on auditors' liability are moderated by the ease with which the auditors could investigate the fraud risk.

Also, after experiment one was conducted, it was determined that it was important to investigate whether the results from the between-subjects design reflected participants' conscious judgment policies or subconscious biases. Knowing whether jurors intentionally "punish" auditors for identifying and investigating fraud risks or whether they do so unintentionally because of unintentional biases is important because it will inform future attempts to alleviate such effects, if doing so is deemed appropriate. To examine this question, participants were asked at the end of the second experiment to complete a within-subjects questionnaire (Libby et al., 2002).¹⁰ In this questionnaire,

¹⁰ Consistent results between the within-subjects and between-subjects designs will indicate that the effects observed in the between-subjects design represent participants' intentional judgment policies. However,

participants read three different scenarios describing how the auditors in the same circumstances performed the audit differently (than what was described in the main case packet) but still failed to detect the perpetrated fraud. These three scenarios described the auditors' actions in each of the three conditions that the participant did not see in the main case packet. After reading each scenario, participants were asked to make judgments regarding auditor liability.

Section IV – Experimental design for experiment one

Participants

Ninety-eight undergraduate students (non-accounting majors) participated in experiment one. Each participant earned class credit for participating. To the best of my knowledge, there is no reason to believe, based on the theory presented in section II, that responses from student subjects would systematically differ from a more diverse sample of subjects. Furthermore, past research finds that verdicts from student subjects do not differ from more diverse samples of subjects (Zickafoose and Bornstein, 1999). Thus, the use of student participants appears to be appropriate for this study.

Materials and experimental procedures

Participants received an experimental case to read and complete (section III). After reading the case, participants made several decisions regarding auditor liability (dependent variables). Then, after making decisions of auditor liability and turning in the case, participants answered survey questions regarding their thoughts and feelings about the case (mediating variables).

Independent variables

inconsistent results between the within-subjects design and the between-subjects design will indicate that the results observed in the between-subjects design are attributable, at least in part, to unintentional biases (Libby et al., 2002). Knowing whether jurors intentionally “punish” auditors for identifying and investigating fraud risks or whether they do so unintentionally because of unintentional biases will inform future attempts to alleviate such effects, if doing so is deemed appropriate.

The first independent variable is whether the auditors identified the perpetrated fraud as a fraud risk. I manipulated this variable between subjects in two levels (not identified, identified). In the not identified condition, the auditors considered five fraud risks during the SAS 99 brainstorming session, none of which relate to the environmental restoration liability. In the identified condition, in addition to the five fraud risks considered in the not identified condition, the auditors also considered the risk that the mining company may understate its environmental restoration liability (appendix A).

The second independent variable is whether the auditors performed procedures to investigate for the perpetrated fraud. I manipulated this variable between subjects in two levels (not investigated, investigated) nested within the identified condition.¹¹ In the not investigated condition, the auditors determined that the level of fraud risk relating to the restoration liability was negligible, and thus, did not perform investigative procedures. In the investigated condition, the auditors made inquiries of the company's president about the possibility of the EPA requiring the use of the more costly method of restoration and also reviewed correspondence from the EPA to the mining company (appendix B).

Dependent measures

The dependent variable of interest is participants' decisions of auditor liability. To measure this, participants were asked if the auditors were negligent in their performance of the audit (yes, no). Then, participants were asked to record the amount of damages they would require the auditors to pay. Consistent with Kadous (2000), I considered participants who indicated that the auditors were negligent and who also awarded damages to the plaintiffs to have held the auditors liable for losses.

¹¹ I chose a nested design because performing procedures to investigate for a fraud implicitly indicates that the auditors identified that particular fraud as a fraud risk. Thus, I administered the following conditions in experiment one: 1) not identified/ not investigated 2) identified/ not investigated 3) identified/ investigated.

Mediating (intervening) variables

I measured the following variables to provide insight into the cognitive processes and emotional reactions that affected participants' decisions of auditor liability: 1) Participant assessments of the probability that other competent auditors would have detected the perpetrated fraud. 2) Participant assessments of auditor competence. 3) Participant assessments of the probability that the auditors knew about the perpetrated fraud but chose not to report it. 4) Participant perceptions of how close the auditors were to detecting the fraud. 5) The intensity of participants' counterfactual thoughts. 6) Whether the participants experienced negative affect while completing the case.

To measure the first mediating variable, I asked participants to indicate on a scale from 0 to 100 how probable they believed it was that other auditors would have detected the fraud. To measure the second variable, I asked participants to indicate on a scale from 0 to 100 how competently the auditors performed the audit. To measure the third variable, I asked participants to indicate on scale from 0 to 100 their assessments of the probability that the auditors knew about the fraud but chose not to report it. To measure the fourth variable, I asked participants on a scale from 0 to 100 how close they believed the auditors were to detecting the fraud. To measure the fifth variable, I first asked participants if they thought about what the auditors could have done differently to detect the fraud. I then asked participants to indicate on a scale from 0 to 100 the intensity of these thoughts.¹² To measure the sixth variable, I asked participants whether they experienced negative feelings towards the auditors while completing the case (yes, no).

As previously discussed, norm theory indicates that individuals' perceptions of the closeness with which a negative outcome occurs drives the intensity of their

¹² Sanna & Turley-Ames (2000) uses a similar scale to measure counterfactual intensity.

counterfactual thoughts. Accordingly, I performed a factor analysis on participant perceptions of how close the auditors were to detecting the fraud and the intensity of their counterfactual thoughts. I then created factor scores for these two variables, which I refer to as the counterfactual factor score.¹³

Section V- Empirical results for experiment one

Manipulation check

I included several questions within the case to ensure the salience of the manipulations. Overall, participants' responses to these questions indicate that they generally attended to, and understood the manipulations.¹⁴ Excluding data from participants who did not answer these manipulation checks correctly does not change the results for any of the tests of hypotheses for experiment one.

Test of hypothesis one

H1 indicates that the probability of jurors holding auditors liable in cases of undetected fraud (given the auditors did not perform investigative procedures) will be greater when the auditors did, versus did not, identify the perpetrated fraud as a fraud risk. To test this, I compared participant responses in the identified/not investigated condition to responses in the not identified/not investigated condition. Participants in the identified/not investigated condition were more likely to hold the auditors liable for losses than participants in the not identified/not investigated condition (21/30 = 70% for

¹³ In the factor analysis, the eigenvalue for the first factor is 1.19 and all other eigenvalues are less than one indicating that participant perceptions of how close the auditors were to detecting the fraud and the intensity of participants' counterfactual thoughts comprise a single "counterfactual" construct.

¹⁴ Eighty-four percent of the participants in the identified/ not investigated condition correctly indicated that the auditors identified and assessed the risk that the mining company could understate their environmental restoration liability. In addition, ninety-four percent of the participants in the identified/ investigated condition correctly indicated that the auditors performed substantive procedures to investigate this risk. Ninety-seven percent of the participants correctly indicated that the mining company understated their environmental restoration liability by misrepresenting the number of inactive quarries that could be restored using the less expensive method of restoration.

the identified/not investigated condition versus $14/32 = 44\%$ for the not identified/not investigated condition, Fisher's exact test, $p = .03$ - table one). Thus, H1 is supported.

Test of hypothesis two

H2 indicates that the probability of jurors holding auditors liable for losses in cases of undetected fraud (when the auditors identified the perpetrated fraud as a fraud risk) will be greater when the auditors did, versus did not, perform procedures to investigate for the fraud. To test this, I compared participant responses in the identified/not investigated condition to participants' responses in the identified/investigated condition. Although in the predicted direction, participants in the identified/investigated condition were not significantly more likely to hold the auditors liable for losses than participants in the identified/not investigated condition ($25/31 = 81\%$ for the identified/investigated condition versus $21/30 = 70\%$ for the identified/not investigated condition, Fisher's exact test, $p = .252$ – table one). Thus, H2 is not supported. However, it can be concluded that when the auditors identified the perpetrated fraud as fraud risk, the fact that they performed investigative procedures did make participants less likely to hold the auditors liable for losses.

Test of hypothesis three

H3 indicates that the probability of jurors holding auditors liable for losses in cases of undetected fraud will be greater when the auditors performed procedures to investigate for the perpetrated fraud relative to when the auditors neither identified the perpetrated fraud as a fraud risk nor performed investigative procedures. To test this, I compared participant responses in the not identified/not investigated condition to participant responses in the identified/investigated condition. Participants in the identified/investigated condition were more likely to hold the auditors liable for losses

than participants in the not identified/not investigated condition ($25/31 = 81\%$ for the identified/investigated condition versus $14/32 = 44\%$ for the not identified/not investigated condition, Fisher's exact test, $p = .001$ - table one). Thus, H3 is supported.

<insert tables 1 & 2 here>

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Mediation analysis

Consistent with expectations (pages 5 & 6), participants' probability assessments of whether other auditors would have detected the perpetrated fraud were greater when the actual auditor did, versus did not, identify the perpetrated fraud as a fraud risk ($p = .035$). Also, consistent with Bonner et al.'s theory, there was a positive association between the probability of participants holding the auditors liable for losses and participants' probability assessments of whether other auditors would have detected the perpetrated fraud ($p = .001$). Controlling for participants' probability assessments of whether other auditors would have detected the fraud decreases the statistical significance of the relationship between whether the auditors identified the perpetrated fraud as a fraud risk and the probability of participants holding the auditors liable to a statistically insignificant level ($p = .109$). Thus, the observed relationship between whether the auditors identified the fraud as a fraud risk and the probability of participants holding the auditors liable was partially mediated by their probability assessments of whether other auditors would have detected the fraud.¹⁵

In addition, although in the predicted direction, participants' counterfactual scores were not significantly higher when the auditors (when they did not perform investigative procedures) did, versus did not, identify the perpetrated fraud as a fraud risk ($p = .607$).

¹⁵ See Baron and Kenny (1986) for a discussion of the criteria that must be met to claim mediation.

This indicates that the observed positive relationship between whether the auditors identified the perpetrated fraud as a fraud risk and participants' probability of holding the auditors liable for losses was not mediated by participants' counterfactual scores. However, as predicted, participants' counterfactual factor scores were significantly related to their probability of holding the auditors liable for losses ($p = .02$).

<insert tables 3 & 4 here>

Section VI - Experimental design for experiment two

Participants

One hundred and eighty two undergraduate students (non-accounting majors) participated in experiment two. Each participant earned class credit for participating.

Materials and experimental procedures

The materials and experimental procedures for experiment two were the same as experiment one except for the differences noted in section III.

Independent variables

The first independent variable is whether the auditors identified the perpetrated fraud as a fraud risk, which I manipulated in the same manner as in experiment one. The second independent variable is whether the auditors performed procedures to investigate for the perpetrated fraud. As in experiment one, this variable is nested within the identified condition. However, in experiment two, I manipulated the investigate variable between subjects in three levels. In the control condition, the auditors determined that the fraud risk relating to the environmental restoration liability was insignificant and thus did not perform investigative procedures. In one treatment condition, the auditors investigated for the fraud exclusively by making inquiries of the mining company's president about the possibility of the EPA requiring the mining company to use the more

costly method of restoration. In the other treatment condition, the auditors investigated for the fraud by making inquiries of the president and also by hiring a geology firm to test a random sample of the mining company's inactive quarries for the presence of hazardous materials that might cause the EPA to require the mining company to use the more expensive method of restoration (appendix C).

