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Three Essays on Auditor Liability

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THREE ESSAYS ON
AUDITOR LIABILITY

A Dissertation Presented

by

JEFFREY SCOTT PICKERD

Submitted to the Graduate School of the
University of Massachusetts Amherst in partial fulfillment
of the requirements for the degree of

DOCTOR OF PHILOSOPHY

MAY 2016

Isenberg School of Management

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DEDICATION

To the pursuit of truth, that it might inform and guide our actions.

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ABSTRACT

THREE ESSAYS ON AUDITOR LIABILITY

MAY 2016

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Auditor liability is an important topic of accounting research as auditors respond to a constantly changing financial reporting and regulatory environment. Through three independent essays, I intend to explore how estimate uncertainty, financial statement aggregation, audit quality indicators, a company's investor base, and the size of the alleged misstatement can impact auditor liability both in the courtroom, as determined by jurors, and in out of court settlement, as determined by attorneys. I find that jurors do hold the auditor more likely to be negligent when audit quality indicators suggest the auditors did a poor quality audit. I also find that jurors hold auditors to be more negligent when both estimate uncertainty is low and the income statement is disaggregated. This juror finding is in contrast to lawyers where I find that high estimate uncertainty causes auditors' lawyers to believe that the auditors are more vulnerable for failing to detect a material misstatement and make more concessions in out-of-court settlement negotiation.

Together, these studies have a number of important implications. First, the impact of high estimate uncertainty on auditor liability can go in opposite directions depending on whether the case disposition is determined by jurors or by lawyers negotiating settlement. Second, auditors' legal counsel may erroneously concede during settlement negotiations based on incorrect beliefs about their vulnerability to jurors.

Third, while accounting research has focused on juror judgments to proxy for auditor litigation risk, auditors may face very different litigation risk in out-of-court settlement, where the vast majority of auditor liability is determined.

TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS	v
ABSTRACT	ix
LIST OF TABLES	xiv
LIST OF FIGURES	xv
CHAPTER	
1. GENERAL INTRODUCTION.....	1
2. THE IMPACT OF AUDIT QUALITY INDICATORS, FINANCIAL STATEMENT AGGREGATION, AND INVESTOR BASE ON AUDITOR LIABILITY	3
2.1 Introduction.....	3
2.2 Hypothesis Development	6
2.2.1 Audit Quality Indicators	6
2.2.2 Financial Statement Line-Item Aggregation.....	7
2.2.3 Investor Base.....	9
2.2.4 Joint Effects of Aggregation and Investor Type	10
2.2.5 Disaggregation and Audit Quality Indicators (AQIs).....	11
2.2.6 The Joint Effect of Investor Base and Audit Quality Indicators.....	13
2.2.7 Joint Effects of Investor Base, Audit Quality Indicators (AQIs), and Financial Statement Aggregation	17
2.3 Method	19
2.3.1 Participants.....	19
2.3.2 Experimental Design.....	20
2.3.3 Task and Manipulation	21
2.3.4 Response Variable and Post Experimental Questions	23
2.4 Results.....	24

2.4.1 Comprehension Check and Manipulation Checks	24
2.4.2 Hypothesis Tests	25
2.5 Conclusion	28
3. THE IMPACT OF FINANCIAL STATEMENT AGGREGATION, ESTIMATE UNCERTAINTY, AND MISSTATEMENT SIZE ON JUROR JUDGMENTS	29
3.1 Introduction.....	29
3.2 Hypothesis Development	33
3.2.1 Financial Statement Aggregation and Disaggregation	33
3.2.2 Estimate Uncertainty.....	36
3.2.3 Estimate Uncertainty, Income Statement Aggregation, and the Standard of Care	37
3.3 Method	43
3.3.1 Participants.....	43
3.3.2 Experimental Design.....	44
3.3.3 Task and Manipulations	45
3.3.4 Dependent Variables	48
3.4 Results.....	49
3.4.1 Comprehension and Manipulation Checks	49
3.4.2 Hypothesis Tests	52
3.4.2.1 Descriptive Statistics for Standard of Care (H1)	52
3.4.2.2 Test of H1	56
3.4.2.3 Supplementary Analyses Related to H1	57
3.4.2.4 Test of H2	57
3.4.2.5 Supplementary Analyses Related to H2	63
3.4.2.6 Additional Supplementary Analyses.....	68
3.5 Conclusion	68

4. THE OPPOSITE EFFECTS OF HIGH ESTIMATE UNCERTAINTY ON JURORS' JUDGMENTS AND ON LAWYERS' SETTLEMENT NEGOTIATIONS IN AUDITOR NEGLIGENCE LITIGATION	71
4.1 Introduction.....	71
4.2 Hypothesis Development	75
4.2.1 Estimate Uncertainty and Auditors' Litigation Risk	75
4.2.2 Juror Judgments and Lawyer Settlement Negotiations.....	76
4.2.3 Estimate Uncertainty, Juror Judgments, and Lawyer Negotiations in Out-of-Court Settlement	79
4.2.4 Disaggregation, Estimate Uncertainty, and Lawyers' Predictions of Jurors	87
4.3 Methodology.....	89
4.3.1 Participants.....	89
4.3.2 Task and Manipulations.....	90
4.3.3 Response Variables	94
4.4 Results.....	96
4.4.1 Likelihood of Being Settled Out of Court.....	96
4.4.2 Perceptions of Materiality and Estimate Uncertainty	97
4.4.3 Hypothesis Tests	100
4.4.4 Supplementary Analyses.....	109
4.5 Conclusion	110
5. GENERAL CONCLUSION	115
APPENDICES	
A: FIRST STUDY INSTRUMENT SCREENSHOTS	117
B: SECOND STUDY INSTRUMENT SCREENSHOTS.....	141
C: THIRD STUDY INSTRUMENT SCREENSHOTS	162
BIBLIOGRAPHY.....	184

LIST OF TABLES

Table	Page
2.1 Negligence Judgments	26
3.1 Standard of Care	53
3.2 Negligence Judgments	64
4.1 Frequency in Auditor Settlement in Palmrose (1999) Database, by Settlement Type over Time.....	78
4.2 Descriptive Statistics and ANOVAs.....	99

LIST OF FIGURES

Figure	Page
3.1 Standard of Care Judgments	55
3.2 Aggregation \times Estimate Uncertainty Ordinal Interaction, Misstatement Size, Standard of Care, and Negligence Judgments Structural Equation Model.....	59
3.3 Negligence Judgments	66
4.1 Theoretical Structural Model	86
4.2 Structural Equation Model	103

CHAPTER 1

GENERAL INTRODUCTION

Through three independent essays, I intend to explore how estimate uncertainty, financial statement aggregation, audit quality indicators, a company's investor base, and the size of the alleged misstatement can impact auditor liability both in the courtroom, as determined by jurors, and in out of court settlement, as determined by attorneys.

My first essay on auditor liability investigates how a proposed auditing standard (AQIs), an existing financial accounting practice (aggregated vs. disaggregated financial statements), and a company's investor base (institutional vs. individual investors), impact jurors' assessments of auditor negligence following an undetected misstatement in the financial statements. I develop predictions suggesting that these three factors may interact in ways that standard setters do not anticipate. For example, my predictions suggest that the level of aggregation in the financial statements impacts the effectiveness of AQIs in informing jurors' assessments of auditor negligence. In addition, these effects differ depending on whether the company's investor base is primarily individual or institutional investors. Contrary to my predictions, jurors only rely on audit quality indicators to determine auditor liability.

My second essay examines how financial statement aggregation and estimate uncertainty impacts juror assessments of auditor liability. I find that jurors hold auditors to a higher standard of care when (jointly) estimate uncertainty is low and the income statement is disaggregated. In contrast, auditors are held to a lower standard of care when either the income statement is disaggregated or estimate uncertainty is high (or both).

This interaction on the standard of care for auditors, in turn, impacts negligence judgments against auditors. These joint effects occur regardless of whether the range of estimate uncertainty is larger than or smaller than the material misstatement. While prior research suggests that aggregation makes auditors less likely to correct misstatements, my findings suggest (ironically) that it can simultaneously protect auditors from the legal risks of failing to correct some of those material misstatements.

My third essay proposes that the effect of estimate uncertainty on auditor liability depends on whether the case is judged by jurors or negotiated in out-of-court settlement. Using the same experimental task, I predict and find that high estimate uncertainty causes auditors' lawyers to believe that the auditors are more vulnerable for failing to detect a material misstatement and make more concessions in out-of-court settlement negotiation, regardless of whether the misstatement is in an aggregated or disaggregated line-item. Consistent with my theory, these directionally opposite effects stem from lawyers' inability to predict jurors' judgments accurately.

Together, these studies have a number of implications. First, the impact of high estimate uncertainty on auditor liability can go in opposite directions depending on whether the case disposition is determined by jurors or by lawyers negotiating settlement. Second, auditors' legal counsel may erroneously concede during settlement negotiations based on incorrect beliefs about their vulnerability to jurors. Third, while accounting research has focused on juror judgments to proxy for auditor litigation risk, auditors may face very different litigation risk in out-of-court settlement, where the vast majority of auditor liability is determined.

CHAPTER 2

THE IMPACT OF AUDIT QUALITY INDICATORS, FINANCIAL STATEMENT AGGREGATION, AND INVESTOR BASE ON AUDITOR LIABILITY

2.1 Introduction

Recently, the PCAOB and other auditing standard setting bodies have been contemplating mandatory reporting of audit quality indicators (CAQ 2014; PCAOB 2013 Dickens, Fay and Reich 2014). These audit quality indicators (hereafter, “AQIs”) will provide stakeholders engagement-level insight into the quality of the audits being performed by firms. While the AQIs promise to bring greater transparency to the audit process, little empirical research has been done examining the use and perception of these measures by various stakeholders and other important accounting decision-makers. Thus far, much of the debate surrounding AQIs has focused on which metrics could be used to capture audit quality (e.g., Jonas 2013; Martin 2013; CAQ 2014). In this study, I investigate the implications of AQI on jurors’ judgments of auditor negligence. Disclosure of AQIs has been a highly controversial proposal among audit firms concerned with the implications for their litigation risks (Bedard, Johnstone, and Smith 2010). In this study, I investigate different conditions in which disclosure of AQIs may or may not elevate auditor liability.

While auditors may be facing new requirements to disclose AQIs, GAAP allows companies significant discretion in the level of disaggregated information they disclose in the financial statements. As Libby and Emmett (2014) review, at a minimum, GAAP only requires that operating expenses (including all cost of goods sold, selling, general, and

administrative expenses) be broken down into two line-items on the income statement. While companies can voluntarily elect to disaggregate the income statement more (and many do), there is a large variance in the level of disaggregation in publicly filed annual reports, as well as a large variance in which expenses are included in a particular line-item, even within the same industry (Libby and Emmett 2014). GAAP is mostly silent on the question of line-item aggregation, and the few statements by the FASB on it have alternated between positive and negative viewpoints on its costs and benefits for users of the financial statements (e.g., FASB 1984, 1979; Libby and Emmett 2014).

In this study, I investigate how AQIs and the level of financial statement aggregation may jointly impact jurors' assessments of auditor liability in a litigation context. In addition, I examine the effects of these variables when the company's investor base includes both individual and institutional investors. Compared to individual investors, institutional are more sophisticated (e.g., Ke and Ramalingegowda 2005). That is, institutional investors have more resources and ability to process available information behind their investment decisions. Compared to novices, experts assimilate informational cues into their judgments and decisions more efficiently and more effectively (e.g., Johnson 1988), and are therefore generally expected by others to perform better in judgment settings that involve incorporating various informational cues into their decisions (e.g., Camerer and Johnson 1997; Mnookin 2008). Because of this, I theorize that jurors will place different expectations on institutional investors and individual investors in their reactions to AQIs and aggregated financial statement information. Jurors will assign blame for investors' losses following an undetected misstatement to multiple parties, including to the investors themselves (Arel, Jennings, Pany, and Reckers

2012). I expect that jurors will assign blame to auditors differently depending on the type of investor and their different abilities to process AQIs and aggregated financial statement information.

My predictions give rise to possible unintended consequences of AQIs and aggregated financial statements. For example, when the investor base consists primarily of individual investors, I expect that jurors will form auditor negligence judgments consistent with AQIs being diagnostic of audit quality. That is, when the plaintiffs are primarily individual investors, jurors will hold auditors more negligent for an *ex post* undetected misstatement as the AQIs indicate other negative *ex ante* audit quality cues. However, when plaintiffs are primarily institutional investors, I expect that jurors will expect these more expert investors to have assimilated AQIs into their judgments more fully as an *ex ante* audit quality cue prior to (or concurrent with) their investment decision. Consequently, when AQIs are negative, I expect that jurors will hold institutional investors relatively *more* responsible for their decision to invest in the company, having invested in a company with a lower quality auditor. As jurors hold investors more responsible for their own investment losses, they tend to hold auditors less responsible for them (Arel et al. 2012). As a result of this theory, I develop hypotheses that AQIs may have very different and possibly even opposite effects on auditor negligence judgments, depending on the type of investors who experienced the losses.

My findings provide insight for standard setters potential impacts that could arise from mandating disclosure of AQIs. Specifically, jurors only believe auditors to more likely be negligent when the AQIs indicate the auditor performed a lower quality audit.

2.2 Hypothesis Development

2.2.1 Audit Quality Indicators

While investors and other financial statement users can use *ex post outcome* measures as noisy proxies for audit quality (e.g., discretionary accruals, restatements, propensity to issue going concern opinions), very little information is available about the quality of *ex ante* audit *processes*. Furthermore, *ex post* outcomes are a mixture of audit quality and financial reporting quality (i.e., auditor behavior and manager behavior), whereas the quality of audit *inputs* and *processes* are more directly controlled by the auditor. In addition, *ex post* outcomes (even those related to misstatements) are noisier signals of audit quality (than *ex ante* input and process information) since audits only provide reasonable assurance against negative outcomes, but absolute assurance of *ex ante* due professional care (Peecher and Piercey 2008). Because of this, and because of the high social costs of undetected misstatements in high-profile accounting failures, investors, regulators, and groups have called for more disclosure from audit firms on the quality of their audit processes (e.g., PCAOB 2012; POB 2006; Pritchard & Puri 2006; PCA 2012). Recent research shows that investors in particular call for more information about specific audit inputs and processes, rather than outputs (Christensen, Glover, Omer and Shelley 2014).

One proposed solution has been to require firms to measure and disclose a standard set of audit quality indicators (AQIs) (e.g., PCAOB 2013; Jonas 2013; CAQ 2014). While much of the ensuing debate has focused on what measures should be required (e.g., CAQ 2014, Martin 2013; Christensen et al. 2014), there has also been both

strong opposition and support for requiring AQIs and their disclosure at all. As Dickens, Fay, and Reich (2014) note, the frequent expectation expressed in the debate is that AQIs, including firm- and engagement-specific data, would eventually be made public to help investors and other stakeholders assess audit quality. Proponents of AQIs argue that public disclosure would be the very point of AQIs since there is otherwise a paucity of data about the quality of audit processes and specific areas of the audit, especially at the engagement level. Opponents of AQIs argue that their disclosure could cause audit firms to audit myopically to meet the measures (i.e., alter their behavior to posture for the AQIs rather than to minimize detection risk), out of fear of increased litigation risk (Bedard et al. (2010). I investigate the implications of AQIs for auditor liability in a juror setting to investigate when AQIs elevate or diminish auditors' liability risks. This responds to the call of Kachelmeier and King (2002) to use of experiments to test the implications of proposed new disclosures (such as AQIs) before they are implemented or soon after (e.g., Fanning, Agoglia, and Piercey 2015).