Dependent measures

The dependent variable of interest is participants' decisions of auditor liability for losses, measured in the same manner as experiment one. In addition, participants were asked to indicate on a scale from zero to one-hundred how probable they believed it was that the auditors were negligent in performing the audit.

Section VII - Empirical results for experiment two

Manipulation check

I included several questions within the experimental case to ensure the salience of the manipulations. Overall, participants' responses to these questions indicate they attended to, and understood the manipulations.¹⁶ Excluding the data from the participants who did not answer the manipulation checks correctly changes the results for hypotheses two. Specifically, eliminating the data from the participants who did not answer the manipulation check correctly increases the p-value associated with H2 from .033 to .075.

Test of hypothesis one

To test H1, I compared participants' responses in the identified/not investigated condition to participants' responses in the not identified/not investigated condition.

¹⁶ Eighty-eight percent of the participants in the identified/ not investigated condition correctly indicated that the auditors identified and assessed the risk that the mining company could understate their environmental restoration liability. In addition, ninety-one percent of the participants in the identified/investigated conditions (i.e. the identified/client inquiry plus the identified/client inquiry and substantive testing condition) correctly indicated that the auditors performed audit procedures to investigate the possibility that the mining company could understate their environmental restoration liability.

Although in the predicted direction, participants in the identified/not investigated condition were not significantly more likely to hold the auditors liable for losses than participants in the not identified/ no investigation condition (22/40 = 55% for the identified/not investigated condition versus 19/47 = 40% for the not identified/not investigated condition, Fisher's exact test, $p = .127$ – see table 5). Thus, H1 is not supported.¹⁷

Test of hypothesis two

To test H2, I compared participants' responses in the identified/not investigated condition to participants' responses in both the identified/client inquiry and identified/client inquiry and substantive testing conditions (individually and collectively). Participants in the identified/client inquiry condition were significantly more likely to hold the auditors liable than participants in the identified/not investigated condition (33/44 = 75% for the identified/client inquiry condition versus 22/40 = 55% for the identified/not investigated condition, Fisher's exact test, $p = .045$). Participants in the identified/client inquiry and substantive testing condition were significantly more likely to hold the auditors liable than participants in the identified/not investigated condition (33/46 = 72% for the identified/client inquiry and substantive testing condition versus 22/40 = 55% for the identified/not investigated condition, Fisher's exact test, $p = .083$). Thus, H2 is supported.¹⁸

¹⁷ In addition, I compared participants' scores on the probability of negligence variable in the not identified/not investigated condition to participants' scores in the identified/not investigated condition. Participants' scores on this variable were slightly higher, but not statistically different, in the not identified/not investigated condition (mean = 41.2) compared to the identified/not investigated condition (mean = 37.3) ($t_{91} = .709$, $p = .48$ – see table 6).

¹⁸ I also compared participants' scores on the probability of negligence variable in the identified/not investigated condition to participants' scores in the identified/client inquiry condition. Participants' scores on this variable were significantly lower in the identified/not investigated condition (mean = 37.3) versus the identified/client inquiry condition (mean = 52.3) ($t_{88} = 2.89$, $p = .003$). I also compared participants'

Test of hypothesis three

To test H3, I compared participants' responses in the not identified/not investigated condition to participants' responses in both the identified/ inquiry and identified/client inquiry and substantive testing conditions (individually and collectively). Participants in the identified/client inquiry condition were significantly more likely to hold the auditors liable for losses than participants in the not identified/ no investigation condition (33/44 = 75% for the identified/client inquiry condition versus 19/47 = 40% for the not identified/not investigated condition, Fisher's exact test, $p = .001$). Participants in the identified/client inquiry and substantive testing condition were also significantly more likely to hold the auditors liable for losses than participants in the not identified/ no investigation condition (33/46 = 72% for the identified/ client inquiry and substantive testing condition versus 19/47 = 40% for the not identified /no investigation condition, Fisher's exact test, $p = .002$). Thus, H3 is supported.¹⁹

<insert tables 5 & 6 here>

Mediation analysis

The results from experiment two indicate that jurors in cases of undetected fraud are more likely to hold auditors liable for losses when the auditors did, versus did not, perform procedures to investigate for the perpetrated fraud ($p = .033$). However, the

scores on the probability of negligence variable in the identified/not investigated condition to participants' scores in the identified/client inquiry and substantive testing condition. Participants' scores on this variable were significantly lower in the not identified/not investigated condition (mean = 37.3) versus the identified/client inquiry and substantive testing condition (mean = 52) ($t_{89} = 2.658$, $p = .005$).

¹⁹ In addition, I compared participants' scores on the probability of negligence variable in the not identified/not investigated condition to participants' scores in the identified/client inquiry condition. Participants' scores on this variable were significantly lower in the not identified/not investigated condition (mean = 41.2) compared to the identified/client inquiry condition (mean = 52.3) ($t_{91} = 2.06$, $p = .022$). I also compared participants' scores on the probability of negligence variable in the not identified/not investigated condition to participants' scores in the identified/client inquiry and substantive testing condition. Participants' scores on this variable were significantly lower in the not identified/not investigated condition (mean = 41.2) compared to the identified/client inquiry and substantive testing condition (mean = 52) ($t_{92} = 1.89$, $p = .031$). These results provide further support for H2.

results did not indicate that evaluators were more likely to hold the auditors liable for losses when the auditors (when they did not perform procedures to investigate for the fraud) did, versus did not, identify the perpetrated fraud as a fraud risk ($p = .127$). Thus, my mediation analysis for experiment two focuses on gaining a better understanding of why participants were more likely to hold the auditors liable for losses when the auditors did, versus did not, perform procedures to investigate for the perpetrated fraud. Accordingly, the mediation analysis for experiment two only uses data from the identified/not investigated, identified/client inquiry and identified/client inquiry and substantive testing conditions. However, descriptive statistics for the mediating variables by condition are reported for all four conditions (see table 7).

<insert figure 3 here>

<insert tables 7 & 8 here>

Consistent with expectations, my results indicate that participants' probability assessments of whether other auditors would have detected the perpetrated fraud were significantly greater when the actual auditor did, versus did not, perform procedures to investigate for the perpetrated fraud ($p = .017$). Furthermore, the probability of participants holding the auditors liable for failing to detect the perpetrated fraud was positively related to their probability assessments as to whether other auditors would have detected the perpetrated fraud ($p = .001$). Controlling for participants' probability assessments of whether other auditors would have detected the perpetrated fraud reduces the relationship between whether the auditors (when they identified the perpetrated fraud as a fraud risk) performed procedures to investigate for the perpetrated fraud and the probability of participants holding the auditors liable for losses to a marginally significant

level ($p = .086$). Thus, the observed positive relationship between whether the auditors performed procedures to investigate for the perpetrated fraud and the probability of evaluators of holding the auditors liable for losses was partially mediated by participants' probability assessments of whether other auditors would have detected the perpetrated fraud (see table 8).

Consistent with expectations, my results indicate that participants' counterfactual factor scores were greater when the auditors did, versus did not, perform procedures to investigate for the perpetrated fraud ($p = .002$). In addition, the probability of participants holding the auditors liable was positively associated with participants' counterfactual factor scores ($p = .001$). Controlling for participants' counterfactual scores reduces the relationship between whether the auditors performed procedures to investigate for the perpetrated fraud and the probability of participants holding the auditors liable to a statistically insignificant level ($p = .166$). Thus, the observed positive relationship between whether the auditors performed procedures to investigate for the perpetrated fraud and the probability of participants holding the auditors liable for losses was also mediated by participants' counterfactual factor scores (see table 8).

Finally, my results indicate that participants' probability assessments of auditor complicity (i.e. participants' assessments of the probability that the auditors knew about the fraud but chose not to report it) were greater when the auditors did, versus did not, perform procedures to investigate for the perpetrated fraud ($p = .002$). In addition, participants' probability of holding the auditors liable for losses was positively associated with their probability assessments of auditor complicity ($p = .001$). Controlling for participants' probability assessments of auditor complicity reduces the relationship

between whether the auditors performed procedures to investigate for the perpetrated fraud and the participants' probability of holding the auditors liable for losses to a statistically insignificant level ($p = .143$). Thus, the observed positive relationship between whether the auditors performed procedures to investigate for the perpetrated fraud and evaluators' probability of holding the auditors liable for losses was also mediated by participants' probability assessments of auditor complicity. Controlling for all three identified mediating variables (i.e. controlling for participants' counterfactual factor scores, participants' probability assessments of whether other auditors would have detected the fraud, and participants' assessments of auditor complicity), reduces the relationship between whether the auditors performed procedures to investigate for the perpetrated fraud and the participants' probability of holding the auditors liable for losses to a statistically insignificant level ($p = .562$) (See table 8).

Within-subjects results

In general, the results from the within-subjects design differed from the between-subjects design. First, auditors who neither identified the perpetrated fraud as a fraud risk nor performed investigative procedures were more likely to be held liable for losses in the within-subjects design compared to the between-subjects design ($103/135 = 76\%$ of the auditors who neither identified the perpetrated fraud as a fraud risk nor performed investigative procedures were held liable in the within-subjects design versus $19/47 = 40\%$ in the between-subjects design, $\chi^2 = 20.3$, $d.f.=1$, $p = .001$). Second, auditors who identified the perpetrated fraud as a fraud risk but did not perform investigative procedures were more likely to be held liable for losses in the within-subjects design compared to the between-subjects design ($116/138 = 84\%$ of the auditors who identified the perpetrated fraud as a fraud risk but did not perform investigative procedures were

held liable in the within-subjects design versus 22/40 = 55% in the between-subjects design, $\chi^2 = 15.03$, d.f.=1, $p = .001$). Third, auditors who identified the perpetrated fraud and investigated for the fraud via client inquiry only were neither more nor less likely to be held liable for losses in the within-subjects design compared to the between-subjects design (93/137 = 68% of the auditors who identified the perpetrated fraud as a fraud risk and investigated via client inquiry only were held liable in the within-subjects design versus 33/44 = 75% in the between-subjects design, $\chi^2 = .797$, d.f.=1, $p = .372$). Finally, auditors who identified the perpetrated fraud as a fraud risk and investigated for the fraud via client inquiry and substantive testing were less likely to be held liable for losses in the within-subjects design compared to the between-subjects design (46/136 = 34% of the auditors who identified the perpetrated fraud as a fraud risk and investigated for the fraud via client inquiry and substantive testing were held liable in the within-subjects design versus 33/46 = 72% in the between-subjects design, $\chi^2 = 20.12$, d.f.=1, $p = .001$). Overall, the probability of participants holding the auditors liable for losses was negatively related to the auditors' level of investigation in the within-subjects design ($B = -.696$ Wald $\chi^2 = 13.89$, d.f.=1, $p = .001$), but positively related to the auditors' level of investigation in between-subjects design ($B = .532$ Wald $\chi^2 = 13.89$, d.f.=1, $p = .001$).