2.2.2 Financial Statement Line-Item Aggregation

A large archival research investigates the implications of *business segment* aggregation or disaggregation in the financial statements, but a relatively small and recent research literature has begun examining the implications of financial statement *line-item* aggregation or disaggregation (see Libby and Emett 2014 for a review). International accounting standards generally require some disaggregation of the income statement into distinct line-items, although their rules give companies significant latitude (IASB 2009; Libby and Brown 2013). In contrast, GAAP provides almost no guidance to companies about the level of aggregation or disaggregation that is appropriate (Libby and Emett

2014). For example, Libby and Brown (2014) illustrate alternative representations of an income statement, both acceptable under GAAP, that show operating expenses in as few as two and as many as twelve line-items.

Most research so far has investigated the effects of line-item aggregation on investor decision making. Elliott et al. (2015) use an experimental market in which investors receive earnings information that is either aggregated, disaggregated into recurring earnings components (i.e., income from continuing operations) and non-recurring events (i.e., extraordinary items), or consisting of recurring components only. Aggregation improved market efficiency overall, but long investors tended to mis-use disaggregated non-recurring events. Bonner et al. (2014) find that how investors aggregated or disaggregated information depends on whether and how it combines or disaggregates combinations of gains and losses. Finally, Bloomfield et al. (2015) find no significant effects of line-item disaggregation on credit analysts' judgments, and conclude that standards requiring disaggregation may not meaningfully impact users' judgments.

In an auditing context, Libby and Brown (2013) demonstrate that auditors are more willing to accept misstated financial statements when the misstatement is aggregated together with other, cleaner financial statement accounts in the same line-item. This suggests that aggregation potentially increases systemic audit risk (the risk of materially misstated financial statements with a clean audit opinion), and that managers can potentially use aggregation as a means of concealing earnings management from auditors (cf. Luippold, Kida, Piercey and Smith 2014). Furthermore, in the second study of my dissertation, I find that jurors find auditors less negligent when an undetected

misstatement is aggregated with other, cleaner financial statement accounts than when it is disaggregated in the financial statements, but only for misstatements stemming from accounting estimates of relatively low inherent uncertainty. I found this pattern of results even though, *ex post*, jurors believed that auditors had an unconditionally high obligation to prevent the undetected misstatement, regardless of aggregation, disaggregation, or estimate uncertainty.

2.2.3 Investor Base

Prior accounting research has shown that stakeholders in a company perceive differences in vulnerability between individual and institutional investors (Kang 2015). Individual investors might appear vulnerable for a variety of reasons. Institutional investors are often highly sophisticated investors, highly educated in finance, economic modeling, and accounting while many individual investors lack even a general business background. As a result, individual investors, generally speaking, will have less ability to interpret and use the accounting information provided.

Another reason individual investors could be perceived to be more vulnerable than institutional investors is because they have less access to information. Institutional investors, by definition, are part of financial firms, investing groups, or other large organizations. These groups often provide access to specialized reports, databases, and content normally unavailable outside of the organization. Without access to additional information provided by large financial institutions, individual investors will be more reliant on the audit opinion of the financial statements and less able to supplement their

investment decisions with outside sources which could give them better indication of the quality of the assurance being provided.

Finally, individual investors often will lack the same economic resources that institutional investors have. A common proxy in the archival literature for institutional investors are investment managers who are required to file Form 13F disclosures with the SEC. One of the requirements for an investment manager who files Form 13F is that they must manage at least \$100 million in securities. Individual investors, with their much smaller portfolios, will likely be perceived as being more vulnerable because the same loss or harm that would not be noticed by a institutional investor could devastate a individual investor.

2.2.4 Joint Effects of Aggregation and Investor Type

Pitesa and Thau (2014) find that harm to a more vulnerable group results in harsher moral judgments by third party observers. Because individual investors are a more vulnerable investor base, I would expect higher assessments of auditor negligence when the company's investor base is primarily composed of individual investors.

However, the impact of a company's investor base is likely to be moderated by the level of financial statement aggregation. Prior accounting research has found that auditors and jurors perceive misstatements to be more material when the income statement accounts are disaggregated into more line-items (Libby and Brown 2013). As alleged misstatements are perceived to be more material, they are likely to be perceived to impact and harm investors more. As a result, disaggregating the income statement would be likely increase jurors' negligence assessments against the auditor, since it

increases perceptions of the materiality of misstatement. However, the impact of a more negative outcome on jurors' assessments of auditor negligence should be larger when it results in losses to a more vulnerable group. As a result, this increase in auditor liability is likely to be greater when the company's investor base is primarily individual investors rather than institutional investors. Individual investors, who are perceived as being more vulnerable than institutional investors, will be perceived as lacking the ability to cope with the losses, particularly losses that appear larger and more material. In contrast, for institutional investors, while they will also have higher negligence judgments when the financial statements are disaggregated, they will be perceived as having a greater ability to cope and deal with losses of any size than the more vulnerable individual investors, and as a consequence will have a smaller increase in negligence judgments. I formally state my interaction hypothesis between investor base and financial statement as follows.

H1: Disaggregating the financial statements will lead to a greater increase in jurors' negligence judgments for individual investors than for institutional investors.

2.2.5 Disaggregation and Audit Quality Indicators (AQIs)

Examples of typical AQIs recently proposed include number of hours incurred by specialists and the national office, the audit team's industry experience, training hours of audit personnel, engagement hours, and CPA certification of the audit staff. While these individual AQI metrics may not directly relate to the causal process behind a specific undetected misstatement in a particular area of the audit and of the financial statements, they will likely provide jurors rough impressions of the quality of the auditor. Audit

quality is a difficult construct to define (Francis 2004, 2011). Furthermore, forming a single mental representation is a persistently difficult task for individuals (Camerer and Johnson 1997). In particular, juror's affective reactions to the AQIs are more likely to persist in their working memory than the specific details of the AQIs themselves (cf. Kida, Smith and Maletta 1998). That is, whether the AQIs are generally good or bad is the most likely trait to influence juror decision making further (cf. Kida and Smith 1995). Finally, as jurors sense that they have incomplete information with which to evaluate auditors and attempt to fill in the gaps (cf., Peecher and Piercey 2008), they may assume that, if the AQIs are consistently positive or negative, that other, similar signals of audit quality exist as well.

Normally, the higher and better the AQIs are, the more likely the auditor has performed a good audit and the less likely jurors will hold the auditor negligent. However, prior research indicates that the impact of *ex ante* audit quality cues is likely to be diminished or eliminated when negative outcome information about an undetected material misstatement is provided (Kadous 2000, Kadous 2001). In my setting, financial statement aggregation or disaggregation does not actually alter the existence of a material misstatement itself. However, the second study in my dissertation shows aggregation (disaggregation) of the income statement can make an undetected material misstatement appear less (more) material, even when the magnitude of the material misstatement and its impact on net income are held constant. Thus, I still expect that when the financial statements are disaggregated, jurors will perceive the *ex post* misstatement to be more material, and will react less to the AQIs as *ex ante* indicators of audit quality, as they assess auditor negligence. Thus, when financial statements are disaggregated, I would

expect that AQIs would not impact the jurors' negligence judgments to the same degree as they would if the financial statements were aggregated. When the financial statements are aggregated, jurors perceive the alleged misstatement to be less severe and are more likely to react primarily to the *ex ante* measures of audit quality. Thus, when the financial statements are aggregated, I expect jurors to use the AQIs in their negligence judgments more and judge negligence as increasing when the AQIs show decreasing levels of audit quality. I formally state this interaction prediction as follows:

H2: The difference between jurors' negligence assessments for good, mixed, and bad AQIs will be greater when the financial statements are aggregated than when they are disaggregated.

If supported, this hypothesis suggests that jurors' attention to *ex ante* audit cues depends not only on whether or not negative outcome information is provided (Kadous 2000, 2001), but also extends to the *formatting* of a material misstatement (i.e., aggregated with other accounts or not), holding constant the material misstatement itself, when it is provided, and its impact on earnings.

2.2.6 The Joint Effect of Investor Base and Audit Quality Indicators

An extensive literature in psychology distinguishes between conditions in which people have the ability to make good or bad decisions for themselves, and conditions in which people are the target of others' good or bad decisions (Eshleman 2004, Gray et al. 2007, Gray and Wegner 2009, Bernstein 1998, Bratman 1987). Decisions of innocence, victimization, and blameworthiness are influenced by whether individuals are relatively

more ability to make good or bad decisions, or whether they are the target of others' good or bad decisions (Alicke 2000, Pizarro et al. 2003).

Institutional have more resources for and are more expert at processing available information behind their investment decisions (e.g., Ke and Ramalingegowda 2005; Piotriski and Roulstone 2004). In contrast, individual investors are more likely to trade on poor information, to misuse information, or trade without information (e.g., DeLong, Shleifer, Summers, and Waldmann 1989, 1991; Fanning et al. 2015). As such, individual investors seem particularly dependent on corporate governance mechanisms in order to realize safe investment outcomes.

Compared to novices, experts are generally expected by others to perform better in judgment settings that involve incorporating various informational cues into their decisions (e.g., Camerer and Johnson 1997; Johnson 1988; Mnookin 2008). Because of this, jurors are likely to place different expectations on institutional investors and individual investors. Because audits provide only reasonable assurance against undetected misstatements, investors retain some residual risk of undetected material misstatements, even after an independent audit is conducted. Consistent with this, empirical evidence shows that jurors will assign blame for investors' losses following an undetected misstatement to multiple parties, including to the investors themselves Arel et al. (2012). Accordingly, I expect that jurors will hold institutional investors to a higher standard for assuming residual misstatement risk and for processing available cues than they hold individual investors. That is, jurors will hold institutional investors' investment decisions in a "buyer beware" mindset, in which investors are more responsible to internalize all of the risks that they face, including the implications of AQIs.

These different expectations for individual and institutional investors overall suggest that jurors' will view the implications of AQIs differently depending on the type of investors who lost money due to an audit failure. When the investor base consists primarily of individual investors, I expect that jurors will form auditor negligence judgments consistent with their affective reactions to the AQIs. That is, when the plaintiffs are primarily individual investors, I expect that jurors will (quite simply) hold auditors more (less) responsible for plaintiffs' losses when AQIs are more suggestive of other low (high) audit quality cues.

In contrast, when the investor base consists primarily of institutional investors, jurors will recall the valence of the AQIs (cf. Smith and Kida 1995), and will more likely to expect that these more expert investors should have assimilated signals of audit quality into their judgments more fully as they made their investment decisions. Consequently, when AQIs are negative, I expect that jurors will hold institutional investors relatively *more* responsible for their decision to invest in the company, having chosen to rely on a lower-quality auditor. This is consistent with prior auditor liability research which has shown that the more knowledgeable a person is to process relevant information and make a judgment, the higher the blame they are assessed for failing to properly process that information when the judgment is proven to be incorrect (Grenier, Pomeroy, and Stern 2015). It is also consistent with prior research suggesting that jurors have different affective reactions to different plaintiffs (e.g., Mazella and Feingold 1994) and as a result would likely hold them to different standards for their investment decisions. As jurors hold institutional investors more responsible for their own investment losses, they would then tend to hold auditors less responsible for them (Arel et al. 2012).

Similarly, when the AQIs are relatively positive, jurors will likely expect institutional investors to have relied more (than individual investors would) on these (and potentially other) indicators of audit quality. In the event of an undetected misstatement, institutional investors were relying on ostensibly high quality auditors more, and therefore appear less culpable for negative outcomes that follow. In this case, I expect that jurors will hold auditors relatively *more* negligent when the plaintiffs are institutional investors and the AQIs are positive. Note that this prediction is the opposite pattern that I expect when the plaintiffs are individual investors. That is, jurors will hold auditors *less* (*more*) responsible for institutional investors' losses when AQIs are suggestive of low (high) audit quality (i.e., "buyer beware").

If supported, these different effects would also suggest that, when AQIs are negative, jurors will hold auditors more responsible for individual investors' losses than for institutional investors' losses (because they would ostensibly be more forewarned of lower audit quality; "buyer beware"). In contrast, when AQIs are positive, jurors will hold auditors more responsible for institutional investors' losses than they would individual investors' losses (because institutional investors would process positive audit quality signals more and therefore rely on them more). This discussion suggests an interaction and specific simple effects. Stated formally:

H3a: AQI × Investor Base Interaction: Negative (positive) AQIs will increase (decrease) jurors' judgments of auditor negligence more when the company's investor base consists primarily of individual investors than when it consists primarily of institutional investors.

H3b: Simple effects of AQI given Investor Base: Negative (positive)

AQIs will increase (decrease) jurors' judgments of auditor negligence when the company's investor base consists primarily of individual investors, but will decrease (increase) jurors' judgments of auditor negligence when it consists primarily of institutional investors.

H3c: Simple effects of Investor Base given AQI: Jurors' negligence judgments

will be higher for individual investors than institutional investors when the auditor has better AQIs, however, jurors' negligence judgments will be lower for institutional investors than individual investors when AQIs are worse.

If supported, these hypotheses suggest that, contrary to concerns that disclosure of AQIs will uniformly elevate auditors' litigation risk, whether it does so or not will depend on the type of investors primarily invested in a particular audit client.

2.2.7 Joint Effects of Investor Base, Audit Quality Indicators (AQIs), and Financial Statement Aggregation

The interaction between AQIs and the company's investor base (H3a) could also be moderated by the level of aggregation in the company's financial statements. In the second study of my dissertation, disaggregating the financial statements makes the alleged misstatement of an account appear more material and larger to jurors. As the alleged misstatement appears larger and more material to jurors, they will pay more attention to the perceived size of the misstatement and less on the company's investor base or the AQIs. That is, just as I expect disaggregation of a material misstatement to cause the negative outcome to dominate jurors' consideration of *ex ante* AQI cues (as I

predicted in H2), I also expect disaggregation to of a material misstatement to dominate jurors' consideration of how different investors use and rely on *ex ante* AQI cues differently. Thus in the disaggregated condition, I would expect the company's investor base and AQIs to be less influential on juror's assessments of auditor negligence because the participants are more heavily using the size of the alleged misstatement in their decision-making. In contrast, when the financial statements are more aggregated, jurors will be less influenced by the size of the alleged statement and base their decision more on other factors, including the company's AQIs and investor base. I formally state the hypothesis as follows:

H4: The AQI \times Investor Base interaction predicted in H3a will be larger when the material misstatement is in an aggregated financial statement line-item than when it is disaggregated.

If supported, this hypotheses suggests that the implications of AQI disclosure for audit firms depends partially on whether investors are primarily institutional or individual investors, particularly when financial statements are more aggregated. This conclusion would inform the debate over disclosure of AQIs, in which opponents argue that they will unfairly and unconditionally elevate auditors' litigation risk. For example, negative AQIs may not necessarily have this effect as strongly the investors are primarily institutional, particularly when the financial statements are more aggregated.

2.3 Method

2.3.1 Participants

I recruited 691 participants from Amazon Mechanical Turk. Mechanical Turk participants have been shown to be at least as representative of the US adult population as other common participant pools (Paolacci, Chandler, and Ipeirotis 2010; Buhrmester, Kwang, and Gosling 2011; Horton, Rand, and Zeckhauser 2011) and commonly used in prior accounting research needing potential juror participants (e.g., Grenier et al. 2014; Maksymov and Nelson 2014).