<insert figure 4 here>

In addition to comparing the between-subjects and within-subjects results within each condition, I also compared within-subjects results between conditions. Participants were neither more nor less likely to hold the auditors liable for losses in the identified/not investigated condition compared to the not identified/not investigated condition ($\chi^2 = 2.59$, d.f.=1, $p = .107$). However, participants' scores on the probability of

negligence variable were lower in the not identified/not investigated condition (64.2) compared to the identified/not investigated condition (68.4) ($t_{272} = 1.29$, $p = .10$, one-tailed). This result provides an indication that participants consciously believed that identifying a fraud risk increases an auditor's responsibility to detect frauds related to the identified fraud risk. Thus, the results from the within-subjects design provide a weak indication that the results observed in the between-subjects design from experiment one (i.e. participants were more likely to hold auditors liable when the auditors did, versus did not, identify the perpetrated fraud as a fraud risk) are attributable to conscious judgment policies as opposed to unintentional biases. However, the only definitive conclusion that can be drawn is that participants did not consciously believe auditors who identified the fraud as a fraud risk but did not investigate the risk were less liable than auditors who did not identify the fraud as a fraud risk. In other words, participants did not give auditors "credit" for simply identifying the fraud as a fraud risk without subsequent investigation.

Next, participants were more likely to hold the auditors liable for losses in the not identified/not investigated condition compared to the identified/client inquiry and substantive testing condition ($\chi^2 = 49.38$, $d.f.=1$, $p = .001$). Participants' scores on the probability of negligence variable were also significantly lower in the identified/client inquiry and substantive testing condition (27.2) compared to the not identified/not investigated condition (64.2) ($t_{270} = 10.15$, $p = .001$). In addition, participants were more likely to hold the auditors liable for losses in the identified/not investigated condition compared to the identified/client inquiry and substantive testing condition ($\chi^2 = 71.52$, $d.f.=1$, $p = .001$). Participants' scores on the probability of negligence variable were also significantly lower in the identified/client inquiry and substantive testing condition (27.2)

compared to the identified/not investigated condition (68.4) ($t_{274} = 12.10, p = .001$). These results indicate that the participants did not consciously believe that auditors who performed procedures to investigate for the perpetrated fraud were more negligent for failing to detect the fraud than auditors who did not perform such procedures. In fact, these results suggest the opposite, i.e. the within-subjects results suggest that the participants believed that auditors who performed procedures to investigate for a perpetrated fraud were less negligent than auditors who did not perform such procedures. Thus, the within-subjects results indicate that the results observed in the between-subjects design (i.e. that participants were more likely to hold auditors liable for losses when the auditors did, versus did not, perform procedures to investigate for the perpetrated fraud) are attributable to unintentional biases as opposed to conscious judgment policies. This conclusion appears consistent with the fact that participants' counterfactual scores (which relate to emotion as opposed to conscious judgment policies) partially mediated the positive relationship between whether the auditors performed procedures to investigate for the perpetrated fraud and participants' probability of holding the auditors liable for losses in the between-subjects design.

Section VIII- Discussion of results for experiments one and two

In both experiments one and two, I examined the probability of auditors being held liable for failing to detect a material fraud under the following three general conditions: 1) During the audit, the auditors neither identified the perpetrated fraud as a fraud risk nor performed audit procedures to investigate for the fraud 2) the auditors identified the perpetrated fraud as a fraud risk but did not perform investigative

procedures 3) the auditors identified the perpetrated fraud as a fraud risk and performed investigative procedures.

In both experiments, auditors in the first condition were the least likely to be held liable for losses, while auditors in the third condition were the most likely to be held liable for losses. However, while the ordering of the conditions in terms of least to most likely to be held liable for losses did not differ between experiments one and two, there were differences with respect to the significance levels of the differences between conditions. In experiment one, auditors in the first condition were significantly less likely to be held liable for losses than auditors in the second condition. However, this difference, although in the same direction, was not significant in experiment two. In experiment one, auditors in the second condition were not significantly less likely to be held liable for losses than auditors in the third condition. However, in experiment two, auditors in the second condition were significantly less likely to be held liable for losses than participants in the third condition.

As discussed in section II, the case for experiment one suggests that it would have been relatively easy for the auditors to investigate for the perpetrated fraud, whereas the case for experiment two suggests it would have been more difficult for the auditors to investigate for the fraud. Thus, the aforementioned differences in results from experiments one and two suggest that the extent to which both identifying, and deciding to investigate, a fraud risk increases an auditors legal responsibility to detect that fraud if it is present depends on the nature of the best available audit procedures. Specifically, identifying a particular fraud as a fraud risk appears more likely to increase an auditor's legal responsibility to detect the given fraud when it would be easy, versus hard, to

investigate for the given fraud. Conversely, investigating a previously identified fraud risk appears more likely to increase an auditor's legal responsibility to detect the given fraud when it is hard, versus easy, to investigate for the given fraud. One possible reason for this is that when it is difficult to investigate for a fraud, the decisions to do so may provide a signal as to the severity of the risk. However, my experiments did not provide empirical evidence to test these explanations. Consequently, future research is needed to investigate how the effects of identifying and investigating fraud risks on auditors' liability are moderated by the nature of the best available audit procedures.

Section IX – Conclusion

Recent publications suggest that there is concern among both practitioners and legal scholars that the legal system may, in certain circumstances, effectively penalize auditors for actively identifying and investigating fraud risks (AICPA, 2004; Coffee, 2004). However, prior to my study, there was little to no systematic empirical evidence to indicate whether such concerns are warranted. Overall, the theory and empirical evidence presented in this paper indicates that identifying and investigating fraud risks will, under certain conditions, increase auditors' liability in the event of an audit failure. Thus, my study contributes to the accounting literature by providing systematic empirical evidence that suggests concerns over the potential legal hazards of identifying and investigating fraud risks are likely warranted. Consequently, my study raises several important questions for future research.

First, as discussed in section VIII, the effects of identifying and investigating fraud risks on auditors' liability appears to depend on the relative ease with which the auditors can investigate the identified/investigated risks. However, additional research is needed to test this factor and to also examine other factors that might moderate the effects

of identifying and investigating fraud risks on auditors' liability. Second, future research should survey practitioners to determine their level of concern regarding the potential legal hazards of identifying and investigating fraud risks. Such research would provide an indication as the validity of Coffee's claim that the legal system creates incentives that do in fact discourage auditors from actively identifying and investigating fraud risks (Coffee, 2004). Collectively, these studies could identify conditions where the current system of auditor liability may adversely affect an important aspect of the audit process, fraud detection. Thus, this general line of research could provide valuable information to academics, practitioners and regulators who are interested in evaluating, and potentially adjusting, the current system of auditor liability (e.g. Palmrose, 2005).²⁰

In addition, my study raises questions about a possible relationship between risk based auditing and auditors apparent difficulty in narrowing the expectations gap. In general, I find that when auditors identify and investigate specific fraud risks, non-auditors place a higher level of responsibility on the auditor to detect perpetrated frauds that are related to those risks. This raises the possibility that increasing audit effort, in the context of a risk-based audit, may fail to narrow, and could exacerbate the expectations gap because evaluators' expectations of auditors appear to increase with the auditors' knowledge of misstatement risks. Future experimental research could investigate this possibility by examining the effects of identifying and investigating misstatement risks on non-auditors' expectations of the auditors in settings that lack outcome information.

²⁰ Palmrose (2006) advocates the creation of an Auditor's Masters Office within the PCAOB. The proposed office, staffed by audit experts, would assess auditor compliance with accounting and auditing standards in cases of alleged auditor negligence relating to audits of SEC registrants (Palmrose, 2006). The conclusions from such assessments would be made available to the courts to assist jurors in making decisions of auditor culpability in cases of audit failure. In general, Palmrose argues that such a change is needed because the legal system is currently limited in its ability to accurately assess the merits of plaintiffs' claims against auditors largely due to a lack of juror expertise.

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Appendix A (manipulation of the identification variable)

The manipulation is located at the bottom of page 34

Information about Jones & Company's Audit of Big Time Gravel

Big Time Gravel Company is a large producer of gravel and cement. Most of Big Time Gravel's business comes from Minneapolis/St Paul, Minnesota. Big Time Gravel's products are sold to contractors, city and state road departments, and other concrete producers. Big Time Gravel has paid Jones & Company to audit their financial statements for the last twenty-four years. Jones & Company is national audit firm that has an office in St. Paul, Minnesota.

In the planning stage of an audit, professional auditing standards require auditors to conduct a "fraud identification" brainstorming session where all audit engagement team members meet and try to identify ways in which the company's financial statements could be susceptible to fraud (i.e. intentional misstatement). After identifying various ways in which a company is susceptible to fraud, the auditors are required to assess the severity of each identified fraud risk. Then, based on results of their individual assessments of those fraud risks, the auditors will decide which fraud risks are severe enough to warrant further investigation. The following list indicates the specific ways in which the auditors from Jones & Company believed Big Time Gravel might be susceptible to fraud. This list is based on the discussions the Jones & Company auditors had during their "fraud identification" brainstorming session prior to the Big Time Gravel audit.

1. Inventory

- A. The dollar amount of inventory could be overstated by overstating the quantity of inventory on hand.
- B. The dollar amount of inventory could be overstated by misstating the type of inventory on hand. This could be accomplished by misrepresenting the relative composition of rocks in Big Time Gravel's inventory (e.g. granite gravel is more valuable than limestone gravel)

2. Revenue recognition

- A. Several of Big Time Gravel's customers place very large orders that Big Time Gravel fulfills incrementally over the course of several months. For example, a customer might order 4,000 tons of gravel and Big Time Gravel might fulfill that order by sending out one shipment of approximately 500 tons of gravel for eight consecutive weeks. Based on their standard shipping terms, Big Time Gravel can record a sale for a shipment of gravel only when the gravel is received by the customer.

Often, the gravel that Big Time Gravel ships to a customer will sit in rail cars in train depots for several weeks prior to arriving at the customer's business. Until the gravel is received by the customer, Big Time Gravel should not record a sale for the shipped gravel. Unfortunately, many of Big Time Gravel's customers do not keep accurate inventory records and thus it is difficult to confirm when specific shipments of gravel were received by Big Time Gravel's customers. As a result, Big Time Gravel could prematurely recognize revenue corresponding to gravel that has been shipped but has not been received by one of their customers.

3. Illegal acts

- A. Big Time Gravel could obtain contracts to provide gravel for road projects by bribing government officials.

4. Embezzling (stealing) assets

- A. Some of Big Time Gravel's customers pay cash directly to Big Time Gravel's salespersons for the gravel they purchase. Big Time Gravel's salespersons could steal cash by not recording sales made to customers who pay with cash. When a sale is not recorded, the salesperson could simply "pocket" the cash they received from the customer. Although, the dollar amount associated with an individual sale made to most cash paying customers is relatively small (i.e. less than \$1,000), the amount stolen by salespersons could be material over the course of a year because of the large number of Big Time Gravel's customers that pay cash. This fraud would also be possible because Big Time Gravel estimates their inventory instead of making precise counts.

B. Two of the owners (there are five owners in total) of Big Time Gravel also own part of a concrete company called St. Paul Concrete. These owners could steal Big Time Gravel's inventory to use in their concrete business or buy Big Time Gravel's inventory at unreasonably low rates.