I pre-screened potential participants in multiple ways. First, I only used Mechanical Turk participants who had approval rates over XX% for at least XX past Mechanical Turk tasks (which are based on the rate at which demanders of online labor in the Mechanical Turk marketplace have approved and identified the individual participant as providing quality work and responses), who are located in the United States, and who have not taken the survey previously. Second, potential study participants who matched this profile filled out a demographics survey indicating whether they are US citizens at or above the age of 18 (which are requirements to be a juror in the US). They answered this question without yet knowing that there would be an opportunity to participate in an additional study for more compensation. Third, this demographic survey also included an attention check question. Specifically, sole instructions for the materials began with a notice labeled “**IMPORTANT**” (bolded), followed by the correct answer they should respond with to a subsequent survey question on the next screen asking which industry they most closely associated with northern

Rhode Island. Participants were compensated \$0.20 for completing this brief survey. Potential participants who were not automatically screened out by the attention check question then learned of the opportunity to earn an additional \$2.50 if they participated in the study, and an additional \$1.00 if they passed two attention check questions in the study. These payments meet or exceed the best practice norms for Amazon Mechanical Turk for the amount of time required to complete the tasks (Downs, Holbrook, Sheng, and Cranor 2010). Finally, the experimental instrument gathered time spent on the task and in different parts of the task. The use of pre-screening, attention check questions, best practice payment rates per hour, additional payment contingent on attention, and gathering task time data are all recommended to ensure high-quality responses on Amazon Mechanical Turk (Downs et al. 2010). Out of the original 691 participants, only 434 passed the screening questions and decided to participate in the main study.

2.3.2 Experimental Design

My experiment employs a $2 \times 3 \times 2$ between-subjects design. I manipulate the primary *investor base* of the company (institutional investors vs. individual investors), the overall interpretation of the *AQIs* (good vs. mixed vs. bad), and the level of *aggregation* (more aggregated vs. more disaggregated). Participants were randomly assigned to experimental conditions by the Qualtrics survey that I posted to the Amazon Mechanical Turk website.

2.3.3 Task and Manipulation

Participants read an adapted juror case study that has been extensively used in prior research (e.g., Kadous 2000, Peecher and Piercey 2008).¹ Similar to Peecher and Piercey (2008) and the second study of my dissertation, I provided background information that explained relevant accounting and legal terms (e.g. materiality, misstatement, reasonable assurance, negligence) that might be unfamiliar to participants but would be explained during a courtroom trial. The background information also described the role and function of the auditor and what would happen if the auditor failed to exercise due care. To encourage attention, the instructions told participants that the task would include review questions to ensure that participants read and understood the concepts covered.

Participants then read about a fictional company, Big Time Gravel that is audited by Jones & Company. They learned that Big Time Gravel has highly customizable machinery that is neither bought nor sold on the open market, and therefore does not have a readily available market value. During the auditors' test of asset impairment, they assigned a reasonable valuation of the machinery between \$450 and \$550 million. Since management of Big Time Gravel assigned a value of \$545 million, they recorded a \$10 million impairment loss in the financial statements, which Jones & Company had deemed acceptable. Participants then learned that the company's machinery has experienced difficulty, triggering enormous losses for the Big Time Gravel and its investors.

¹ The case was also reviewed for realism by four legal professionals with a combined 38 years of legal experience, including a former law school dean and a clerk for one of district courts of the United States.

At this point in the case, participants encountered my *investor base* manipulation. In the individual (sophisticated) *investor base* condition, participants are informed that 85% of the company's investor base is composed of individual (institutional) investors including retirees, current and former employees, and other people saving money (pension funds, hedge funds, mutual funds, and Wall Street investment companies that manage at least 100 million). Participants are then informed that, compared to the other type of investor, these individual (institutional) investors generally have less (more) resources, have less (more) access to information about a company, and are often less (more) highly educated about investments.

Participants are then informed that the investors have decided to sue Jones and Company. They are provided information regarding the *AQIs* by an expert witness. In the good (bad) *AQI* condition, the expert witness pointed out that all six of the highlighted *AQIs* indicated higher (lower) audit quality than for the previous year. In the mixed *AQI* condition, two *AQIs* indicated higher audit quality, two indicated lower audit quality, and two indicated similar audit quality to the previous year. In all conditions, participants were informed that there were no significant changes to the operations or risks the Big Time Gravel faced in the year of alleged misstatement compared to the prior year.

Participants then read that witnesses for the investors testified the true value of the machinery should have been \$495 million and that a \$60 million impairment loss should have been recorded instead of \$10 million. If Big Time Gravel had recorded a \$60 million impairment loss, operating income would be reduced by 1.3% and the company would fail to meet analysts' earnings target for the company, making the alleged misstatement both quantitatively significant using conventional materiality cutoffs (e.g.,

Hatfield, Houston, Stefaniak, and Usrey al. 2010) and qualitatively material (SEC 1999). Investors allege that if the loss of \$60 million was to have been recorded by the company, they would have not remained invested in the company.

Finally, similarly to the second study of my dissertation, participants read an excerpt from Big Time Gravel's income statement, with columns showing the numbers as reported in the audited financial statements, the numbers as the investors' expert witnesses testified that they should have been reported, and the difference between the two as a dollar and percentage difference. In the more (less) aggregated financial statement conditions, "Cost of goods sold" was reported as a single line-item (broken down into nine separate line-items, including a separate line-item for the impairment loss on the machinery) (cf. Libby and Emett 2014).

2.3.4 Response Variable and Post Experimental Questions

The primary dependent variable for this study is *negligence*, or participants' ratings of how negligent the auditors were in failing to accurately assess the impairment loss of Big Time Gravel's Machinery. It is measured on a 10-point scale from "Not at all negligent" to "Completely negligent".

I also gathered a series of supplemental measures from participants. First, I asked participants how material of an impact the misstatement would have on the judgment of a reasonable person relying on the financial statements (*materiality-overall*), as well as how material its impact was on the financial statement line-item that it appeared in (*materiality-line-item*). I then asked participants to rate how much they could relate to the investors in the case (*investor relatability*), how much they believed the investors were significantly impacted by their losses (*investor impact*), and how much the investors

relied on the financial statements for their investment in Big Time Gravel (*investor reliance*). Additionally, I asked participants how vulnerable they believe the investors were (*investor vulnerability*), followed by three questions designed to investigate why participants might view individual investors as more vulnerable than institutional investors, and which aspect of their different levels of vulnerability might play a role in observed effects between my manipulations and the dependent variable. Specifically, I asked them the extent to which they believe the investors in this case were vulnerable due to the resources they had (*investor vulnerability–resources*), due to the access to information that they had to evaluate Big Time Gravel (*investor vulnerability–information access*), and due to their ability to evaluate Big Time Gravel’s financial statements (*investor vulnerability –ability*). All of these post-experimental questions were measured on 10-point scales.

2.4 Results

2.4.1 Comprehension Check and Manipulation Checks

Of the 434 participants, 27 participants did not finish the study and were removed from analysis. Participants answered four questions checking their understanding of materiality, reasonable assurance, negligence, and other legal/auditing concepts. Their accuracy ranged from 98.5 to 99% (401 to 403 out of 407) on the four questions, indicating a high level of comprehension of the background information. Thus, the participants appeared to have the same basic auditing and legal understanding a reasonably attentive juror would have. To make sure participants paid attention to my *AQIs* and *investor base* manipulations, I asked participants to identify the investor base of

the company and the audit quality indicators. 399 participants correctly identified the audit quality indicators of Big Time Gravel while 402 correctly identified the investor base of the company.²

To check my *aggregation* manipulation, I use my *materiality-line-item* and *materiality-overall* measures and find that participants perceived the alleged misstatement to be more material to the line item (6.40 vs. 5.56, $t=3.38$, $F=11.475$, $p=.001$) and more material to the financial statements as a whole (5.70 vs. 6.40, $t=2.79$, $F=7.819$, $p=.005$) when the financial statements were disaggregated instead of aggregated. Thus my manipulations appear to have been successful.

2.4.2 Hypothesis Tests

Table 2.1 provides the descriptive statistics and ANOVA results for how negligent participants believed Jones and Company were in performing the audit for Big Time Gravel. The higher the rating, the more the participants believe the auditor will likely be found negligent.

² I drop participants who did not complete the study or failed the manipulation attention check questions from further analysis resulting in a final sample of 396 participants. Results remain qualitatively unchanged if I include or drop the participants who failed the review questions.

Table 2.1
Negligence Judgments

Panel A: Descriptive statistics

Means for *negligence* judgments, standard deviations, and sample sizes by experimental condition

	<i>Aggregation</i>					
	Aggregated		Disaggregated		Overall	
	<i>Investor Base</i>		<i>Investor Base</i>		<i>Investor Base</i>	
<i>AQIs</i>	Individual	Institutional	Individual	Institutional	Individual	Institutional
Good						
Mean	4.47	4.41	5.12	4.54	4.78	4.48
st. dev. (n)	2.66 (36)	2.65 (32)	2.74 (33)	2.74 (35)	2.70 (69)	2.68 (67)
Mixed						
Mean	4.63	4.69	4.18	5.39	4.40	5.03
st. dev. (n)	1.96 (32)	2.46 (35)	2.46 (33)	2.60 (33)	2.22 (65)	2.53 (68)
Bad						
Mean	5.29	6.22	5.80	5.93	5.52	6.08
st. dev. (n)	2.67 (35)	2.18 (32)	2.34 (30)	2.30 (30)	2.52 (65)	2.23 (62)

Panel B: Analysis of variance for *negligence* judgments

Source	Sum of Squares	df	Mean Square	F	p
Investor base	7.87	1	7.87	1.26	0.262
AQIs	110.55	2	55.27	8.86	< 0.001
Aggregation	4.49	1	4.49	0.72	0.397
Investor base × AQIs	18.55	2	9.27	1.49	0.228
Investor base × aggregation	0.07	1	0.07	0.01	0.915
AQIs × aggregation	1.62	2	0.81	0.13	0.878
Three-way interaction	18.24	2	9.12	1.46	0.233
Error	2486.00	384	6.24		

H1 predicted that disaggregating the financial statements will lead to a greater increase in jurors' negligence judgments for individual investors than for institutional investors. However, there is no significant Aggregation \times Investor base interaction (p-value= 0.915), thus H1 is not supported. H2 asserted that the difference between jurors' negligence assessments for good, mixed, and bad AQIs will be greater when the financial statements are aggregated than when they are disaggregated. Unfortunately, there was no significant AQI \times Aggregation interaction (p-value=0.878), thus H2 is not supported. H3 suggests that negative (positive) AQIs will increase (decrease) jurors' judgments of auditor negligence more when the company's investor base consists primarily of individual investors than when it consists primarily of institutional investors, however there is no significant AQI \times Investor base (p=0.228), thus H3 is not supported. Finally, H4 predicts the interaction found in H3 to be stronger when the financial statements are aggregated. Unfortunately, there is no significant three way interaction (p-value=0.233), thus H4 is not supported.

The only significant effect on participant's assessments of auditor negligence appear to be a main effect of the audit quality indicators (p<.001). Jurors believed the auditor would be more likely to be found negligent when the audit quality indicators were bad as opposed to good (5.80 vs. 4.63, t=3.80, F=14.46, p<.001) or mixed (5.80 vs. 4.72, t=3.51, F=12.29, p=.001). They did not, however, feel the auditor would be more likely to be found negligent when the audit indicators were good as when they were mixed (4.63 vs. 4.72, t=0.28, F=0.08, p=.778). Thus, auditors are only held to be more negligent when the audit quality indicators indicate a poor audit was performed by the auditor.

2.5 Conclusion

I conducted an experiment to examine the joint influence of AQIs, financial statement aggregation, and investor base, or jurors' judgments of auditor negligence. My findings could provide insight for standard setters about consequences of mandatory AQI disclosure in a litigation setting. While practitioners have expressed concerns about AQIs generally increasing their risk of litigation, my results suggest that this is only a concern when the AQIs indicate a poorly performed audit.

Like all empirical research, this study has limitations. There are a number of different factors that relate to the task, decision-maker, and legal environment that I do not examine that could impact my findings. For example, future research could examine different AQIs, or examine their disclosure or lack of disclosure under different regulatory conditions. These or other facets of the task and environment could be fruitful avenues for future research.

CHAPTER 3

THE IMPACT OF FINANCIAL STATEMENT AGGREGATION, ESTIMATE UNCERTAINTY, AND MISSTATEMENT SIZE ON JUROR JUDGMENTS

3.1 Introduction

In the United States, accounting standards require very little disaggregation of the income statement. As Libby and Emett (2014) point out, U.S. standards only require that operating expenses be broken into (1) cost of sales and (2) a single line-item for selling, general, and administrative expenses on the income statement, and (while some companies disaggregate these amounts considerably) many report them in this minimal way. Further, U.S. standards provide little guidance as to which expenses fall into each of these categories, and, without guidance, companies vary considerably in what they do and do not include within each of these line-items, even within the same industry (Libby & Emett, 2014). In contrast to the U.S., international accounting standards generally require more disaggregation of the income statement, although those rules allow companies significant discretion as well (IASB, 2009; Libby & Brown, 2013; SEC, 2011). Chen, Miao, and Shevlin (2015) demonstrate archivally that there is a wide variance in the level of line-item aggregation or disaggregation in practice, and that more aggregation leads to larger analyst forecast errors. Libby and Brown (2013) demonstrate that auditors are less likely to correct misstatements when they are aggregated with other accounts into a single income statement line-item. Further, they show that there is little agreement among auditors about whether the aggregation or disaggregation of line-items matters to them, or about what professional standards require. Thus, managers could

potentially use aggregation to manipulate the appearance of a company in audited financial statements.

If auditors are less likely to correct misstatements that occur in aggregated income statement accounts (Libby & Brown, 2013), then aggregation potentially increases the risk of materially misstated financial statements with a clean audit opinion. In this paper, we investigate whether aggregation could simultaneously help *protect* auditors from exposure to the legal risks of uncorrected material misstatements. If so, then the lack of clear guidance in accounting and auditing standards on aggregation or disaggregation in income statements may ultimately allow more misstatements in audited financial statements while (ironically) also helping provide a critical gatekeeper (the auditor) with shelter from the legal costs of more misstatements in audited financial statements. Although this would be contrary to the normal intent of standard setters, U.S. standards are mostly silent on the issue of aggregation, and the few opinions that its standard setting body has offered on aggregation have been both positive and negative (e.g., FASB, 1979, 1984; Libby & Emett, 2014).

I investigate the effect of income statement aggregation on jurors' assessments of auditors following an uncorrected material misstatement in the financial statements that resulted in losses incurred by plaintiffs. I examine this in settings of uncorrected material misstatements related to accounting estimates of either high or low estimate uncertainty. Research has expressed concerns over high levels of estimate uncertainty unfairly increasing auditors' litigation risks, especially when the amount of estimate uncertainty exceeds the size of alleged material misstatements (e.g., Christensen, Glover, & Wood, 2012; Bell & Griffin, 2012). Using prior research and theory, I predict that the

combination of a material misstatement in a disaggregated income statement and low estimate uncertainty will lead jurors to increase the standard of care that they mentally hold auditors to for (failing to) detect and correct the material misstatement. This increase in the standard of care that auditors are held to, in turn, increases jurors' assessments of the negligence of the auditors during their performance of the audit. An implication of my findings is that, by standard setters allowing a wide variance in the level of income statement aggregation in practice (Libby & Brown, 2013), higher levels of income statement aggregation can allow auditors to avoid legal exposure for failing to detect misstatements of low estimate uncertainty.

Using an experiment, I find evidence supportive of my theory and hypotheses. Specifically, participants in the role of jurors read an experimental case of materially misstated financial statements that carried a clean audit opinion, and I manipulated the presentation of the income statement (more aggregated or more disaggregated) and the level of estimate uncertainty related to the misstatement (higher or lower). While the misstatement is material in all experimental conditions, I also manipulate the size of the material misstatement, to test my predictions under both conditions in which the range of estimate uncertainty is both smaller than and larger than the alleged material misstatement (Christensen et al., 2012). My findings suggest that the joint effect of aggregation and estimate uncertainty on jurors' standard of care judgments and on their negligence judgments occur across both types of scenarios.

My findings have implications for the small but growing literature on financial statement line-item aggregation and disaggregation. For example, prior research suggests negative effects of aggregation on auditors' judgments (Libby & Brown, 2013), both

negative and positive effects on investors' judgments (Elliott, Hobson, & White, 2015), and no effects of aggregation on experienced credit analysts' judgments (Bloomfield, Hodge, Hopkins, & Rennekamp, 2015). My study examines the issue within an auditor litigation context and suggests that allowing aggregation may help shelter auditors from legal exposure due to uncorrected misstatements with inherently lower estimate uncertainty.

My findings also have implications for the auditing literature on estimate uncertainty. Prior auditing research has expressed significant concern that requiring auditors to express an opinion on accounting estimates with wide-ranging estimate uncertainty potentially opens up auditors to unacceptably high litigation risks (e.g., Christensen et al., 2012; Bell & Griffin, 2012). In contrast, my study suggests that high estimate uncertainty may have the opposite effect on litigation risks under certain conditions. Specifically, jurors appear to recognize that auditors have less ability to accurately make valuations of inherently high estimate uncertainty. Furthermore, while jurors recognize that auditors should have more ability to detect low-uncertainty misstatements, they nevertheless hold auditors to a lower standard of care when the income statement is aggregated. Thus, once auditors are in litigation due to an undetected misstatement, high estimate uncertainty can potentially decrease (rather than increase) their litigation risks under common conditions.

My findings also have implications for the literature on auditor negligence litigation. Across all of my experimental conditions, participants in my study believed that auditors had a uniformly high obligation to correct the material misstatement. Yet, whether they held auditors responsible for failing to do so depended on the joint effects

of aggregation and estimate uncertainty. This suggests a disconnect between jurors' perceptions of auditors obligations and the extent to which they hold auditors responsible for failing to meet those obligations.

Finally, these findings should be informative to standard setters. That is, standard setters have viewed income statement line-item aggregation as a generally harmless choice or, in some ways, even benign (Libby & Emett, 2014; Libby & Brown, 2013). Yet, aggregation may result in both an increased likelihood of uncorrected misstatements in audited financial statements and *simultaneously* reduced legal implications for some of those uncorrected material misstatements. Thus, standard setters' current guidance level may carry spillover effects that they do not intend.

3.2 Hypotheses Development

3.2.1 Financial Statement Aggregation and Disaggregation

Nearly all research on the aggregation or disaggregation of accounting information uses archival methods to focus on the level of disaggregation into different operating segments (i.e., "segment reporting") in the financial statements, as opposed to the disaggregation of financial statement line-items (see Libby & Emett, 2014, for a review).³ However, recent archival work by Chen et al. (2015) focuses on line-item aggregation by examining its variance among U.S.-listed public companies by counting the number of non-missing items from financial statement subtotals in the Compustat

³ When firms disaggregate accounting information into fewer reporting segments, their reporting decision can be driven by a desire to present themselves opportunistically by burying segment losses or by a reluctance to reveal proprietary information about a profitable segment to competitors (e.g., Bens, Berger & Monahan, 2011; Berger & Hann, 2007; Botosan & Stanford, 2005). Users of financial statements generally benefit from more disaggregation into segment-level information (e.g., Berger & Hann, 2003; Ettredge, Kwon, Smith, & Zarowin, 2005). However, regulatory requirements that increase the level of this disaggregation may also at least temporarily increase overall uncertainty for analysts (Botosan & Stanford, 2005).

database. Consistent with Libby and Emmett's (2014) review, Chen et al. (2015) find wide variance in the level of line-item aggregation or disaggregation in practice. Furthermore, they find that aggregation in audited financial statements is correlated with larger analyst forecast errors and other indicators of lower transparency.

Experimental research has focused on the level of disaggregation of financial statement line-items. The existing body of research is small and presents mixed findings about whether and how aggregation or disaggregation of financial statement line-items influences users' judgments. Libby and Brown (2013) show that auditors are less likely to correct misstatements when they are aggregated with other accounts into a single income statement line-item, suggesting that aggregation can lead to more material misstatements propagating into audited financial statements. In contrast, Bloomfield et al. (2015) do not find systematic effects of aggregation or disaggregation on the judgments of credit analysts. In that study, analysts were asked to analyze the financial statements of two companies and provide creditworthiness judgments. Information about relevant operating risks of the companies, however, were placed in two income statement accounts that either were or were not aggregated. When participants received financial statements disaggregating the relevant information, analysts' ability to identify relevant operating risks depended on the location of the disaggregated information in the financial statements and the format of the financial statements. However, for the participants who received aggregated financial statements, their judgments were not systematically different from any of the participants who received disaggregated information, regardless of where it was presented or how the financial statements were formatted. Thus,

Bloomfield et al. (2015) caution standard setters that aggregation or disaggregation may not incrementally influence users' judgments.

Elliott et al. (2015) examine a laboratory market's processing of earnings information that is either aggregated, disaggregated into persistent earnings components versus non-persistent earnings events, or consisting of persistent components only. While disaggregation generally improved market efficiency, long investors were more likely to erroneously interpret the disaggregated, non-persistent earnings events as evidence of persistent good news. Thus, the benefits of disaggregation may depend on the type of investor and their ability to incorporate the information into their judgments in a non-biased manner. Finally, Bonner, Clor-Proell, and Koonce (2014) similarly suggest that the benefits or drawbacks of aggregation may depend on other factors. Using MBA students in the role of managers and in the role of investors, Bonner et al. (2014) provide evidence that managers aggregate losses and disaggregate gains in order to present the company in as favorable a light as possible, and that these aggregation and disaggregation presentation tactics, in turn, influence investors' impressions of the company. Thus, whether investors would benefit most from aggregation or disaggregation depends on the nature of the gain or loss.

Overall, prior research suggests that whether and when financial statement users benefit from line-item disaggregation may depend on a variety of factors related to the task, judgment environment, and the decision maker. As Libby and Emett (2014) note, the research to date is small, and further research is warranted. While existing research suggests that line-item aggregation may increase the likelihood of the auditor allowing uncorrected misstatements into the financial statements (Libby & Brown, 2013), I focus

on the implications of aggregation on auditor's responsibility for uncorrected misstatements. Next, I develop theory that juror judgments depend jointly on financial statement aggregation and estimate uncertainty.

3.3.2 Estimate Uncertainty

Auditors are increasingly responsible to form opinions about valuation estimates for illiquid assets and liabilities for which observable market prices are unavailable and estimation techniques are fraught with uncertainty (e.g., Griffin, 2014). Recent research has focused on the difficulties that high levels of estimate uncertainty place on the audit profession. Auditors may not have the expertise to understand many complex estimates, and they may evaluate complex estimates using approaches more appropriate for verifying objective transactions (Griffith, Hammersly, & Kadous, 2015a). Improving the audit of complex estimates may require fundamental adjustments to the overall audit approach (Bell & Griffin, 2012; Griffith, Hammersly, Kadous & Young, 2015b). Of particular concern, some estimates come with ranges of uncertainty so large that they exceed materiality thresholds, and market participants may not recognize the especially difficult position that this places auditors in for undetected material misstatements that are within the range of estimate uncertainty (Christensen et al., 2012). As a result, researchers have expressed concern that high levels of estimate uncertainty may increase auditors' litigation risk onerously, despite the level of uncertainty potentially being beyond the auditors' ability to fully control (e.g., Christensen et al., 2012; Bell & Griffin, 2012).

While high levels of estimate uncertainty may increase the inherent risk of material misstatement in the financial statements (e.g., Griffith et al., 2015a), Griffin

(2014) finds that auditors generally respond to higher inherent uncertainty in management's estimate by requiring more audit adjustments. Thus, the net effect of estimate uncertainty on actual auditor litigation is unclear. Recent archival evidence on estimate uncertainty and audit fees suggest that auditors price the audit under a belief that higher levels of estimate uncertainty overall tends to increase their litigation risks (Goncharov, Reidl, & Sellhorn, 2014). Furthermore, archival evidence suggests that higher estimate uncertainty strains the auditor-client relationship across a variety of measures, presumably reflecting a belief by auditors that estimate uncertainty increases their legal risks (Ayers, Neal, Reid, & Shipman, 2014). Thus, auditors appear to believe that high estimate uncertainty increases their own litigation risks by more than the effects of any offsetting changes to the audit approach that the uncertainty may prompt.

3.2.3 Estimate Uncertainty, Income Statement Aggregation, and the Standard of Care

While high estimate uncertainty may ultimately increase the probability of auditors entering into litigation, it remains an open question how high levels of estimate uncertainty will influence jurors' judgments of auditors once they are in litigation. In this section, I use prior research and theory to predict that high estimate uncertainty can actually decrease (rather than increase) auditors' litigation risks, depending on whether or not the misstatement is aggregated with other accounts in its income statement line-item, by affecting the standard of care that jurors hold auditors to.

The standard of care that jurors hold auditors to is an important factor in jurors' negligence judgments (Kadous, 2000; Maksymov & Nelson, 2014). It represents jurors' mental representations of the level of work and care that a properly conducted audit

would have engaged in to detect material misstatements (Kadous, 2000). As Peecher and Piercey (2008) note, jurors are relative novices with auditing and accounting contexts and are at a tremendous disadvantage understanding and interpreting the *ex ante* sufficiency of specific aspects of audit work (e.g., appropriate sample sizes or hours budgeted to a task). As a result, jurors are unlikely to spontaneously form precise expectations about the quantity or nature of audit specific procedures that auditors should have performed *ex ante* to achieve a specific audit objective. Rather, jurors are more likely to form a more vague mental representation (cf. Wallsten, 1990) of whether a properly conducted audit would have prevented the material misstatement under the specific conditions of the case (cf. Kinney & Nelson, 1996; Kadous, 2000). The more that jurors believe that a properly conducted audit would have detected the material misstatement in a particular setting, the higher of a standard they are to holding auditors to for failing to do so. Thus, based on prior theory and research, I describe this vague mental representation of what a properly conducted audit would have done as juror's *standard of care*.

Peecher and Piercey (2008) suggest that jurors, lacking complete information and expertise to interpret the sufficiency of *ex ante* audit work on their own, will search for other cues to help them assess auditors. Specifically, jurors will attempt to interpret the incomplete information they have about the *ex ante* work done at the time of the audit by using attributes of the *ex post* material misstatement observed (Kadous, 2000; Peecher & Piercey, 2008).

Aggregation or disaggregation is likely to be one such attribute of a material misstatement affecting jurors' judgments. Holding the size of a material misstatement and

its other qualitative factors⁴ constant, a misstatement is likely to appear more salient when it appears on the income statement in its own account as a single line-item. In contrast, when the misstated account is aggregated with other (non-misstated) accounts into a single line-item, the impact of the misstatement should be diluted in the minds of jurors. As a result of this dilution effect (cf. Fanning, Agoglia, & Piercey, 2015), I expect that, *ceteris paribus*, a material misstatement will appear to jurors to have a larger (smaller) impact on the financial statements when its account is disaggregated from (aggregated with) other accounts in its income statement line-item.

Thus, disaggregation of a material misstatement makes it appear more salient. However, as I discuss next, the impact of disaggregation on jurors' judgments of auditors likely depends on the level of inherent estimate uncertainty surrounding the misstatement.

There are at least two possible viewpoints for predicting how jurors will react to high levels of estimate uncertainty. Under one view, jurors learning that there was high estimate uncertainty surrounding an undetected misstatement will hold the auditor more culpable for not being more careful and expressing an incorrect audit opinion when there was high estimate uncertainty. This viewpoint would not expect jurors to recognize that estimate uncertainty is driven by environmental and chance factors beyond the auditor's control, and that *lower* levels of estimate uncertainty (not higher levels) imply that the auditor was remiss in failing to detect it. This is a somewhat naïve model of juror judgment because it assumes that jurors will react negatively to estimate uncertainty out of a generalized dislike of uncertainty and ambiguity, regardless of the source of the

⁴ Other qualitative factors affecting the materiality of a misstatement include whether the misstatement is necessary to meet earnings benchmarks or analysts' expectations (SEC, 1999).

uncertainty, and that jurors are unable to make attributions of a failure to alternative causes.

In contrast to this viewpoint, jurors do not necessarily attribute the causes of failures to factors within the defendant's control, and recognize the presence and role of uncertainty in making these attributions (Curley, 2007), consistent with psychology's generalized characterizations of individuals as boundedly rational. According to Attribution Theory, individuals placed into the position of evaluating performance after an observed failure (e.g., a material misstatement) attempt to attribute the failure to internal causes, relational causes, or external causes, searching for appropriate cues (Eberly et al., 2011; Burton et al., 2014). In my setting, internal causes of an undetected material misstatement would be the result of factors within the auditor's control (e.g., insufficient audit effort), relational causes arise from interactions between the auditor and management (e.g., auditor independence problems), and external causes would be the result of factors not controllable by auditors. Furthermore, to the extent that individuals are unable to clearly attribute the cause of a failure to internal causes, relational causes, or external causes, they tend not to attribute the cause anywhere, instead holding "belief in reserve" (e.g., Shafer, 1976; Macchi, Osherson & Krantz, 1999). This behavior has been demonstrated among jurors (Curley, 2007).

When evaluating the performance of auditors following an undetected material misstatement, jurors are likely to form vague representations of what the auditors should have been able to do to prevent the material misstatement had they conducted the audit properly (i.e., *standard of care*). Disaggregating a material misstatement (holding its size constant) will generally make it appear more glaring and give jurors a stronger sense that

the error negatively impacts the financial statements. However, in the process of determining whether a properly conducted audit *should* have been able to uncover the misstatement, jurors will search for cues that allow them to attribute the failure to internal, external, or relational causes. Although high levels of estimate uncertainty may indeed increase the auditors' risk of being brought into litigation due to undetected misstatements (Bell & Griffin, 2012; Christensen et al., 2012), once in court, high estimate uncertainty provides a means for jurors to attribute the failure to causes external to the auditors. Furthermore, to the extent that high estimate uncertainty makes jurors uncertain as to where to assign their attributions, they are likely to retain more belief in reserve (Schafer, 1976). Either way, higher external attributions or belief in reserve make jurors less likely to attribute the cause of the misstatement to factors directly within the auditors' control (e.g., internal or relational causes).

In contrast, when the misstatement is related to an estimate of low inherent uncertainty, the jurors are unable to find external explanations for attributing the failure and feel more comfortable unambiguously assigning blame to auditors. Thus, a disaggregated misstatement may appear so glaring that on the surface it appears that the auditors should have been able to prevent it; however, jurors are less likely to determine that the auditors should have been able to prevent it when its related inherent estimate uncertainty is high. The less jurors believe that a properly conducted audit would have been able to prevent a material misstatement, the lower the standard of care they are effectively holding auditors to for failing to correct the misstatement.

This leads to the following expectations. First, when a material misstatement is *disaggregated* from other accounts in its own line item and stems from an estimate of

inherently *low* uncertainty, jurors will hold auditors to a relatively high standard of care. In contrast, if the *disaggregated* misstatement stems from inherently *high* estimate uncertainty, jurors will hold auditors to a relatively *lower* standard of care, since the high estimate uncertainty provides an external source of uncertainty to attribute the accounting failure towards. When material misstatements are *aggregated* with other non-misstated accounts into one line-item, jurors will hold auditors to a relatively lower standard of care, since that has the effect of making the material misstatement less salient and less impactful. High or low estimate uncertainty will be less likely to incrementally impact aggregated misstatements, since those misstatements appear less salient, reducing the jurors' need to search for other external attributions for the misstatement. This suggests the following ordinal interaction of disaggregation of a material misstatement and estimate uncertainty on jurors' standard of care:

H1: Jurors will hold auditors to a relatively high standard of care for a disaggregated material misstatement of lower estimate uncertainty, and jurors will hold auditors to a relatively lower standard of care when the material misstatement is aggregated with other financial statement line-items, when estimate uncertainty is high, or both.