C. Although many of Big Time Gravel's customers pay in cash, most make payments to Big Time Gravel by mailing a check directly to the company. Incoming payment checks are received by Linda Schmidt, who is Big Time Gravel's accounts receivable clerk. After receiving a payment from a customer, Ms. Schmidt will then record that payment in Big Time Gravel's records. On Friday of each week, Ms. Schmidt sums up all of the payment checks that were received during the week, and then takes those checks to the bank to deposit in Big Time Gravel's account. Given that Ms. Schmidt receives, records, and deposits incoming payments with no oversight from other Big Time Gravel employees, it is possible that Ms. Schmidt might decide to steal incoming payments by not recording payment checks in Big Time Gravel's records and then depositing those checks in a personal bank account. If this were to happen, Big Time Gravel's accounts receivable balance would likely be overstated.

5. Valuation of Assets-Property

A. Big time gravel has 100,000 acres of land recorded on their books as an \$18 million asset. This amount could be overstated if Big Time Gravel does not actually own all 100,000 acres.

B. The dollar amount recorded for Big Time Gravel's land could be overstated if some or all of the land that Big Time Gravel owns is not capable of being mined. For example, if the land was within a certain distance of a residential area, it might not be able to be mined. If this were the case, the value of Big Time Gravel's land might be overstated and would potentially need to be written down.

* The following paragraph was not included in the "not identified/ no investigation" condition for experiment one or two but was included in the "identified/ no investigation" and "identified/ investigation" conditions for experiment one and the "identified/ client inquiry" and the "identified/ client inquiry and substantive testing" conditions for experiment two.*

6. Environmental Restoration Liabilities

A. Big Time Gravel has established numerous quarries in west central Minnesota to mine the rock that is used to make its gravel. Once Big Time Gravel finishes mining a quarry, the Environmental Protection Agency (EPA) requires Big Time Gravel to restore the quarry back to an environmentally friendly state. Each year Big Time Gravel must record a liability for the estimated cost of restoring all of their quarries that need to be restored.

Big Time Gravel currently has seven quarries that need to be restored back to an environmentally friendly state. Big Time Gravel is currently reporting a liability for \$2 million dollars relating to the money that they will have to pay to restore their seven inactive quarries. The dollar amount that Big Time Gravel is currently reporting as their restoration liability, i.e. the \$2 million dollars, is based on the assertion made by Big Time Gravel's management that Big Time Gravel can restore all seven quarries 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 Big Time Gravel's inactive quarries tapped into hazardous materials, the EPA would likely not allow Big Time Gravel to use the "lake method" to restore that particular quarry because doing so could pollute the ecosystem's water supply. If this occurred, the EPA would require Big Time Gravel to restore the quarry(s) that tapped into hazardous materials by filling that (those) quarry(s) with dirt and planting grass & trees. Filling a quarry with dirt and planting grass & trees is significantly more expensive than using the "lake method". Therefore, if the EPA determined that Big Time Gravel could not use the "lake method" to restore all seven of their inactive quarries, Big Time Gravel would likely have to pay much more than the \$2 million dollars they are currently reporting that they will have to pay to restore their inactive quarries. Therefore, if one or more of Big Time Gravel's inactive quarries tapped into hazardous materials, the \$2 million dollars Big Time Gravel recorded for their environmental restoration liability would likely be materially understated and net income would be overstated.

Appendix B (manipulation of the investigation variable for experiment one)

The description of the audit procedures performed to investigate the fraud risks identified during the SAS 99 fraud brainstorming session for the auditors in the identified/ not investigated condition is included within dollar signs \$.....\$ below; then the identified/ not investigated condition is included within stars *.....* below; finally the identified/investigated condition is included within brackets [.....] below.

§ At the conclusion of the brainstorming session, the auditors from Jones & Company assessed the severity of each identified fraud risk. After performing this risk assessment, the auditors decided it was necessary to perform additional testing on the fraud risks relating to Inventory and Property.

For inventory, Jones & Company hired geologists to inspect the rocks to make sure the gravel that Big Time Gravel asserted was made of granite consisted entirely of granite. The geologists concluded that all of the rocks that Big Time Gravel claimed were made of granite were in fact made of granite.

For property, Jones & Company interviewed Mary Morris (President of Big Time Gravel) and asked her if all of Big Time Gravel's land could be mined. Ms. Morris indicated that all of the land could be mined. Jones & Company also contacted the county governments where Big Time Gravel's mines were located and asked to look at public records to verify if Big Time Gravel's land could be mined. The records indicated that all of Big Time Gravel's land could be mined.

The fraud risks relating to Revenue, Illegal acts and Embezzling of assets were judged by the Jones & Company auditors to be extremely unlikely to occur and, thus, not severe enough to warrant additional testing. Therefore, the results of the above audit procedures indicated that none of the fraud risks identified during Jones & Company's "fraud identification" brainstorming session was likely to be present.

Furthermore, the results of the remainder of Jones & Company's audit indicated that Big Time Gravel's financial statements were NOT materially misstated. As a result, Jones & Company issued an unqualified opinion for Big Time Gravel's financial statements. §

* At the conclusion of the brainstorming session, the auditors from Jones & Company assessed the severity of each identified fraud risk described above. After performing this risk assessment, the auditors decided it was necessary to perform additional testing on the fraud risks relating to Inventory, Property and Embezzling of assets.

For inventory, Jones & Company hired geologists to inspect the rocks to make sure the gravel that Big Time Gravel asserted was made of granite consisted entirely of granite. The geologists concluded that all of the rocks that Big Time Gravel claimed were made of granite were in fact made of granite.

For property, Jones & Company interviewed Mary Morris (President of Big Time Gravel) and asked her if all of Big Time Gravel's land could be mined. Ms. Morris indicated that all of the land could be mined. Jones & Company also contacted the county governments where Big Time Gravel's mines were located and asked to look at public records to verify if Big Time Gravel's land could be mined. The records indicated that all of Big Time Gravel's land could be mined.

For embezzling of assets, Jones & Company interviewed Mary Morris and asked her if she was aware of any employees or owners who were suspected of embezzling company assets. Ms. Morris indicated that she was not aware of anyone who was suspected of embezzling assets. Jones & Company also looked at contracts between Big

Time Gravel and St. Paul concrete to determine if the rates Big Time Gravel were charging St. Paul concrete were consistent with industry norms. The results of this procedure indicated that St. Paul concrete was not getting special discounts from Big Time Gravel. Finally, Jones & Company performed extra testing on Big Time Gravel's accounts receivable accounts to determine if Ms. Schmidt was stealing incoming payments from customers. The results of this testing indicated that Ms. Schmidt was properly recording all incoming payments from customers. As a result, Jones & Company concluded that Big Time Gravel's accounts receivable balance was materially accurate.

The auditors from Jones & Company determined that the fraud risks relating to Revenue, Illegal acts and Environmental restoration Liabilities were not severe enough to warrant additional testing. Therefore, the results of the above audit procedures indicated that none of the fraud risks identified during Jones & Company's "fraud identification" brainstorming session was likely to be present.

Furthermore, the results of the remainder of Jones & Company's audit indicated that Big Time Gravel's financial statements were NOT materially misstated. As a result, Jones & Company issued an unqualified opinion for Big Time Gravel's financial statements.*

[At the conclusion of the brainstorming session, the auditors from Jones & Company assessed the severity of each identified fraud risk described above. After performing this risk assessment, the auditors decided it was necessary to perform additional testing on the fraud risks relating to Inventory, Property and Environmental Restoration Liabilities.

For inventory, Jones & Company hired geologists to inspect the rocks to make sure the gravel that Big Time Gravel asserted was made of granite consisted entirely of granite. The geologists concluded that all of the rocks that Big Time Gravel claimed were made of granite were in fact made of granite.

For property, Jones & Company interviewed Mary Morris (President of Big Time Gravel) and asked her if all of Big Time Gravel's land could be mined. Ms. Morris indicated that all of the land could be mined. Jones & Company also contacted the county governments where Big Time Gravel's mines were located and asked to look at public records to verify if Big Time Gravel's land could be mined. The records indicated that all of Big Time Gravel's land could be mined.

For environmental restoration liabilities, Jones & Company interviewed Mary Morris and asked her if there was any reason to believe the EPA would not allow the "lake method" to be used to restore all seven quarries. Ms. Morris indicated that she was not aware of any reason that the "lake method" could not be used to restore all seven quarries. Jones & Company then asked Ms. Morris if they could look at all of the correspondence between Big Time Gravel and the EPA for the year. Ms. Morris provided the auditors with the requested correspondence and the auditors did not find anything in the correspondence from the EPA to Big Time Gravel that indicated Big Time Gravel would not be allowed to use the "lake method" to restore all seven quarries. Based on these procedures, Jones & Company concluded that Big Time Gravel's environmental restoration liability was not understated.

The fraud risks relating to Revenue, Embezzling of assets and Illegal acts were judged by Jones & Company to be highly unlikely to occur and, thus, not severe enough to warrant additional testing beyond what is normally performed. Therefore, the results of the above audit procedures indicated that none of the fraud risks identified during Jones & Company's "fraud identification" brainstorming session was likely to be present.

Furthermore, the results of the remainder of Jones & Company's audit indicated that Big Time Gravel's financial statements were NOT materially misstated. As a result, Jones & Company issued an unqualified opinion for Big Time Gravel's financial statements.]

Appendix C (manipulation of the investigation variable for experiment two)

The description of the audit procedures performed to investigate the fraud risks identified during the SAS 99 fraud brainstorming session for the auditors in the identified/ not investigated condition is included within dollar signs \$.....\$ below; then the identified/ not investigated condition is included within stars *.....* below; next the identified/client inquiry condition is included within brackets [.....] below; finally the identified/ client inquiry and substantive testing condition is included in double stars **.....** below.

§At the conclusion of the brainstorming session, the auditors from Jones & Company assessed the severity of each identified fraud risk described above. After performing this risk assessment, the auditors decided that the identified fraud risks relating to Inventory, Property and Embezzling of assets were severe enough to require additional testing.

For inventory, Jones & Company hired geologists to inspect the rocks to make sure the gravel that Big Time Gravel asserted was made of granite consisted entirely of granite. The geologists concluded that all of the rocks that Big Time Gravel claimed were made of granite were in fact made of granite.

For property, Jones & Company interviewed Mary Morris (President of Big Time Gravel) and asked her if all of Big Time Gravel's land could be mined. Ms. Morris indicated that all of the land could be mined. Jones & Company also contacted the county governments where Big Time Gravel's mines were located and asked to look at public records to verify if Big Time Gravel's land could be mined. The records indicated that all of Big Time Gravel's land could be mined.

For embezzling of assets, Jones & Company interviewed Mary Morris and asked her if she was aware of any employees or owners who were suspected of embezzling company assets. Ms. Morris indicated that she was not aware of anyone who was suspected of embezzling assets. Jones & Company also looked at contracts between Big Time Gravel and St. Paul concrete to determine if the rates Big Time Gravel were charging St. Paul concrete were consistent with industry norms. The results of this procedure indicated that St. Paul concrete was not getting special discounts from Big Time Gravel. Finally, Jones & Company performed extra testing on Big Time Gravel's accounts receivable accounts to determine if Ms. Schmidt was stealing incoming payments from customers. The results of this testing indicated that Ms. Schmidt was properly recording all incoming payments from customers. As a result, Jones & Company concluded that Big Time Gravel's accounts receivable balance was materially accurate.