An important implication of these predictions is that auditors will face a relatively lower standard of care from jurors for failing to detect a material misstatement in the financial statements when it is more aggregated with other financial statement accounts. Thus, income statement aggregation can both make auditors less likely to correct misstatements (Libby & Brown, 2013), and yet simultaneously provide them shelter from litigation risk for failing to do so when estimate uncertainty is low.

As stated previously, jurors are likely to form a vague mental representation of what a properly conducted audit should have been able to do (i.e., standard of care) in an attempt to help them assess auditor negligence. Jurors' standard of care judgments are

likely to impact their negligence judgments (Kadous, 2000). That is, jurors attempt to compare what should have happened to what did happen, and the more that a properly conducted audit should have prevented a material misstatement (i.e., the higher the standard of care), the more jurors will hold auditors negligent for failing to detect the misstatement. Thus, I expect that the interactive effect of aggregation and estimate uncertainty predicted for jurors' standard of care for auditors in H1 will, in turn, also influence jurors' judgments of auditor negligence. Stated formally:

H2: The joint effect of disaggregation and low estimate uncertainty on jurors' standard of care (H1) will, in turn, influence jurors' judgments of auditor negligence in the same direction.

3.3. Method

3.3.1 Participants

Following prior research (e.g., Grenier, Pomeroy, & Stern, 2014; Grenier, Pomeroy, & Reffett, 2012; Kadous & Mercer, 2012; Peecher & Piercey, 2008), we recruited undergraduate students enrolled in a very large sophomore-level introductory accounting course as participants in my study. Meta-analyses of prior research on jurors indicate that undergraduates' judgments are similar to those of jurors across different task factors and contexts (Bornstein, 1999; Zickafoose & Bornstein, 1999). This similarity in the judgments of undergraduates and broader pools of juror-eligible adults has been replicated in accounting studies on auditor negligence litigation (e.g., Cornell, Warne, & Eining, 2009; Grenier et al., 2014; Kadous, 2001).⁵ Students in introductory accounting generally have enough basic understanding of financial statements and their purpose to understand the task, similar to the basic understanding that jurors would receive during an

⁵ Under these conditions, Libby et al. (2002), Peecher and Solomon (2001), Kadous and Mercer (2012), and Bonner et al. (2014) suggest that students are appropriate participants.

extended trial, and yet they are still relative novices and have no experience making audit decisions, also similar to jurors (Kadous & Mercer, 2012; Peecher & Piercey, 2008).⁶

My sample consists of 433 participants, 44.5 percent of whom were female. Participants received extra course credit for putting in a reasonable amount of effort. On average, participants had completed 2.48 years of post-high school education, 1.68 accounting classes, and 4.11 management, accounting, and/or economics college courses.

3.3.2 Experimental Design

My experiment uses a $2 \times 2 \times 2$ between-subjects experimental design. My three manipulated experimental factors are: (1) the *aggregation* of the income statement numbers (more aggregated vs. more disaggregated), (2) the level of subjective *estimate uncertainty* involved in the accounting loss that yielded the alleged material misstatement (high vs. low), and (3) the alleged *misstatement size* (larger vs. smaller). The misstatement size manipulation allows us to test H1 and H2 in conditions when the material misstatement is outside the range of uncertainty as well as when it is within the range of uncertainty, since the latter scenario has been of particular interest to accounting research and others concerned about auditor liability (e.g., Christensen et al., 2012; Bell & Griffin, 2012). This manipulation allows us to test the robustness of my predictions for both settings (e.g., Bowlin, Hobson, & Piercey, 2015). I delivered the experimental instrument to participants online, using Qualtrics® software, which randomly assigned them to experimental conditions.

⁶ Using a large introductory accounting class also gives us a sample that spans 29 undergraduate majors. Nineteen percent of the participants indicated that they intend to major in accounting. An intention to major in accounting has no significant effects on my results (cf. Peecher and Solomon 2001; Libby et al. 2002).

3.3.3 Task and Manipulations

Participants read a legal case as jurors. I designed my experimental materials based on instruments from prior research (Kadous, 2000, 2001; Peecher & Piercey, 2008), adapted and customized for my hypotheses, manipulations, and measures of interest. My experimental materials were reviewed by four lawyers who had a combined 38 years of legal experience (including a former law school dean and a United States District Court clerk), in order to ensure that the information presented would be both realistic and admissible in court.

The case materials began by giving participants a basic understanding of the auditing concepts (e.g., audit opinions and reasonable assurance) similar to that which jurors would receive during a trial, adapted from Peecher and Piercey (2008).⁷ The case then proceeded with details about the audit of a gravel and cement company, Big Time Gravel, performed by the accounting firm Jones & Company, adapted from Kadous (2000, 2001). Before my manipulations of *estimate uncertainty* and *misstatement size*, the case first described how the company's mining machinery is a critical portion of the company, and how the company must recognize an "impairment loss" (which reduces reported earnings) if the market value of the machinery is substantially less than what is stated on the company's books. Furthermore, Big Time Gravel's mining machinery is extremely customized to their mines, quarries, and processing sites, and therefore is not regularly bought and sold on an open market, and so does not have readily available

⁷ Specifically, following Peecher and Piercey (2008), the beginning of the instrument (1) advised participants that they would be asked review questions about case material (to encourage attention), (2) explained fundamental auditing concepts (such as material misstatements, materiality, "clean" audit opinions, reasonable assurance versus absolute assurance, negligence, audit procedures, and the consequences of undetected material misstatements), and (3) asked related review questions, with the opportunity for participants to look back at what they read.

market prices. Instead, Big Time Gravel uses a mathematical model to estimate the fair value of the machinery.

In the high (low) *estimate uncertainty* conditions, the case told participants that the model is based on highly subjective (objective) and very complicated (straightforward) assumptions about the cash that the machinery will generate, as well as other difficult (simple) projections about the rather unpredictable (predictable) future costs of operating the machinery. In all conditions, the company recorded the value of the machinery at \$545 million, resulting in a \$10 million impairment loss. However, in the high (low) *estimate uncertainty* conditions, because of the high (low) levels of uncertainty in these inputs, the auditors believe the value of the machinery to be somewhere between \$350 million and \$650 million (\$450 million and \$550 million). This manipulation holds the midpoint of the auditor's estimate range constant at \$500 million, and simply varies the width of the range. In all conditions, the company's value of the machinery of \$545 million is within the auditor's reasonable estimate range, and so Jones & Company concluded that the account was not materially misstated, without requiring adjustment.

Next, all participants read about an alleged misstatement in the value of the machinery and a subsequent lawsuit. After audited financial statements (with the auditors' clean opinion) were issued, the company's mining machinery encountered problems, which created high costs of both repair and lost revenue while the machinery was down. Investors sued Big Time Gravel, alleging that the condition of the machinery should have been apparent to the auditors during the audit of the financial statements. In the larger (smaller) *misstatement size* conditions, expert witnesses testified that the true

value of the machinery should have been \$255 million (\$495 million), reflecting an overstatement in the value of the machinery by \$290 million (\$50 million), and an understatement of the impairment loss by the same amount. While this manipulation varies the *magnitude* of the material misstatements, in both conditions, the misstatements are material. Specifically, both misstatements exceed 0.5% of sales, a common quantitative materiality benchmark used in practice (Eilifsen & Messier, 2015; Ayers et al. 2015), and the case informed all participants that the alleged misstatement allowed Big Time Gravel to meet (rather than miss) analysts' earnings targets of \$1.28 per share, a situation which always makes a misstatement material (SEC, 1999).

For my *misstatement size* manipulation, I chose a relatively strong manipulation of large versus small misstatements for the following reasons. First, the purpose of this manipulation is to test the robustness of my hypothesized effects under conditions of both larger and smaller material misstatements. As a robustness test, I wanted a strong manipulation that would maximize systematic differences between the two conditions, so as to increase the chances of detecting any systematic differences in my hypothesized effects within larger and smaller misstatement conditions, if any such differences occur (Kerlinger & Lee, 2000). Second, I wanted the larger (smaller) misstatement to be completely outside (inside) of the auditor's estimate range for all participants, regardless of whether they were in the high or low estimate uncertainty conditions. This allows a cleaner test of the effects of *misstatement size*, without making a particular misstatement size outside of the auditor's range in one level of *estimate uncertainty* and inside the auditors range in the other level of *estimate uncertainty*. Thus, the implications of the

misstatement being either inside or outside of the auditor's range of uncertainty are held constant within each level of *misstatement size*.

In all conditions, the plaintiffs allege that, without the misstatement causing the company to meet analysts' earnings targets, they would not have remained invested in the company and therefore would not have incurred their subsequent losses. Participants then received an excerpt from Big Time Gravel's income statement, with columns showing the numbers as reported in the audited financial statements, the numbers as the investors' expert witnesses testified that they should have been reported, and the size of the alleged misstatements, in both absolute and percentage terms. The financial statements were manipulated so that the materially misstated account (impairment loss on machinery) either appeared as its own line-item, or was aggregated with other accounts as a single line-item. I designed my disaggregated condition following the disaggregated income statement in FASB (2010, 118) closely, with only minimal adaptations to my study. Appendix A shows examples of the aggregated and disaggregated conditions.

3.3.4 Dependent Variables

After reviewing the financial statements, participants made several judgments related to the Jones & Company audit of Big Time Gravel. The primary dependent variable for testing my theory is the *standard of care* that jurors hold the Jones & Company auditors to. That is, the more that jurors believe a *properly conducted* audit *could have* prevented a material misstatement, the higher of a standard they are holding the Jones & Company audit to for detecting (or, in this case, not detecting) the misstatement. Accordingly, I measure participants' perceptions that a properly conducted audit could have correctly valued the machinery and its related impairment loss on a scale

from 1 to 10, and label this dependent variable as jurors' *standard of care* for Jones & Company. H1 predicts that aggregation and estimate uncertainty will jointly influence jurors' standard for what a properly conducted audit could have detected.

The secondary dependent variable for testing my theory is my participants' perceptions of auditor negligence. My theory suggests that jurors will judge Jones & Company's negligence based on how their audit (which failed to detect the misstatement) compares to the standard of care they hold Jones & Company to (i.e., the extent to which a properly conducted audit could have detected it). I measure participants' perceptions that Jones & Company was negligent in failing to accurately assess the impairment loss on a scale from 1 to 10. Finally, I gathered additional supplementary measures and manipulation checks, as well as demographic data.

3.4 Results

3.4.1 Comprehension and Manipulation Checks

Participants responded to five questions that tested their understanding of the definitions of materiality, clean audit opinions, reasonable (vs. absolute) assurance, as well as implications of negligence and undetected misstatements. Performance on individual test items ranged from 96.1% (414 correct out of 431) to 99.5% (429 correct out of 431), significantly greater than chance (all p 's < 0.001). Thus, the instrument appeared to be successful in giving participants an understanding of new auditing concepts at a level comparable to reasonably attentive jurors.

To check my manipulation of *estimate uncertainty*, my post-experimental questionnaire asked participants to rate the level of estimate uncertainty surrounding the inputs, assumptions, and estimation of the valuation model used by Big Time Gravel to

estimate the fair market value of the machinery (*perceived uncertainty*), on a scale from 1 to 10. Participants' *perceived uncertainty* ratings were significantly higher in the high *estimate uncertainty* conditions than in the low *estimate uncertainty* conditions (7.33 vs. 6.66, $t = 3.41$, $p < 0.001$). In addition, I measured participants' perceptions of the auditors' ability to correctly estimate the value of the machinery and its impairment loss (*perceived estimate ability*, again on a scale from 1 to 10), since auditors should be less able to estimate correctly given high estimate uncertainty. Participants' *perceived estimate ability* ratings were significantly lower in the high *estimate uncertainty* conditions than in the low *estimate uncertainty* conditions (5.42 vs. 5.83, $t = -2.11$, $p = 0.018$). My manipulation of *estimate uncertainty* appears to be successful.

To check my manipulation of *misstatement size*, I gathered three measures of the materiality of the alleged misstatement, expecting that participants would perceive the misstatement to have a more material impact when the misstatement was larger than when it was smaller. Specifically, participants assessed how much the alleged misstatement would impact the judgment and decision making of a reasonable person relying on the financial statements (*materiality—judgment*), how much the alleged misstatement impacts its income statement line-item (*materiality—line-item*), and how much it impacts the financial statements as a whole (*materiality—fs-whole*), on scales from 1 to 10. Participants' ratings of *materiality—judgment*, *materiality—line-item*, and *materiality—fs-whole* were each significantly higher in the larger misstatement conditions than in the lower misstatement conditions (7.37 vs. 6.17, $t = 5.95$, $p < 0.001$; 7.32 vs. 6.70; $t = 3.71$, $p < 0.001$; and 7.09 vs. 6.04, $t = 5.52$, $p < 0.001$; respectively).

I also included the materiality measures to serve as a check of my *aggregation* manipulation, and, in particular, *materiality—line-item*. Specifically, holding the size of the misstatement constant, I would expect participants to find that the misstatement has a larger impact on its income statement line-item when the misstated account appears by itself on the income statement than when it is aggregated with other accounts into one line-item. Furthermore, I would expect participants to believe that this impact on the financial statement line-item (*materiality—line-item*) would, in turn, impact the financial statements as a whole (*materiality—fs-whole*), as well as the judgment of a reasonable person relying on those financial statements (*materiality—judgment*). My findings are supportive of my manipulations. Besides the main effect of *misstatement size*, the only other statistically significant effect on my three materiality measures is a main effect of *aggregation*. Specifically, participants judged the impact of a misstatement to be larger when the misstated account was by itself as a line-item than when it was aggregated with other accounts. Participants' ratings of *materiality—line-item*, *materiality—fs-whole*, and *materiality—judgment* were all significantly lower in the aggregated conditions than in the disaggregated conditions (6.38 vs. 7.34, $t = 3.95$, $p < 0.001$; 6.35 vs. 6.79, $t = 2.31$, $p = 0.011$; and 6.42 vs. 7.11, $t = 3.40$, $p < 0.001$; respectively). Moreover, in untabulated mediation analyses, I find that the effect of *aggregation* on *materiality—line-item* fully mediates the effect of *aggregation* on *materiality—judgment* and *materiality—fs-whole*.⁸ Thus, overall, manipulation checks are consistent with *misstatement size* directly influencing all three materiality measures, and *aggregation* influencing perceptions of

⁸ I obtain statistically similar findings for mediation tests based on structural equation modeling, regression approaches, bootstrapping procedures, the Goodman test, the Sobel test, the Aroian test, or the traditional Baron-and-Kenny causal-steps approach procedures (Wang & Wang, 2012; Baron & Kenny, 1986; MacKinnon, Warsi, and Dwyer 1995; Hayes, 2013).

materiality via its effect on the aggregated line-item. My manipulations appear to have been successful.

3.4.2 Hypothesis Tests

3.4.2.1 Descriptive statistics for Standard of Care (H1).

Table 3.1, Panels A and B shows descriptive statistics and an ANOVA for the *standard of care* that participants are holding the Jones & Company auditors to (i.e., participants' ratings of the extent to which a properly conducted audit could have detected the alleged misstatement, on a scale from 1 to 10). The more that a *properly conducted audit* could have detected a misstatement, the higher the standard of care participants are holding Jones & Company to for the undetected misstatement.