The auditors from Jones & Company determined that the fraud risks relating to Revenue and Illegal acts were not severe enough to warrant additional testing relating to those risks. Therefore, the results of the above audit procedures indicated that none of the fraud risks identified during Jones & Company's "fraud identification" brainstorming session was likely to be present.

Furthermore, the results of the remainder of Jones & Company's audit indicated that Big Time Gravel's financial statements were NOT materially misstated. As a result, Jones & Company issued an unqualified "clean" opinion for Big Time Gravel's financial statements. §

*At the conclusion of the brainstorming session, the auditors from Jones & Company assessed the severity of each identified fraud risk described above. After performing this risk assessment, the auditors decided that the identified fraud risks relating to Inventory, Property and Embezzling of assets were severe enough to require additional testing.

For inventory, Jones & Company hired geologists to inspect the rocks to make sure the gravel that Big Time Gravel asserted was made of granite consisted entirely of granite. The geologists concluded that all of the rocks that Big Time Gravel claimed were made of granite were in fact made of granite.

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For embezzling of assets, Jones & Company interviewed Mary Morris and asked her if she was aware of any employees or owners who were suspected of embezzling company assets. Ms. Morris indicated that she was not aware of anyone who was suspected of embezzling assets. Jones & Company also looked at contracts between Big Time Gravel and St. Paul concrete to determine if the rates Big Time Gravel were charging St. Paul concrete were consistent with industry norms. The results of this procedure indicated that St. Paul concrete was not getting special discounts from Big Time Gravel. Finally, Jones & Company performed extra testing on Big Time Gravel's accounts receivable accounts to determine if Ms. Schmidt was stealing incoming payments from customers. The results of this testing indicated that Ms. Schmidt was properly recording all incoming payments from customers. As a result, Jones & Company concluded that Big Time Gravel's accounts receivable balance was materially accurate.

The auditors from Jones & Company determined that the fraud risks relating to Revenue, Illegal acts and Environmental restoration Liabilities were not severe enough to warrant additional testing relating to those risks. Therefore, the results of the above audit procedures indicated that none of the fraud risks identified during Jones & Company's "fraud identification" brainstorming session was likely to be present.

Furthermore, the results of the remainder of Jones & Company's audit indicated that Big Time Gravel's financial statements were NOT materially misstated. As a result, Jones & Company issued an unqualified "clean" opinion for Big Time Gravel's financial statements.*

[At the conclusion of the brainstorming session, the auditors from Jones & Company assessed the severity of each identified fraud risk described above. After performing this risk assessment, the auditors decided that the identified fraud risks relating to Inventory, Property and Environmental Restoration Liabilities were severe enough to require additional testing.

For inventory, Jones & Company hired geologists to inspect the rocks to make sure the gravel that Big Time Gravel asserted was made of granite consisted entirely of granite. The geologists concluded that all of the rocks that Big Time Gravel claimed were made of granite were in fact made of granite.

For property, Jones & Company interviewed Mary Morris (President of Big Time Gravel) and asked her if all of Big Time Gravel's land could be mined. Ms. Morris indicated that all of the land could be mined. Jones & Company also contacted the county governments where Big Time Gravel's mines were located and asked to look at public records to verify if Big Time Gravel's land could be mined. The records indicated that all of Big Time Gravel's land could be mined.

For environmental restoration liabilities, Jones & Company interviewed Mary Morris and asked her if there was any reason to believe the EPA would not allow the "lake method" to be used to restore all seven quarries. Ms. Morris indicated that she was not aware of any reason that the "lake method" could not be used to restore all seven quarries. Based on Ms. Morris' answer, Jones & Company concluded that Big Time Gravel could use the "lake method" to restore all of its inactive quarries and that Big Time Gravel's environmental restoration liability was not understated.

The auditors from Jones & Company determined that the fraud risks relating to Revenue, Embezzling of assets and Illegal acts were not severe enough to warrant additional testing relating to those risks. Therefore, the results of the above audit procedures indicated that none of the fraud risks identified during Jones & Company's "fraud identification" brainstorming session was likely to be present.

Furthermore, the results of the remainder of Jones & Company's audit indicated that Big Time Gravel's financial statements were NOT materially misstated. As a result, Jones & Company issued an unqualified opinion for Big Time Gravel's financial statements.]

******At the conclusion of the brainstorming session, the auditors from Jones & Company assessed the severity of each identified fraud risk described above. After performing this risk assessment, the auditors decided that the identified fraud risks relating to Inventory, Property and Environmental Restoration Liabilities were severe enough to require additional testing.

For inventory, Jones & Company hired geologists to inspect the rocks to make sure the gravel that Big Time Gravel asserted was made of granite consisted entirely of granite. The geologists concluded that all of the rocks that Big Time Gravel claimed were made of granite were in fact made of granite.

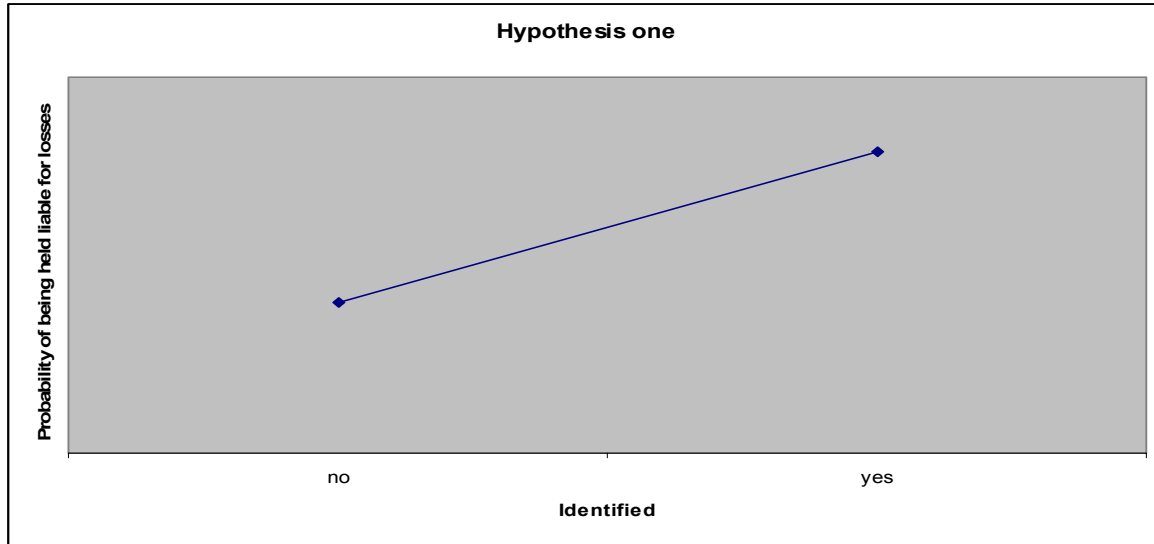
For property, Jones & Company interviewed Mary Morris (President of Big Time Gravel) and asked her if all of Big Time Gravel's land could be mined. Ms. Morris indicated that all of the land could be mined. Jones & Company also contacted the county governments where Big Time Gravel's mines were located and asked to look at public records to verify if Big Time Gravel's land could be mined. The records indicated that all of Big Time Gravel's land could be mined.

For environmental restoration liabilities, Jones & Company interviewed Mary Morris and asked her if there was any reason to believe the EPA would not allow the "lake method" to be used to restore all seven quarries. Ms. Morris indicated that she was not aware of any reason that the "lake method" could not be used to restore all seven quarries. Jones & Company then hired an environmental testing laboratory to test a random sample of two of Big Time Gravel's seven inactive quarries for the presence of hazardous materials that might cause the EPA to not allow Big Time Gravel to use the "lake method" of restoration. The environmental testing laboratory found no evidence of hazardous materials in the two inactive quarries they were hired to test. Based on these procedures, Jones & Company concluded that Big Time Gravel could use the "lake method" to restore all of its inactive quarries and that Big Time Gravel's environmental restoration liability was not understated.

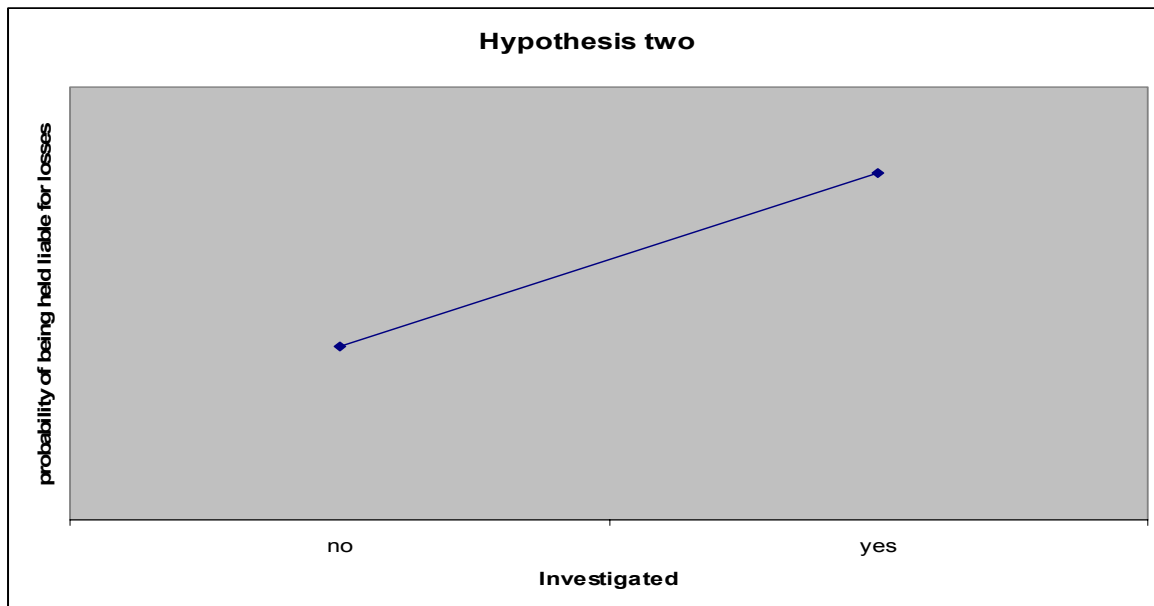
The auditors from Jones & Company determined that the fraud risks relating to Revenue, Embezzling of assets and Illegal acts were not severe enough to warrant additional testing relating to those risks. Therefore, the results of the above audit procedures indicated that none of the fraud risks identified during Jones & Company's "fraud identification" brainstorming session was likely to be present.