Table 3.1
Standard of Care

Panel A: Descriptive statistics

Means for *standard of care* judgments, standard deviations, and sample sizes by experimental condition

	<i>Misstatement Size</i>					
	<u>Larger Misstatement</u>		<u>Smaller Misstatement</u>		<u>Overall^a</u>	
	<i>Estimate Uncertainty</i>		<i>Estimate Uncertainty</i>		<i>Estimate Uncertainty</i>	
	High	Low	High	Low	High	Low
<i>Aggregation</i>						
Aggregated						
Mean	6.56	6.48	5.96	6.20	6.26	6.34
st. dev. (n)	2.09 (52)	2.39 (52)	2.32 (53)	2.29 (55)	2.21 (105)	2.34
Disaggregated						
Mean	6.43	6.90	5.69	6.79	6.06	6.84
st. dev. (n)	2.27 (53)	1.72 (52)	2.25 (52)	1.77 (56)	2.26 (105)	1.74

Panel B: Analysis of variance for *standard of care* judgments

Source	Sum of Squares	df	Mean Square	F	p
Estimate uncertainty	19.73	1	19.73	4.27	0.039
Misstatement size	20.00	1	20.00	4.33	0.019 ^b
Aggregation	2.51	1	2.51	0.54	0.461
Estimate uncertainty × misstatement size	5.84	1	5.84	1.27	0.261
Aggregation × estimate uncertainty	13.05	1	13.05	2.83	0.047 ^b
Aggregation × misstatement size	< 0.01	1	< 0.01	0.00	0.984
Three-way interaction	0.63	1	0.63	0.14	0.711
Error	1,924.58	417	4.62		

Panel C: Hypothesis tests

Source	Sum of Squares	df	Mean Square	F	p
Ordinal interaction contrast (+3, -1, -1,	31.29	1	31.29	6.78	0.005 ^b
Misstatement size	20.00	1	20.00	4.33	0.019 ^b
Residual between-cells effects	10.14	5	2.03	0.44	0.821

Panel D: Supplemental simple effects tests

Simple effect	T	p
Effect of aggregation on <i>standard of care</i> given lower estimate	-1.72	0.043 ^b
Effect of aggregation on <i>standard of care</i> given higher estimate	0.66	0.507
Effect of lower estimate uncertainty on <i>standard of care</i> given	2.65	0.004 ^b
Effect of lower estimate uncertainty on <i>standard of care</i> given	0.27	0.785

Table 3.1, Continued
Standard of Care

Notes:

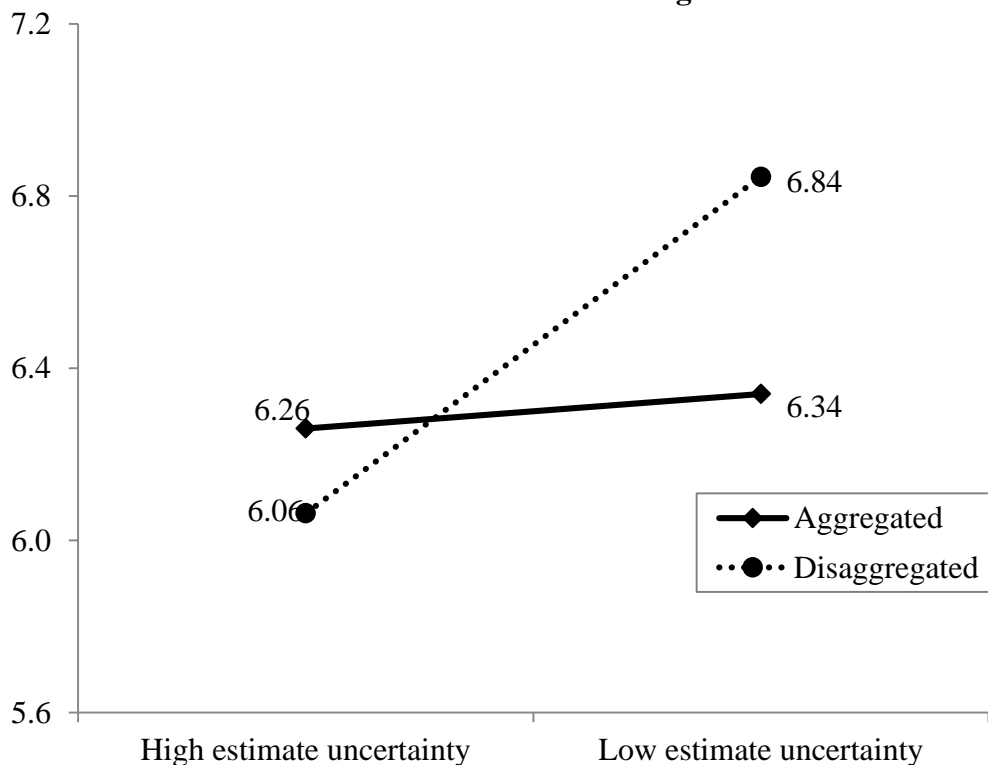
^a The overall means in Panel A collapsed across misstatement size are the least-squares means of the significant *estimate uncertainty* × *misstatement size* interaction shown in Panel B ($p = 0.047$). Because *misstatement size* does not interact significantly with either *aggregation* or *estimate uncertainty* (p 's ≥ 0.261 , Panel B), results within each *misstatement size* condition in Panel A are statistically similar to those collapsed across misstatement size in Panel A (e.g., Bowlin et al., 2015). The only systematic difference is that *standard of care* judgments are higher for larger undetected material misstatements than for smaller undetected material misstatements (i.e., the main effect of *misstatement size* in Panel B, $p = 0.019$).

^b These tests show significant effects with directional expectations, and therefore are the one-tailed p-values of the t-tests associated with the F-statistic, as applicable (e.g., Kachelmeier & Williamson, 2010, Bowlin et al., 2015). The remaining p-values represent two-tailed t-tests.

^c This contrast test assigns contrast weights of +3 to the low estimate uncertainty/disaggregated conditions, and -1 to the low estimate uncertainty/aggregated conditions, the high estimate uncertainty/aggregated conditions, and the high estimate uncertainty/disaggregated conditions.

As expected, there is a positive main effect of *misstatement size* on *standard of care* such that auditors are held to a higher standard of care when the misstatement is larger than when it is smaller (6.59 vs. 6.16, $t = 2.08$, $F = 4.33$ in Table 3.1, Panel B, $p = 0.019$). In addition, I observe a statistically significant *aggregation* \times *estimate uncertainty* interaction ($F = 2.83$, $p = 0.047$; Table 3.1, Panel B). The statistical significance of this interaction is consistent with my formal test of H1, which follows. Figure 3.1 shows the means for this interaction. There are no significant interactions in the ANOVA involving *misstatement size* in my ANOVA table (Table 3.1, Panel B). This indicates that (besides the main effect of *misstatement size*), the *aggregation* \times *estimate uncertainty* interaction pictured in Figure 3.1 is statistically similar across the larger and smaller *misstatement size* conditions (e.g., Bowlin et al. 2015).

Figure 3.1
Standard of Care Judgments



3.4.2.2 Tests of H1.

H1 predicts that jurors will hold auditors to a relatively high standard of care for a disaggregated material misstatement of lower estimate uncertainty, and to a relatively lower standard of care when the material misstatement is aggregated with other financial statement line-items, when estimate uncertainty is high, or both. Following Buckless and Ravenscroft (1990), I test for this expected ordinal interaction using custom contrast weights of +3 for the disaggregated/low estimate uncertainty conditions and -1 for the remaining conditions (Figure 3.1).⁹ The test result is statistically significant ($t = 2.60$, $p = 0.005$; Table 3.1 Panel C). In addition, I test whether the +3, -1, -1, -1 test of my expected *aggregation* \times *estimate uncertainty* ordinal interaction and the expected main effect of *misstatement size* together explain effectively all of the between-cells variance within my experiment by examining the significance of the residual model variance (Buckless & Ravenscroft, 1990). My findings indicate the remaining between-cells variance is statistically insignificant (semi-omnibus $F = 0.44 < 1$; Table 3.1 Panel C).¹⁰ This suggests that the +3, -1, -1, -1 ordinal interaction and the *misstatement size* main effect provide a good statistical fit for participants' *standard of care* judgments and together explain effectively all of the systematic between-cells effects within this dependent variable.

⁹ These contrast weights reflect the expectation based on my theory that the best *ex ante* case for an effect of aggregation reducing *standard of care* judgments is when estimate uncertainty is low, since higher *estimate uncertainty* makes the auditors' task inherently more difficult and should result in lower *standard of care* judgments anyway.

¹⁰ Bayesian statistical techniques can provide an affirmative test that the cells assigned weights of -1 are equal to one another (i.e., there is no residual between-cells variance), rather than just the lack of disconfirming evidence that comes from failing to reject the null hypothesis that they are equal to one another (Bolstad, 2007; Kass & Raftery, 1995), as the semi-omnibus F-test does. These Bayesian analyses indicate that, after controlling for the main effect of *information* on *standard of care* judgments, the cells assigned weights of -1 are statistically equal to one another (all BF_{10} 's ≤ 0.16 ; $BF_{Inclusion}$'s ≤ 0.10 ; Kass & Raftery, 1995).

3.4.2.3 Supplementary analyses related to H1

I test the simple effects of the *aggregation* \times *estimate uncertainty* interaction on *standard of care* in Panel D of Table 3.1, and find that they are consistent with my theory and expectations. Aggregation significantly reduces *standard of care* when there is low *estimate uncertainty* (6.34 vs. 6.84 in Figure 3.1, $t = -1.72$, $p = 0.043$), but has no effect when there is high *estimate uncertainty* (6.26 vs. 6.06 in Figure 3.1, $t = 0.66$, $p = 0.507$). As a result, the decrease in *standard of care* judgments caused by aggregation is significantly larger within the low *estimate uncertainty* conditions than within the high *estimate uncertainty* conditions ($F = 2.83$ in 3.1, $t = 1.68$, $p = 0.047$). I find that, when the income statement is disaggregated, participants' *standard of care* ratings are significantly higher in the low *estimate uncertainty* conditions than in the high *estimate uncertainty* conditions (6.84 vs. 6.06 in Figure 3.1, $t = 2.65$, $p = 0.004$). However, there is no significant difference between the low and high *estimate uncertainty* conditions when the financial statements are aggregated (6.34 vs. 6.26 in Figure 3.1, $t = 0.27$, $p = 0.785$). These results are consistent with my formal tests of H1.

3.4.2.4 Tests of H2

H2 predicts that the joint effect of *aggregation* and *estimate uncertainty* on *standard of care* will, in turn, influence participants' *negligence* judgments. This type of hypothesis is tested by testing the statistical significance of the indirect path from *aggregation* \times *estimate uncertainty* to *standard of care* to *negligence*, depicted in Figure 3.2. Such a test does not simply confirm that *standard of care* and *negligence* are bivariately correlated, but rather that the entire path is significant (i.e., variance in *negligence* is explained specifically by the variance in *standard of care* that is explained by *aggregation* \times *estimate uncertainty*).

As shown in the structural equation model in Figure 3.2, the *aggregation × estimate uncertainty* ordinal interaction influences *standard of care* (H1), and this variance in *standard of care* (depicted in Figure 3.1) subsequently influences *negligence* judgments. Goodness-of-fit indices indicate that the structural equation model in Figure 3.2 provides an excellent fit to the data (e.g., Root Mean Square Error of Approximation < 0.001; CFI and Tucker-Lewis Index > 0.999; Weighted Root Mean Square Residual =0.023;Brown,2014).

Figure 3.2
Aggregation × Estimate Uncertainty Ordinal Interaction, Misstatement Size, Standard of Care, and Negligence
Judgments Structural Equation Model

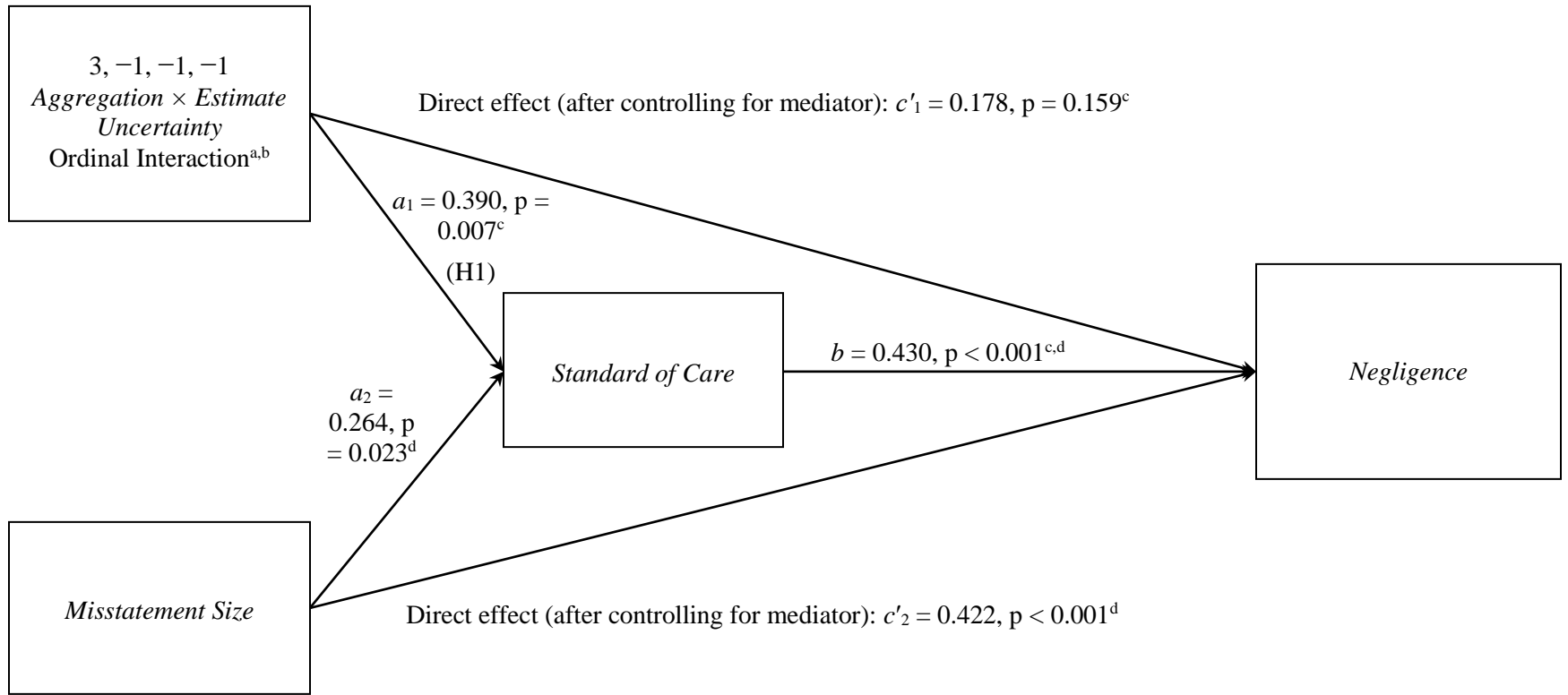


Figure 3.2, Continued

Indirect path significance test	Hypothesis test	Predicted sign	Path estimate	95% one-tailed bootstrapped confidence interval	Test result
Path from 3, -1, -1, -1 <i>Aggregation</i> × <i>Estimate Uncertainty</i> ordinal interaction to <i>Standard of Care</i> to <i>Negligence</i> (i.e., $a_1 \times b$)	H2	+	0.168	95% of bootstrapped estimates > 0.075	Significant
Path from 3, -1, -1, -1 <i>Misstatement Size</i> to <i>Standard of Care</i> to <i>Negligence</i> (i.e., $a_2 \times b$)		+	0.114	95% of bootstrapped estimates > 0.024	Significant

Notes:

^a Goodness-of-fit indices indicate that the model produces an excellent fit to the data (e.g.; Root Mean Square Error of Approximation < 0.001; Comparative Fit Index and Tucker-Lewis Index > 0.999; Weighted Root Mean Square Residual = 0.023; see Brown 2014). The path coefficients a_1 , a_2 , b , c'_1 and c'_2 are consistent with standard Baron and Kenny (1983) mediation notation, and represent the same concepts.