Furthermore, the results of the remainder of Jones & Company's audit indicated that Big Time Gravel's financial statements were NOT materially misstated. As a result, Jones & Company issued an unqualified opinion for Big Time Gravel's financial statements. ******

Figure 1



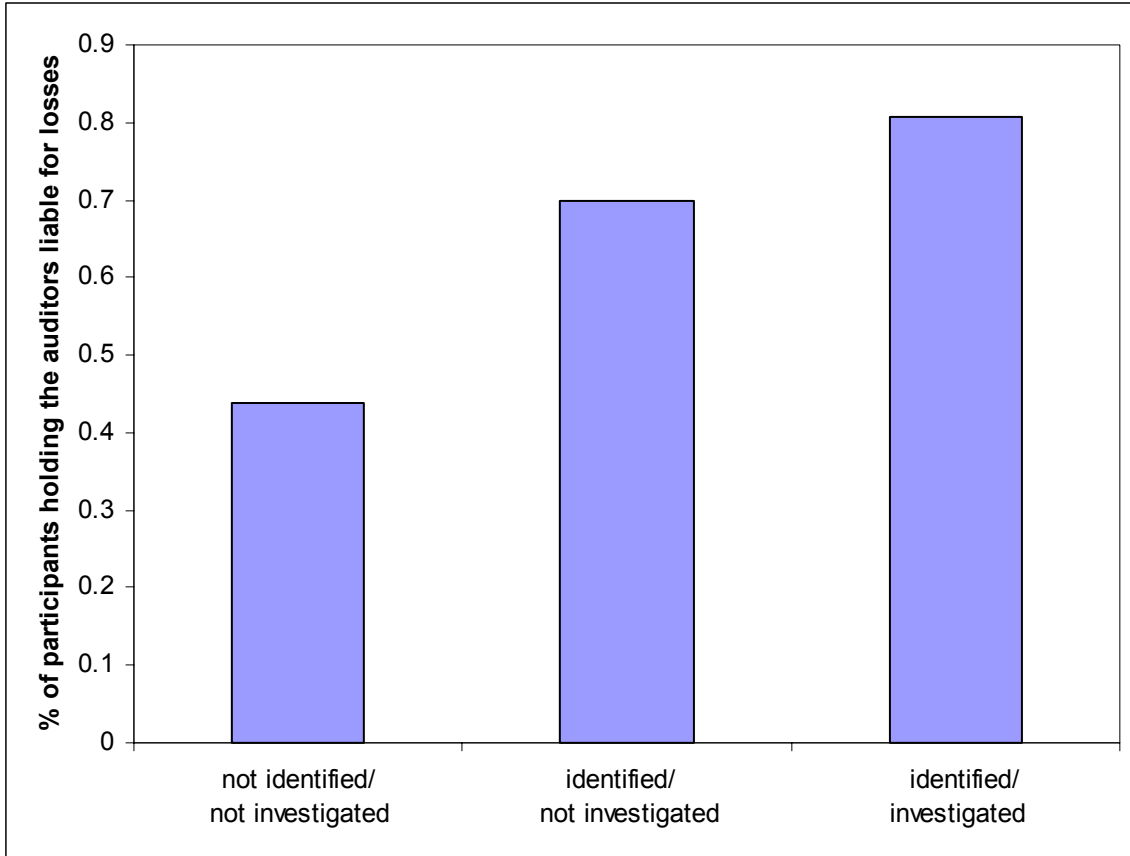
The above figure provides a graphical representation of hypothesis one (H1). H1 predicts the probability of jurors holding auditors liable for losses in cases of undetected fraud (when the auditors did not perform procedures to investigate for the undetected fraud) will be greater when the auditors did, versus did not, identify the perpetrated fraud as a fraud risk prior to completing the audit.



The above figure provides a graphical representation of hypothesis one (H2). H2 predicts the probability of jurors holding auditors liable for losses in cases of undetected fraud (when the auditors identified the perpetrated fraud as a fraud risk) will be greater when the auditors did, versus did not, perform procedures to investigate for the perpetrated fraud.

Figure 2

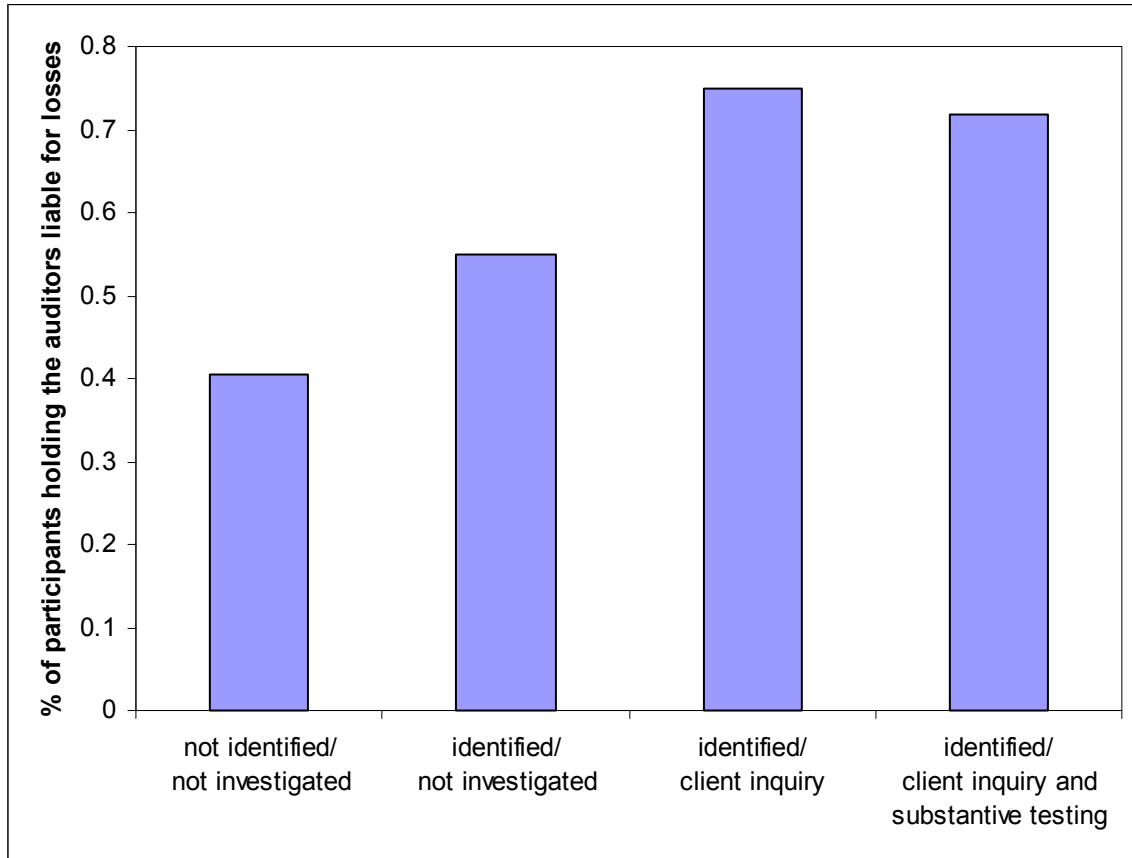
Percentage of participants in experiment one who held the auditors liable for losses across assigned levels of auditor investigation



This figure demonstrates the percentage of participants in experiment one who held the auditors liable for losses across assigned levels of auditor investigation. Assigned level of investigation was manipulated as whether the auditors identified the fraud responsible for the audit failure as a fraud risk during the audit and then whether the auditors performed audit procedures to investigate that fraud risk. In the “not identified/ no investigation” condition, the auditors did not identify the perpetrated fraud as a fraud risk and, thus, did not perform audit procedures to investigate that risk. In the “identified/ no investigation” condition, the auditors identified the perpetrated fraud as a fraud risk but did not perform audit procedure to investigate that risk. In the “identified/ investigation” condition, the auditors identified the perpetrated fraud as a fraud risk and performed audit procedures to investigate that risk.

Figure 3

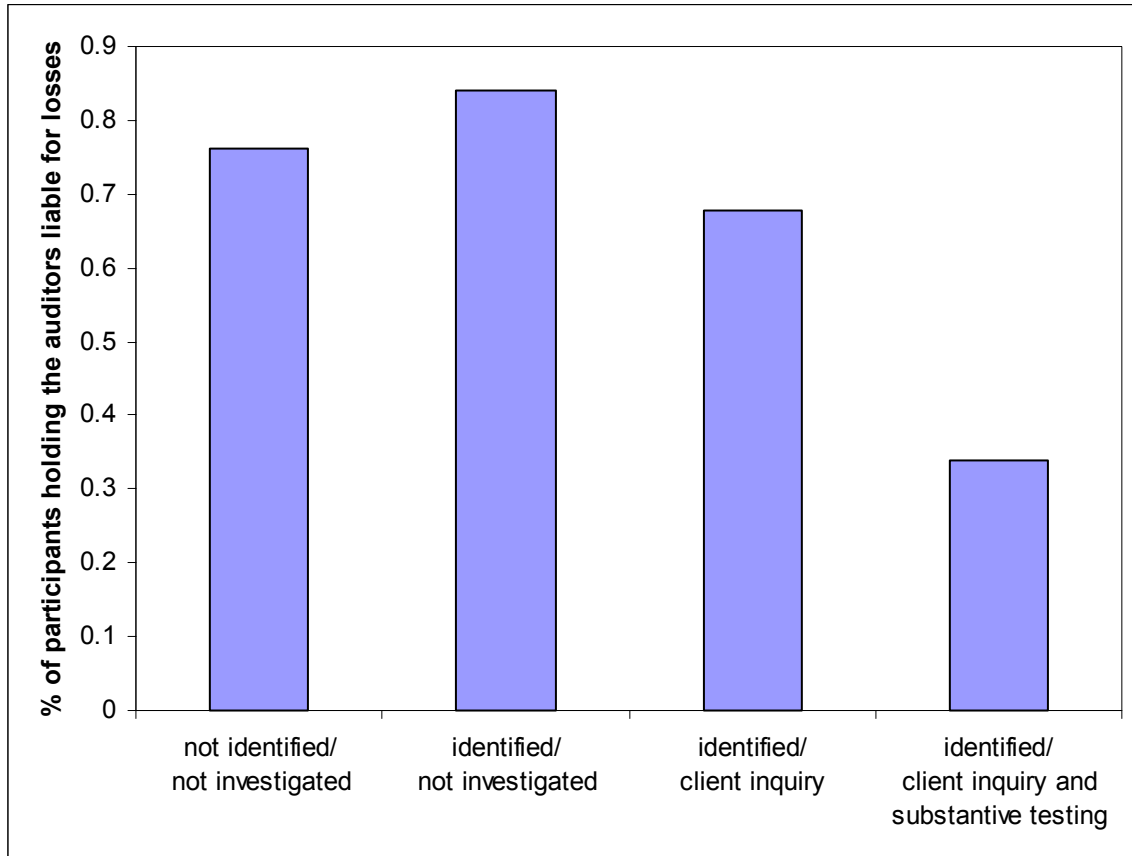
Percentage of participants in experiment two who held the auditors liable for losses across assigned levels of auditor investigation (BETWEEN-SUBJECTS)



This figure demonstrates the percentage of participants in experiment two in the between-subjects design who held the auditors liable for losses across assigned levels of auditor investigation. Assigned level of investigation was manipulated as whether the auditors identified the fraud responsible for the audit failure as a fraud risk during the audit and then which, if any, audit procedures the auditors performed to investigate that fraud risk. In the “not identified/ no investigation” condition, the auditors did not identify the perpetrated fraud as a fraud risk and, thus, did not perform audit procedures to investigate that risk. In the “identified/ no investigation” condition, the auditors identified the perpetrated fraud as a fraud risk but did not perform audit procedure to investigate that risk. In the “identified/ client inquiry” condition, the auditors identified the perpetrated fraud as a fraud risk and investigated for the fraud exclusively by making direct inquiries of the mining company’s president about the possibility of the EPA requiring the mining company to use the more costly method of restoration. In the “identified/ client inquiry and substantive testing” condition, the auditors investigated for the fraud by making inquiries of the president and also by hiring a geology firm to test a random sample of the mining company’s inactive quarries for the presence of hazardous materials that might cause the EPA to require the mining company to use the more expensive method of restoration.