^b This model uses weights of 3, -1, -1, -1 to test the expected *aggregation* × *estimate uncertainty* ordinal interaction. I obtain statistically similar results and fit when we use a structural equation model with the conventional *aggregation* × *estimate uncertainty* ordinal interaction and its constituent main effects as covariates.

^c As this figure shows, the effect of the *aggregation* × *estimate uncertainty* ordinal interaction on *negligence* judgments (Table 3.2) appears to be fully mediated by *standard of care*. Specifically, holding the size of the misstatement constant, aggregation of that misstatement with other accounts reduces its perceived impact on its income-statement line-item, which, in turn, drives its perceived impact on the financial statements as a whole and on the judgment of a reasonable person relying on the financial statements, consistent with H2. Results in this model are suggestive of full mediation. Specifically, the total effect (i.e., not controlling for the mediator) of the ordinal interaction on *Negligence* is statistically significant ($p = 0.005$, Table 3.2 Panel C), while the remaining direct effect (c'_1), is insignificant after controlling for the mediator ($p = 0.159$), consistent with full mediation.

^d *Standard of care* also appears to mediate the effect of *Misstatement Size* on Negligence. As this figure shows, a larger misstatement increases the standard of care of auditors, which increases negligence judgments. Results of this model are consistent with partial mediation. That is, the total effect of *Misstatement Size* on *Negligence* (i.e., not controlling for the mediator) is statistically significant ($p < 0.005$, Table 3.2 Panels B and C), and, while the mediating path is statistically significant (i.e., bootstrapping test of the indirect, mediating path, $a_2 \times b$, is significant, above), the direct path (c'_2) remains significant even after controlling for the mediator.

To formally test H2, I examine whether the product of coefficients $a_1 \times b$ in my structural model (Figure 3.2) is significantly positive. If it is, then the entire path from the ordinal interaction to *standard of care* to *negligence* is statistically significant, and the total effect of the total effect of the *aggregation* \times *estimate uncertainty* ordinal interaction on *negligence* is significantly mediated by *standard of care* (Hayes, 2009, 2013). This test is most reliably done using bootstrapping procedures, which make no underlying assumptions about the distributional properties of the data (Hayes, 2009, 2013). In these procedures, I drew 5,000 random subsamples of my data, computing the coefficients a_1 and b for each subsample, and determining whether their product is positive at least 95% of the time (Hayes, 2009, 2013). I find that the model estimate for the indirect path ($a_1 \times b$) is 0.168, and 95% of the bootstrapped estimates > 0.075 (a confidence interval that does not contain zero and therefore is statistically significant). I obtain statistically similar results if we use the conventional ANOVA interaction term for the *aggregation* \times *estimate uncertainty* ordinal interaction, rather than the +3, -1, -1, -1 contrast weights used in Figure 3.2. I also obtain statistically similar findings regardless of whether we test H2 using Baron-and-Kenny causal steps approaches, the Sobel test, the Goodman test, and Aroian test, or bootstrapping procedures, within either a linear regression or a structural equation modeling framework (Wang & Wang, 2012; Baron & Kenny, 1986; MacKinnon et al., 1995; Hayes, 2013; Iacobucci, Saldanha, & Deng, 2007). Thus, I find strong evidence that the effects described in H1 go on to influence negligence judgments against the auditors. This result supports H2.

3.4.2.5 Supplementary analyses related to H2

Supplementary analysis of participants' *negligence* judgments suggests that the indirect path tested in H2 results in *negligence* judgments that occur in a similar pattern as *standard of care* judgments. Descriptive statistics and ANOVA results for *negligence* as a dependent variable appear in Panels A and B of Table 3.2.

Table 3.2
Negligence Judgments

Panel A: Descriptive statistics

Means for *negligence* judgments, standard deviations, and sample sizes by experimental condition

	<i>Misstatement Size</i>					
	Larger Misstatement		Smaller Misstatement		Overall ^a	
	<i>Estimate Uncertainty</i>		<i>Estimate Uncertainty</i>		<i>Estimate Uncertainty</i>	
	High	Low	High	Low	High	Low
<i>Aggregation</i>						
Aggregated						
Mean	6.29	6.08	5.46	5.05	5.88	5.57
st. dev. (n)	1.82 (52)	2.02 (53)	1.99 (54)	2.09 (55)	1.90 (106)	2.05
Disaggregated						
Mean	6.51	6.72	5.58	6.07	6.04	6.40
st. dev. (n)	2.21 (53)	1.77 (54)	1.78 (52)	1.99 (56)	1.99 (105)	1.88

Panel B: Analysis of variance for *negligence* judgments

Source	Sum of Squares	df	Mean Square	F	p
Estimate uncertainty	0.05	1	0.05	0.01	0.910
Misstatement size	78.80	1	78.80	20.44	< 0.001 ^b
Aggregation	26.76	1	26.76	6.94	0.009
Estimate uncertainty × misstatement size	0.05	1	0.05	0.01	0.909
Aggregation × estimate uncertainty	11.83	1	11.83	3.07	0.040 ^b
Aggregation × misstatement size	0.46	1	0.46	0.12	0.729
Three-way interaction	1.53	1	1.53	0.40	0.530
Error	1,623.12	421	3.86		

Panel C: Supplemental contrast tests

Source	Sum of Squares	df	Mean Square	F	p
Ordinal interaction contrast (+3, -1, -1,	26.46	1	26.46	6.86	0.005 ^b
Misstatement size	78.80	1	78.80	20.44	< 0.001 ^b
Residual between-cells effects	15.16	5	3.03	0.79	0.560

Panel D: Supplemental simple effects tests

Simple effect	T	p
Effect of aggregation on <i>negligence</i> given lower estimate uncertainty	-3.13	0.002 ^b
Effect of aggregation on <i>negligence</i> given higher estimate uncertainty	-0.62	0.536
Effect of lower estimate uncertainty on <i>negligence</i> given disaggregation	1.32	0.094 ^b
Effect of lower estimate uncertainty on <i>negligence</i> given aggregation	-1.16	0.248

Table 3.2, Continued

Notes:

^a The overall means in Panel A collapsed across misstatement size are the least-squares means of the significant *estimate uncertainty* × *misstatement size* interaction shown in Panel B ($p = 0.040$). Because *misstatement size* does not interact significantly with either *aggregation* or *estimate uncertainty* (p 's ≥ 0.530 , Panel B), results within each *misstatement size* condition in Panel A are statistically similar to those collapsed across misstatement size in Panel A (e.g., Bowlin et al., 2015). The only systematic difference is that *negligence* judgments are higher for larger undetected material misstatements than for smaller undetected material misstatements (i.e., the main effect of *misstatement size* in Panel B, $p < 0.001$).

^b These tests show significant effects with directional expectations, and therefore are the one-tailed p -values of the t -tests associated with the F -statistic, as applicable (e.g., Kachelmeier & Williamson, 2010; Bowlin et al., 2015). The remaining p -values represent two-tailed t -tests.

^c This contrast test assigns contrast weights of +3 to the low estimate uncertainty/disaggregated conditions, and -1 to the low estimate uncertainty/aggregated conditions, the high estimate uncertainty/aggregated conditions, and the high estimate uncertainty/disaggregated conditions.

Results for *negligence* in Table 3.2 are generally similar to those for *standard of care* in Table 3.1. Specifically, I find a positive main effect of *misstatement size* such that participants' assessments of auditor negligence were higher when the misstatement was larger than when it was smaller (6.40 vs. 5.54, $t = 4.52$, $F = 20.44$ in Table 3.2 Panel B, $p < 0.001$). Also similar to my results for *standard of care*, besides this main effect, *misstatement size* does not interact significantly with my other manipulations in participants' *negligence* judgments (p 's ≥ 0.530 , Table 3.2 Panel B). In addition, I observe a statistically significant *aggregation* \times *estimate uncertainty* interaction on *negligence* judgments ($F = 3.07$, $p = 0.040$; Table 3.2 Panel B).

Figure 3.3
Negligence Judgments

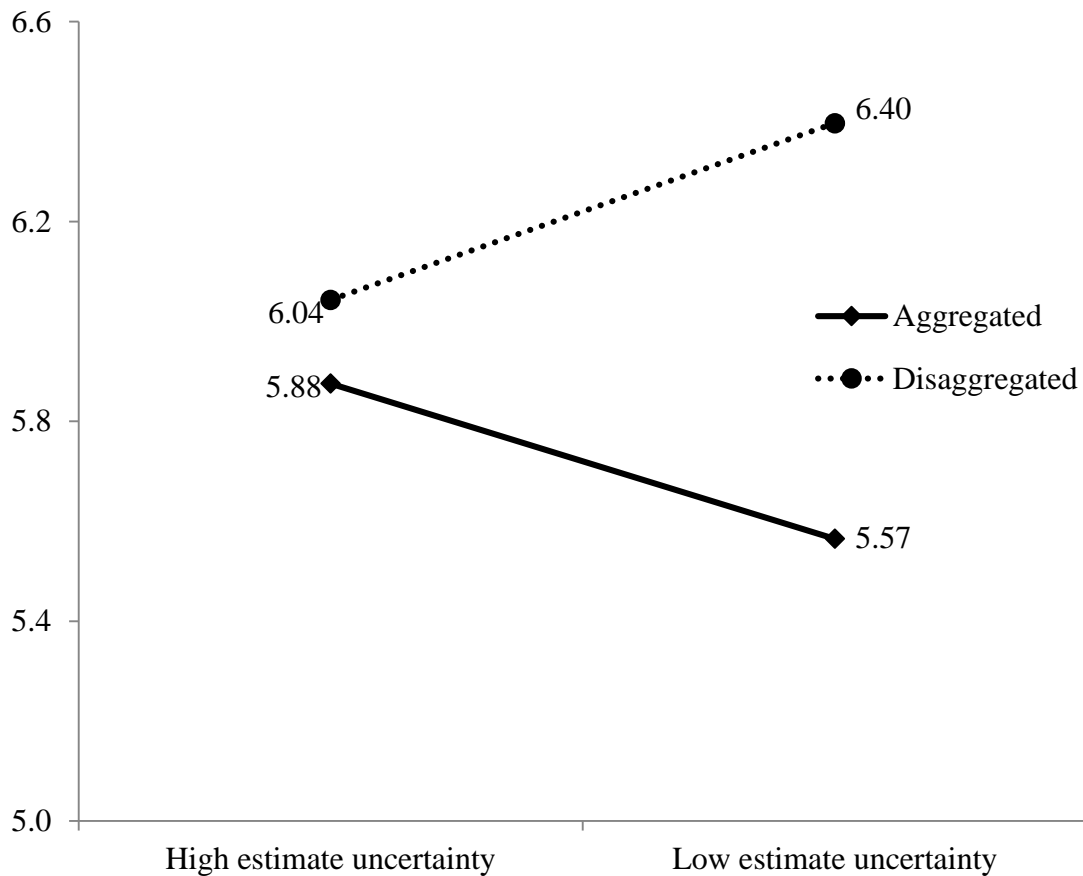


Figure 3.3 plots the means of this interaction. Similar to the findings for *standard of care*, I find that the +3, -1, -1, -1 contrast weight test on the *aggregation* × *estimate uncertainty* ordinal interaction on *negligence judgments* is statistically significant ($t = 2.62$, $p = 0.005$; Table 3.2 Panel C). Furthermore, I find that this ordinal interaction and the main effect of *misstatement size* on *negligence judgments* together explain effectively all of the between-cells variance within my experiment (residual model variance semi-omnibus $F = 0.79 < 1$, Table 3.2 Panel C; Buckless & Ravenscroft, 1990).¹¹ Thus, the +3, -1, -1, -1 ordinal interaction and the *misstatement size* main effect provide a good statistical fit for participants' *negligence judgments* and together explain effectively all of the systematic between-cells effects for this dependent variable. Finally, simple effects tests of this interaction using *negligence* as a dependent variable generally replicate those for *standard of care*, and are similarly consistent with the expected +3, -1, -1, -1 ordinal interaction (Table 3.2 Panel D).¹² Thus, the results for *negligence judgments* are generally consistent with those for *standard of care*.

¹¹ Bayesian statistical techniques provide an affirmative test that the cells assigned weights of -1 are equal to one another (i.e., there is no residual between-cells variance), rather than just failing to reject the null hypothesis that they are equal (Bolstad, 2007; Kass & Raftery, 1995). These analyses indicate that, after controlling for the main effect of *information* on *negligence judgments*, the cells assigned weights of -1 are statistically equal to one another (all BF_{10} 's ≤ 0.49 ; $BF_{inclusion}$'s ≤ 0.30 ; Kass & Raftery, 1995).

¹² Visual comparison of the means for *standard of care* and *negligence* in Figures 3 and 5 show qualitative (but not significant) differences among some of the statistically insignificant simple effects. As Hayes (2013) and Preacher and Hayes (2008) point out, even when an overall path is significant, it is possible for the pattern of means observed in one response variable earlier in the path to change in subsequent response variables that come farther down the path, because other sources of variance will also impact each subsequent response variable. For this reason, Fanning et al. (2015) argue for testing hypotheses using the response variable that is the closest and best test of the underlying theory as the primary dependent variable of interest, and then looking at subsequent dependent variables, recognizing that there will be other sources of variance (including noisy variance with respect to the hypothesis tests) entering subsequent judgments fater along the path. For my study, my theory predicts the joint effect of *aggregation* and *estimate uncertainty* on the basis of how they influence individuals' perceptions of whether the auditors should have been able to detect the undetected misstatement (i.e., whether a properly conducted audit could have been able to detect the misstatement, or *standard of care* as I define it). These effects on *standard of care* should subsequently influence *negligence judgments* as individuals consider what was done relative to what auditors should have been able to do when forming their negligence judgments. My structural equation model (Figure 3.2) and formal tests of H2 are supportive of this.

3.4.2.6 Additional supplementary analyses.

Aside from the manipulation checks and my dependent variables, I also collected participants' beliefs that the auditors had the obligation to value the machinery and its related impairment loss accurately (*perceived obligation*) on a scale from 1 to 10. Participants' mean judgments (7.97) were significantly above the midpoint of the scale ($t = 28.14, p < 0.001$), and did not vary significantly by experimental condition (omnibus $F = 0.95 < 1$).¹³ Thus, participants across conditions believed that auditors had a uniformly high obligation to value the machinery and its related impairment loss accurately, yet whether they held auditors accountable for failing to do so varied depending on the joint effects of *aggregation* and *estimate uncertainty* (Figures 3.2 and 3.3). Hence, I observe a disconnect between participants' perceptions of auditors' obligations and the extent to which they hold auditors accountable for failing to meet those obligations. This suggests that the effects I observe in Figures 3.1, 3.2, and 3.3 are likely unconscious (and therefore pervasive and difficult for individuals to self-correct; Sherman et al. 2008). As a result, the lack of guidance in accounting and auditing standards on financial statement aggregation is likely to include unintentional spillover effects on juror decision making in cases of accounting failure litigation.