Figure 4

Percentage of participants in experiment two who held the auditors liable for losses across assigned levels of auditor investigation (WITHIN-SUBJECTS)



This figure demonstrates the percentage of participants in experiment two in the within-subjects design who held the auditors liable for losses across assigned levels of auditor investigation. Assigned level of investigation was manipulated as whether the auditors identified the fraud responsible for the audit failure as a fraud risk during the audit and then which, if any, audit procedures the auditors performed to investigate that fraud risk. In the “not identified/ no investigation” condition, the auditors did not identify the perpetrated fraud as a fraud risk and, thus, did not perform audit procedures to investigate that risk. In the “identified/ no investigation” condition, the auditors identified the perpetrated fraud as a fraud risk but did not perform audit procedure to investigate that risk. In the “identified/ client inquiry” condition, the auditors identified the perpetrated fraud as a fraud risk and investigated for the fraud exclusively by making direct inquiries of the mining company’s president about the possibility of the EPA requiring the mining company to use the more costly method of restoration. In the other “identified/ client inquiry and substantive testing” condition, the auditors investigated for the fraud by making inquiries of the president and also by hiring a geology firm to test a random sample of the mining company’s inactive quarries for the presence of hazardous materials that might cause the EPA to require the mining company to use the more expensive method of restoration.

Table 1

Participant decisions of auditor liability by assigned level of auditor investigation (experiment one)

Panel A: Proportion (percentage) of verdicts against the auditors

assigned level of investigation condition	Verdict against the auditor
not identified/ no investigation	14/32 (43.75)
identified/ no investigation	21/30 (70)
identified/ investigation	25/31 (80.65)
column total	60/93 (64.5)

$\chi^2 = 9.945$, d.f. = 2, p = .007

Panel B: planned contrasts for verdicts

Contrast	p-value Fisher's exact test (one-sided)
H1: "not identified/ no investigation" vs. "identified/ no investigation"	.033
H2: "not identified/ no investigation" vs. "identified/ investigation"	.001
H3: "identified/ no investigation" vs. "identified/ investigation"	.252

Notes:

Panel A reports the proportion (percentage) of participants in experiment one who held the auditors liable for losses by condition. A chi-square test of independence indicates that participants' decisions of auditor liability were not independent of the auditors' level of investigation.

Assigned level of investigation was manipulated as whether the auditors identified the fraud responsible for the audit failure as a fraud risk during the audit and then whether the auditors performed audit procedures to investigate that fraud risk. In the "not identified/ no investigation" condition, the auditors did not identify the perpetrated fraud as a fraud risk and, thus, did not perform audit procedures to investigate that risk. In the "identified/ no investigation" condition, the auditors identified the perpetrated fraud as a fraud risk but did not perform audit procedure to investigate that risk. In the "identified/ investigation" condition, the auditors identified the perpetrated fraud as a fraud risk and performed audit procedures to investigate that risk.

Table 2

Participant decision confidence rating (DECISION) by assigned level of auditor investigation condition (experiment one)

Panel A: Mean (standard deviation) of decision confidence rating (DECISION)			
assigned level of investigation condition	DECISION		
Not identified/ no investigation	-11.09		
	(76.27)		
Identified/ no investigation	28.1		
	(67.27)		
Identified/ investigation	43.61		
	(60.62)		
Column Total	19.78		
	(71.63)		

Panel B: planned contrasts for DECISION			
<i>Contrast</i>	<i>t-statistic</i>	<i>df</i>	<i>p-value (one-sided)</i>
H1: "not identified/ no investigation" vs. "identified/ no investigation"	-2.14	60	.018
H2: "not identified/ no investigation" vs. "identified/ investigation"	-3.15	61	.002
H3: "identified/ no investigation" vs. "identified/ investigation"	-.947	59	.174

Notes:

Panel A reports the means and standard deviations of the participants' confidence ratings in their decisions of auditor liability by condition for experiment one. This measure ranges from -100 (completely confident that the auditors should not be held liable for plaintiff losses) to 100 (completely confident that the auditors should be held liable for plaintiff losses).

Assigned level of investigation is described in table 1.

Table 3

Summary statistics for proposed mediating variables (experiment one)

Panel A: means (variance) by condition				
	not identified/ no investigation	identified/ no investigation	identified/ investigation	Total
other auditors	45.5 (22.3)	58 (23.7)	54 (27.4)	52.4 (24.9)
how close	44.8 (24.1)	43.9 (24.7)	50.2 (23.6)	46.3 (24.1)
counterfactual strength	57.8 (26)	64.5 (29.7)	71.1 (27.4)	64.4 (29.7)
negative affect	.32 (.48)	.33 (.48)	.58 (.51)	.41 (.50)
counterfactual factor score	-.192 (.84)	-.06 (1.11)	.259 (1.01)	0 (1)
Competence	63.9 (21.8)	66.8 (21.9)	63.7 (19.5)	64.8 (20.1)
Complicity	33 (22.3)	35.7 (29.2)	32.6 (29.7)	33.7 (27)
Panel B: correlations (p-value)				
	identified	investigated	level of investigation	Decision of liability
other auditors	.268 (.018)	-.08 (.269)	.143 (.086)	.372 (.000)
how close	-.02 (.44)	.130 (.158)	.091 (.193)	.201 (.026)
counterfactual strength	.121 (.175)	.117 (.185)	.196 (.03)	.298 (.002)
negative affect	.019 (.454)	.247 (.063)	.215 (.051)	.25 (.035)
counterfactual factor score	.067 (.304)	.152 (.121)	.186 (.037)	.33 (.001)
Competence	.072 (.58)	-.082 (.528)	-.004 (.97)	-.504 (.000)
Complicity	.053 (.68)	-.054 (.678)	-.006 (.955)	.242 (.02)

Notes:

Panel A reports the means (standard deviations) for the proposed mediating variables across conditions.

Other auditors represents participants' beliefs regarding the probability that other competent auditors would have detected the fraud.

How close represents participants' assessments on a scale from 0 to 100 as to how close the auditors were to detecting the fraud.

Counterfactual intensity represents participants' responses on a scale from 0 to 100 as to how seriously they thought about what the auditors could have done differently to prevent the audit failure. Higher numbers indicate more serious counterfactual thoughts.

Negative affect represents the percentage of participants who indicated they experienced negative feelings towards the auditors.

Counterfactual factor scores represent the factor scores for participants' responses on the "how close", and the "counterfactual intensity" variables.

Competence represents participants' assessments on a scale from 0 to 100 as to how competent the auditors were in performing the audit (0-completely incompetent, 100-completely competent).

Complicity represents participants' assessments of the probability that the auditors knew about the fraud but chose not to report it.

Panel B reports the correlations between whether the auditors identified the perpetrated fraud as a fraud risk (identified) and the proposed mediating variables (described above). Next, panel B reports the correlations between whether the auditors performed procedures to investigate for the perpetrated fraud (investigate) and the proposed mediating variables. Next panel B reports the correlations between the level of investigation ("not identified/ no investigation" = level 1, "identified/ no investigation" = level 2, & "identified/ investigation" = level 3) and the proposed mediating variables. Finally, panel B reports the correlations between the proposed mediating variables and participants' decisions of liability.

I report Spearman-rank correlations (one-tail) for discrete variables (Negative affect and judgment of negligence) and Pearson correlations (one-tail) otherwise. However, the significance levels for the competence and complicity measures are based on a two-tail test since I had no a-priori expectations for those variables.

Table 4

Mediation analysis for the relationship between the probability of evaluators holding auditors liable for in cases of undetected fraud and whether the auditors identified the perpetrated fraud as a fraud risk - see table 3 for a description of mediating variables. Data for this mediation analysis comes from the not identified/ no investigation and identified/ no investigation conditions (experiment-one).

<u>Proposed mediators</u>	<u>significant relationship between the independent and dependent variables^a</u>	<u>significance level of the independent to mediating variable relationship^c</u>	<u>significance level of the mediating to dependent variable relationship^d</u>	<u>significance level of the independent to dependent variable relationship controlling for the mediator^b</u>	<u>conditions for mediation met</u>
other auditors	yes	p = .035 ^c	p = .001 ^d	p = .109	Yes
counterfactual factor Score	yes	p = .607 ^e	p = .02 ^f	p = .047	No
Competence	yes	p = .58 ^g	p = .000 ^h	p = .008	No
Complicity	yes	p = .68 ⁱ	p = .022 ⁱ	p = .039	No

^aThe results of a logistic regression indicate that, when the auditors did not perform procedures to investigate for the perpetrated fraud, there is a significant positive relationship between whether the auditors identified the perpetrated fraud as a fraud risk and the probability of evaluators holding the auditors liable for losses (Wald $\chi^2 = 4.224$, p = .04). The difference in the p-value reported in this table (p = .04) and the p-value reported in table 1 (p = .033) is attributable to the use of a different statistical test. I could not use the Fisher's exact test for the mediation analysis because you cannot control for the effects of the mediating variable when using the Fisher's exact test.

^bSignificance levels in this column correspond to Wald χ^2 tests from logistic regressions.

^cAs predicted, the results of a one-factor ANOVA indicate that, when the auditors did not perform procedures to investigate for the perpetrated fraud, participants believed that other auditors would have a greater probability of detecting the perpetrated fraud when the auditor being sued identified the perpetrated fraud as a fraud risk ($F_{1,60} = 4.63$, p = .035).

^dAs predicted, the results of logistic regression indicate that there is a significant positive relationship between participants' probability assessments of whether other competent auditors would have detected the fraud and their probability of holding the auditors liable for losses (Wald $\chi^2 = 10.88$, p = .001).

^eAlthough in the predicted direction, the results of a one-factor ANOVA indicate that, when the auditors did not perform procedures to investigate for the perpetrated fraud, participants' counterfactual factor scores were not significantly related to whether the auditors identified the perpetrated fraud as a fraud risk ($F_{1,60} = .267$, p = .607).

^fAs predicted, the results of a logistic regression indicate that participants' counterfactual factor scores were positively related to their probability of holding the auditors liable for losses (Wald $\chi^2 = 5.37$, $p = .02$).

^gThe results of a one-factor ANOVA indicate that, when the auditors did not perform procedures to investigate for the perpetrated fraud, participants' assessments of auditor competence were not significantly related to whether the auditors identified the perpetrated fraud as a fraud risk ($F_{1,60} = .310$, $p = .58$).

^hThe results of a logistic regression indicate that participants' assessments of auditor competence were positively related to their probability of holding the auditors liable for losses (Wald $\chi^2 = 13.83$, $p = .000$).

ⁱThe results of a one-factor ANOVA indicate that, when the auditors did not perform procedures to investigate for the perpetrated fraud, participants' probability assessments of whether the auditors knew about the fraud but chose not to report it were not significantly related to whether the auditors identified the perpetrated fraud as a fraud risk ($F_{1,60} = .171$, $p = .68$).

^jThe results of a logistic regression indicate that participants' probability assessments of whether the auditors knew about the fraud but chose not to report it were positively related to their probability of holding the auditors liable for losses (Wald $\chi^2 = 5.25$, $p = .022$).

Table 5

Participant decisions of auditor liability by assigned level of auditor investigation (experiment two)

Panel A: Proportion (percentage) of verdicts against the auditors	
assigned level of investigation condition	Verdict against the auditor
not identified/ no investigation	19/47 (40.43)
identified/ no investigation	22/40 (55)
identified/ client inquiry	33/44 (75)
identified/ client inquiry and substantive testing	33/46 (71.74)
column total	107/177 (60.45)
$\chi^2 = 14.73, d.f. = 3, p = .002$	
Panel B: planned contrasts for verdicts	
Contrast (see below for a description of "identified/investigation")	p-value Fisher's exact test (one-sided)
H1: "not identified/ no investigation" vs. "identified/ no investigation"	0.127
H2: "not identified/ no investigation" vs. "identified/ investigation"	0.0001
H3: "identified/ no investigation" vs. "identified/ investigation"	0.033
"identified/ client inquiry" vs. "identified/ client inquiry & testing"	0.456

Notes:

Panel A reports the proportion (percentage) of participants in experiment two who held the auditors liable for losses by condition. A chi-square test of independence indicates that participants' decisions of auditor liability were not independent of the auditors' level of investigation.

Assigned level of investigation was manipulated as whether the auditors identified the fraud responsible for the audit failure as a fraud risk during the audit and then which, if any, audit procedures the auditors performed to investigate that fraud risk. In the "not identified/ no investigation" condition, the auditors did not identify the perpetrated fraud as a fraud risk and, thus, did not perform audit procedures to investigate that risk. In the "identified/ no investigation" condition, the auditors identified the perpetrated fraud as a fraud risk but did not perform audit procedure to investigate that risk. In the "identified/ client inquiry" condition, the auditors identified the perpetrated fraud as a fraud risk and investigated for the fraud exclusively by making direct inquiries of the mining company's president about the possibility of the EPA requiring the mining company to use the more costly method of restoration. In the "identified/ client inquiry and substantive testing" condition, the auditors investigated for the fraud by making inquiries of the president and also by hiring a geology firm to test a random sample of the mining company's inactive quarries for the presence of hazardous materials that might cause the EPA to require the mining company to use the more expensive method of restoration.

The "identified/investigation" condition as reported in panel B represents the combination of the "identified/ client inquiry" and "identified/ client inquiry and substantive testing" conditions.

Table 6

Participants' assessments of the probability that the auditors were negligent. (experiment two)

Panel A: Mean {standard deviation}

assigned level of investigation condition	DECISION
Not identified/ no investigation	42.2 {28.07}
Identified/ no investigation	37.27 {25.69}
identified/ client inquiry	52.33 {23.66}
identified/ client inquiry and substantive testing	51.96 {27.01}
Total	

Panel B: planned contrasts for DECISION

<i>Contrast</i> (see below for a description of "identified/investigation")	<i>t-statistic</i>	<i>df</i>	<i>p-value</i> (one-sided)
H1: "not identified/ no investigation" vs. "identified/ no investigation"	0.709	91	0.24
H2: "not identified/ no investigation" vs. "identified/ investigation"	-2.33	137	0.011
H3: "identified/ no investigation" vs. "identified/ investigation"	-3.21	134	0.001
"identified/ client inquiry" vs. "identified/ client inquiry & testing"	0.071	89	0.472

Notes:

Panel A reports the means and standard deviations of the participants' assessments of the probability that the auditors were negligent.

Assigned level of investigation is described in table 5.

The "identified/investigation" condition as reported in panel B represents the combination of the "identified/ client inquiry" and "identified/ client inquiry and substantive testing" conditions.

Table 7

Summary statistics for proposed mediating variables (experiment two)

Panel A: means (variance) by condition					
	not identified/ no investigation	identified/ no investigation	identified/ client inquiry	Identified/ client inquiry and testing	Total
other auditors	38.3 (25.2)	44.3 (27.9)	54.5 (24.7)	57.3 (26)	48.5 (26.9)
how close	32.7 (24.5)	48.6 (25.2)	52.6 (21.5)	53.2 (21.9)	46.6 (24.7)
counterfactual intensity	47.4 (25.9)	46.2 (29.9)	63.2 (23)	56.5 (27)	53.3 (27.2)
Affect towards the auditor	6.46 (24.48)	11.34 (41.77)	-1.07 (34.33)	.98 (32.93)	4.43 (33.81)
counterfactual factor score	-.333 (.81)	-.282 (1.13)	.391 (.895)	.229 (.98)	0 (1)
Competence	69.19 (21.7)	66.2 (22.1)	58.96 (20.6)	61.3 (23.8)	63.9 (22.3)
Complicity	24.5 (24.8)	22.3 (20.8)	35.1 (23.2)	37.9 (28)	29.9 (25.1)
Panel B: correlations (p-value)					
	identified	investigated	level of investigation	judgment of negligence	
other auditors	.113 (.139)	.203 (.009)	.248 (.001)	.684 (.000)	
how close	.309 (.001)	.079 (.178)	.327 (.000)	.360 (.000)	
counterfactual intensity	-.022 (.418)	.246 (.002)	.211 (.002)	.364 (.000)	
Affect towards the auditor	.071 (.250)	-.137 (.056)	-.098 (.093)	-.472 (000)	
counterfactual factor score	.027 (.401)	.265 (.001)	.289 (.000)	.571 (.000)	
Competence	-.159 (031)	-.139 (.105)	-.177 (.016)	-.523 (.000)	
Complicity	.237 (.001)	.228 (.007)	.223 (.002)	.518 (.000)	

Panel A reports the means (standard deviations) for the proposed mediating variables across conditions.

Assigned level of investigation described in table 5.

Other auditors represents participants' beliefs regarding the probability that other competent auditors would have detected the fraud.

How close represents participants' assessments on a scale from 0 to 100 as to how close the auditors were to detecting the fraud.

Counterfactual intensity represents participants' responses on a scale from 0 to 100 as to how seriously they thought about what the auditors could have done differently to prevent the audit failure. Higher numbers indicate more serious counterfactual thoughts.

Affect towards the auditor represents the average of participants' scores on the measure for affect towards the auditors. Participants indicated on a scale from -100 to 100 whether they experienced emotional feelings towards the auditors while completing the case. A score of -100 indicated that the participant had extreme negative feelings towards the auditors, 0 indicated the participant had no feelings towards the auditors and 100 indicated the participant had extreme positive feelings towards the auditors.

Counterfactual factor scores represent the factor scores for participants' responses on the "how close", "counterfactual intensity" and "negative affect" variables.

Competence represents participants' assessments on a scale from 0 to 100 as to how competent the auditors were in performing the audit (0-completely incompetent, 100-completely competent).

Complicity represents participants' assessments of the probability that the auditors knew about the fraud but did not report it.

Panel B reports the correlations between whether the auditors identified the perpetrated fraud as a fraud risk (identified) and the proposed mediating variables (described above). Next, panel B reports the correlations between whether the auditors performed procedures to investigate for the perpetrated fraud (investigate) and the proposed mediating variables. Next panel B reports the correlations between the level of investigation ("not identified/ no investigation" = level 1, "identified/ no investigation" = level 2, & "identified/ client inquiry" plus "identified/ client inquiry and substantive testing" = level 3) and the proposed mediating variables. Finally, panel B reports the correlations between the proposed mediating variables and participants' decisions of liability.

I report Spearman-rank correlations (one-tail) for discrete variables (Negative affect and judgment of negligence) and Pearson correlations (one-tail) otherwise. However, the significance levels for the competence and complicity measures are based on a two-tail test since I had no a-priori expectations for those variables.

Table 8

Mediation analysis for the relationship between the probability of evaluators holding auditors liable for losses in cases of undetected fraud and whether the auditors performed procedures to investigate for the perpetrated fraud - Data for this mediation analysis comes from the identified/no investigation and identified/investigation conditions (experiment two).

<i>Proposed mediators</i>	<i>significance level of the independent to dependent variable relationship^a</i>	<i>significance level of the independent to mediating variable relationship</i>	<i>significance level of the mediating to dependent variable relationship^b</i>	<i>significance level of the independent to dependent variable relationship controlling for the mediator</i>	<i>conditions for mediation met</i>
<i>other auditors</i>	yes	p = .017 ^c	p = .000 ^d	p = .086	yes
<i>Counterfactual factor score</i>	yes	p = .002 ^e	p = .000 ^f	p = .166	yes
<i>Competence</i>	yes	p = .13 ^g	p = .000 ^h	p = .02	no
<i>Complicity</i>	yes	p = .002 ⁱ	p = .000 ^j	p = .143	yes
<i>“other auditor” and “Counterfactual factor score” & “complicity”</i>	yes	-	-	p = .562 ^k	

^a The results of a logistic regression indicate that, when the auditors identified the perpetrated fraud as a fraud risk, there is a significant positive relationship between whether the auditors performed procedures to investigate for the fraud and participants’ probability holding the auditors liable for losses (Wald $\chi^2 = 7.88$, p = .005).

^b Significance levels in this column correspond to Wald χ^2 tests from logistic regressions.

^c The results of a one-factor ANOVA indicate that, when the auditors identified the perpetrated fraud as a fraud risk, there was significant relationship between whether the auditors performed procedures to investigate the perpetrated fraud and participants’ beliefs regarding the probability of other competent auditors detecting the perpetrated fraud ($F_{1,133} = 5.89$, p = .017).

^d The results of logistic regression indicate that there is a significant positive relationship between participants probability assessments of whether other competent auditors would have detected the fraud and their probability of holding the auditors liable for losses (Wald $\chi^2 = 37.36$, p = .000).

^e The results of a one-factor ANOVA indicate that participants’ counterfactual factor scores were significantly greater when the auditors identified the perpetrated fraud as a fraud risk and performed procedures to investigate for the fraud relative to when the auditors identified the fraud risk but did not perform investigative procedures ($F_{1,132} = 10.25$ p = .008).

^f The results of a logistic regression indicate that participants’ counterfactual factor scores were positively related to their probability of holding the auditors liable for losses (Wald $\chi^2 = 28.25$, p = .000).

^g The results of a one-factor ANOVA indicate that, when the auditors identified the perpetrated fraud as a fraud risk, participants' assessments of auditor competence were not significantly related to whether the auditors performed procedures to investigate for the perpetrated fraud ($F_{1,134} = .232, p = .13$).

^h The results of a logistic regression indicate that participants' assessments of auditor competence were positively related to their probability of holding the auditors liable for losses (Wald $\chi^2 = 21.00, p = .000$).

ⁱ The results of a one-factor ANOVA indicate that, when the auditors identified the perpetrated fraud as a fraud risk, participants' probability assessments of whether the auditors knew about the fraud but chose not to report it were significantly positively related to whether the auditors performed procedures to investigate for the fraud ($F_{1,134} = .171, p = .68$).

^j The results of a logistic regression indicate that participants' probability assessments of whether the auditors knew about the fraud but chose not to report it were positively related to their probability of holding the auditors liable for losses (Wald $\chi^2 = 24.01, p = .000$).

^k If you control for all identified mediators, the p – value for the relationship between the probability of evaluators holding auditors liable for losses in cases of undetected fraud and whether the auditors performed procedures to investigate for the perpetrated fraud decreases from .005 to .562.