3.5 Conclusion

My experimental findings suggest that high levels of income statement aggregation have effects on juror decision making contrary to the intent of standard setters. Specifically, while participants in my study recognized that auditors should have

¹³ Bayesian statistical techniques provide an affirmative test of null effects, rather than failing to reject the null (Bolstad, 2007; Kass & Raftery, 1995). These analyses provide affirmative evidence that *perceived obligation* to detect the misstatement was similar across conditions (all BF_{10} 's ≤ 0.36 ; $BF_{Inclusion}$'s ≤ 0.27 ; Kass & Raftery, 1995).

more ability to prevent material misstatement with low inherent estimate uncertainty, they still held auditors to a lower standard of care for failing to detect them when the misstated account was aggregated with other clean accounts in the same income statement line-item. Given the laxity of accounting standards on the issue, many companies (particularly those reporting under U.S. accounting standards) opt for high levels of income statement aggregation (Libby & Emett, 2014). Given that auditors are less likely to prevent misstatements that occur in aggregated income statement line-items (Libby & Brown, 2013), income statement aggregation may increase the likelihood of accounting failures. Yet, my findings suggest that aggregation may increase the risk of uncorrected material misstatements in the financial statements while simultaneously providing one of the gatekeepers of the financial statements (auditors) with some shelter from the legal implications of some of those uncorrected misstatements. Moreover, these effects are likely to be the result of unconscious effects on juror decision making. That is, even as my participants recognized on a between-subjects basis that auditors have more ability to evaluate less uncertain estimates (regardless of its aggregation or disaggregation), and even as they believed that the auditor had a uniformly high obligation to correct the undetected misstatement (regardless of experimental condition), they still held auditors to a lower standard of care and found them less negligent for failing to detect the less uncertain estimates simply by the simple presentation effect of line-item aggregation. The disconnect between jurors beliefs about auditors ability and obligation for detecting the material misstatement, and the extent to which they hold auditors responsible for failing to do so, suggests that standard setters' lack of guidance on income statement aggregation may have unintended consequences that they do not

anticipate. Thus, I add to the small but growing literature on line-item aggregation in the financial statements, which reports mixed findings from other settings on the implications of financial statement aggregation (e.g., Bloomfield et al., 2015; Elliott et al., 2015; Libby & Brown 2013).

My findings also have implications for the auditing literature on estimate uncertainty. There has been widespread concern that higher levels of estimate uncertainty open up auditors to excessive litigation risk (e.g., Christensen et al., 2012; Bell & Griffin, 2012). While estimate uncertainty may incrementally increase the likelihood of litigation, my findings suggest that, once in litigation, higher levels of estimate uncertainty actually lower auditors' legal exposure to negligence judgments when the financial statements are relatively disaggregated, by way of its effects on jurors' standard of care for auditors. Thus, once in the courtroom, high estimate uncertainty can potentially decrease (rather than increase) auditors' litigation risks under common conditions.

My findings are subject to limitations. I do not test all aspects of aggregation and estimate uncertainty that may influence my findings. Furthermore, other task-, environmental-, or decision-maker factors may moderate, alter, or impose boundary conditions on the effects that we demonstrate. As the implications of line-item aggregation and estimate uncertainty are not yet well understood at various stages of the managerial decision making, financial reporting, investing, and corporate governance cycle, future research may examine the effects that I document as they affect other facets of accounting judgment and decision-making.

CHAPTER 4

THE OPPOSITE EFFECTS OF HIGH ESTIMATE UNCERTAINTY ON JURORS' JUDGMENTS AND ON LAWYERS' SETTLEMENT NEGOTIATIONS IN AUDITOR NEGLIGENCE LITIGATION

4.1 Introduction

Auditors have become increasingly responsible to express opinions on valuation estimates for illiquid assets with no observable market value (Griffin 2014). The estimation techniques for these assets often involve highly subjective assumptions and therefore highly uncertain valuations. Auditors and accounting researchers have expressed concerns that high levels of estimate uncertainty will subject auditors to unfairly high litigation risk (e.g., Christensen et al. 2012; Bell and Griffin 2012). Auditors' litigation risk has always been large, but concerns over it have grown as the size of inherent uncertainty in valuation estimates has increased. For example, Christensen et al. (2012) note that in many modern cases the range of estimate uncertainty exceeds the size material misstatements by several times, suggesting that auditors can potentially face onerous litigation costs as the level of estimate uncertainty leads to material misstatements that may be beyond auditor's ability to fully control. From 1995-2007, the largest six accounting firms paid out \$5.66 billion to resolve over 362 cases (US Treasury 2008). In 2007, the litigation and practice-protection costs of the firms totaled 15.1% of the firms' overall audit-related revenue (US Treasury 2008).

In this study, I develop theory and predictions that high levels of estimate uncertainty in an undetected material misstatement may have directionally opposite effects on auditor liability, depending on whether the case is judged by jurors in a trial or

settled by lawyers in out-of-court negotiations. In the second study of my dissertation, I demonstrate that high estimate uncertainty causes jurors to judge auditors *less* harshly for undetected material misstatements that occur in relatively disaggregated financial statement line-items. In contrast, I predict and find that high estimate uncertainty causes auditors' lawyers to believe that the auditors are *more* vulnerable for failing to detect a material misstatement, and become willing to make *more* concessions in out-of-court settlement negotiation, regardless of whether the misstatement is in an aggregated or disaggregated line-item. I predict that these directionally opposite effects stem from lawyers sensing vulnerability to juror judgments but predicting jurors' reactions to uncertainty in the wrong direction.

I test my hypotheses in a 2×2 between-subjects experimental design. Lawyers read an auditor negligence litigation case as counsel to the auditors. The case (adapted from prior research) involves an alleged material misstatement in the valuation of highly customized mining and quarrying machinery. Investors allege that a material impairment in the machinery should have been apparent to the auditors during the audit, and the investors experienced losses as a result of the materially misstated audited financial statements. I manipulated whether the valuation and impairment judgment involved higher or lower inherent estimate uncertainty, and whether the alleged misstatement occurred in an account that was either aggregated with other accounts into a single income-statement line-item, or disaggregated as its own income statement line-item (see Libby and Brown 2013; Libby and Emitt 2014; FASB 2010). Lawyers rated (as counsel to the auditors) how strong of a position they felt the auditors had, how strong of a position they felt the investors had, how likely the case would be settled out of court, how

committed they would be to their initial settlement offer, how willing they would be to make concessions during negotiation, their negotiating goal for the minimum payout (in dollars) they would hope to get the opposition to accept, their negotiating limit of the maximum payout they would be willing to accept, and final negotiated settlement amount they expected their clients to pay. Furthermore, since lawyers read the same experimental case used in the second study of my dissertation to measure mock jurors' judgments, I asked the lawyers to predict the standard of care that the mock jurors would hold auditors to, as well as the mock jurors' negligence judgments for the auditors, and directly compare the lawyers' predictions of mock juror behavior to mock jurors' actual behavior.

Results show that lawyers make incorrect predictions about the effects of estimate uncertainty on jurors' standard of care for auditors and on jurors' perceptions of auditor negligence. Specifically, while high estimate uncertainty leads jurors to hold auditors to a *lower standard of care* and judge them as *less negligent* for undetected material misstatements in relatively disaggregated financial statement line-items, lawyers mistakenly expect jurors to hold auditors to a *higher standard of care* and judge auditors *more negligent* when estimate uncertainty is high (regardless of whether the misstatement occurred in an aggregated or disaggregated line-item).

This result is consistent hypothesis I build from prior research and theory. Specifically, I theorize that expert-lawyers would adopt an overly simplistic perspective of novice-jurors' performance evaluations and attributions of blame. My findings suggest further that these erroneous beliefs about jurors (and their reactions to estimate uncertainty) result in significant and unnecessary out-of-court settlement losses to auditors. Specifically, as auditors' lawyers misperceive the direction of the effect of

estimate uncertainty on juror judgments, estimate uncertainty concurrently leads lawyers to mistakenly assume that their clients hold a weaker position relative to the opposition, makes them less committed to their initial negotiating position, more willing to concede, adopt less ambitious negotiating goals and limits for their clients' minimum and maximum possible payouts (respectively), and ultimately expect to settle for larger amounts of money in out-of-court settlement. Furthermore, structural equation modeling of lawyers' judgments suggest that all of these effects of estimate uncertainty on lawyers' negotiating behavior stem from the lawyers' mistaken beliefs about jurors.

Despite the worse negotiation prospects for auditors in the high estimate uncertainty conditions, lawyers across all conditions uniformly believed that the case had a high likelihood of being settled out of court. This is consistent with evidence suggesting that the majority of auditor liability amounts are determined in out-of-court settlement (e.g., Palmrose 1991). Thus, the divergent effects I find on juror judgments and lawyers' out-of-court settlement judgments are important to understanding auditor litigation risk, given the prominent role out-of-court settlement plays in the resolution of auditor negligence litigation.

This study has important theoretical and practical contributions. First, this study contributes to the literature on high estimate uncertainty and auditor litigation risk, by showing that whether estimate uncertainty increases or decreases auditor litigation risk for undetected material misstatements depends on whether the litigation is settled by lawyers negotiating out of court or by jury. Second, auditors' legal counsel may have systematic misperceptions of juror judgments, which cause them to systematically underestimate the strength of their client's position relative to the opposition and

therefore concede more in negotiations. Thus, lawyers' potential misunderstanding of their clients' vulnerability to jurors may carry significant costs for auditors, in the most common venue for resolving auditor negligence litigation. Third, this study has implications for auditor negligence research more broadly. The vast majority of auditor liability is determined in out-of-court settlement (Palmrose 1991, 1999), and yet the vast majority of research on the resolution of auditor negligence litigation has focused on juror judgments (as Donelson, Kadous, and McInnes [2014] point out). While juror judgments are important to understand auditor litigation risk in a non-trivial proportion of cases, my study illustrates that auditors may face very different litigation risk in out-of-court settlement, where the vast majority of auditor liability is determined. Thus, my study responds to the call of Donelson et al. (2014) to investigate how well auditors' litigation risk, as proxied in juror studies, generalizes to auditors' litigation risk in out-of-court settlement.

4.2 Hypothesis Development

4.2.1 Estimate Uncertainty and Auditors' Litigation Risk

Fair value measurement is becoming a higher risk for financial reporters, auditors, and investors, because the standards and estimation techniques are increasingly complex, subjective, and uncertain (e.g., Ayres, Neal, Reid and Shipman 2014; FASB 2011; KPMG 2013; Ramana and Watts 2012). Auditors may not have the appropriate expertise for many complex estimates, and they may audit them using techniques more applicable to ordinary transactions (Griffith et al. 2015a). In particular, the range of uncertainty surrounding some accounting estimates can exceed materiality thresholds by several times (Christensen et al. 2012). Furthermore, auditors may face excessively high

litigation risk if investors and other stakeholders do not appreciate the difficult position that high inherent estimate uncertainty places auditors in when trying to identify material misstatements (e.g., Christensen et al. 2012; Bell and Griffin 2012).

However, how high estimate uncertainty directly influences auditors' litigation risk is unclear. On one hand, high estimate uncertainty increases the likelihood of material misstatements in unaudited financial statements (Griffith et al. 2015a). On the other hand, auditors react to high estimate uncertainty by requiring more audit adjustments (Griffin 2014). The net effect on actual litigation risk is unknown because, as Donelson et al. (2014, 63) note, there is only minimal archival data on damage awards, especially for cases settled out of court. Nevertheless, archival research suggests a widespread *belief* among auditors that higher estimate uncertainty increases their litigation risk for undetected material misstatements in audited financial statements, as manifested in higher audit fees and auditor-client resignations (Ayres et al. 2014; Goncharov, Reidl and Sellhorn 2014). In this study, I examine the possibility that the effect of high estimate uncertainty on an auditor's litigation risk for undetected material misstatements may go in opposite directions, depending on whether a case is judged by jurors or negotiated by lawyers in out-of-court settlement.

4.2.2 Juror Judgments and Lawyer Settlement Negotiations

The majority of auditor liability is determined in out-of-court settlement. Using Palmrose's (1999) auditor litigation database, I investigated the frequency with which auditor liability is determined at trial versus out-of-court settlement, and summarized the results in Table 4.1. The database includes the resolution type of 235 cases that proceeded

to resolution from 1960-1995.¹⁴ Results of these analyses suggest that approximately 73% of lawsuits were resolved by settlement (settlement to avoid litigation, pre-trial settlement, or post-trial settlement; Table 4.1). Close to 19% were resolved by trial (or post-trial appeal; Table 4.1), which would include both jury trials and judge-only trials. Finally, approximately 8% were resolved by one or more resolution type.¹⁵

¹⁴ The database includes another 157 apparently frivolous lawsuits that were either withdrawn by the plaintiff or dismissed before proceeding to resolution, and for which there was no auditor liability. Since anyone can file a frivolous lawsuit, I exclude dismissed or withdrawn lawsuits from these analyses.

¹⁵ For cases involving a combination of resolution types, the database does not identify which two or more resolution types are involved.

Table 4.1
Frequency of Auditor Litigation in Palmrose (1999) Database, by Settlement Type over Time

Resolution Type:	<u>Before 1970</u>		<u>1970-1979</u>		<u>1980-1989</u>		<u>1990-1995</u>		<u>Total</u>	
<u>Settlement</u>										
Settlement to avoid litigation	0	0.0%	1	0.4%	3	1.3%	28	11.9%	32	13.6%
Pre-trial settlement	3	1.3%	28	11.9%	32	13.6%	73	31.1%	136	57.9%
Post-trial settlement	0	0.0%	0	0.0%	2	0.9%	2	0.9%	4	1.7%
Subtotal	3	1.3%	29	12.3%	37	15.7%	103	43.8%	172	73.2%
<u>Trial Resolution</u>										
Trial	0	0.0%	1	0.4%	7	3.0%	4	1.7%	12	5.1%
Post-trial appeal	0	0.0%	5	2.1%	16	6.8%	11	4.7%	32	13.6%
Subtotal	0	0.0%	6	2.6%	23	9.8%	15	6.4%	44	18.7%
<u>Combination</u> (more than one resolution type)	0	0.0%	2	0.9%	6	2.6%	11	4.7%	19	8.1%
Total	3	1.3%	37	15.7%	66	28.1%	129	54.9%	235	100.0%

Notes:

This table summarizes the frequency of cases that proceeded to resolution in Palmrose’s (1999) auditor litigation database. The database includes another 157 apparently frivolous lawsuits that were either withdrawn by the plaintiff or altogether dismissed before proceeding to resolution, and for which there was no auditor liability. The subcategory “combination” shows cases with more than one resolution type, though the database does not identify which two or more resolution types were involved.

Given the massive total liability faced by auditors suggests that all of these resolution types are economically significant. The \$5.66 billion paid by the largest six accounting firms to resolve litigation from 1995-2007 for 362 cases (US Treasury 2008). In 2007, a full 15.1% of those firms' audit revenues went to litigation and practice-protection costs (US Treasury 2008). Moreover, even the prospects of auditor liability influence auditor behavior on the vast majority of cases which are not litigated. Yet, as Donelson et al. (2014) point out, research on the resolution process has focused almost exclusively on juror judgment and decision making, despite the fact that the vast majority of auditor litigation is resolved in out-of-court settlement. As a result, very little is known yet about out-of-court settlement of auditor litigation, factors that influence it, or how it differs from juror judgments (Donelson et al. 2014, 63).

4.2.3 Estimate Uncertainty, Juror Judgments, and Lawyer Negotiations in Out-of-Court Settlement

Legal theory has assumed that settlement negotiations are influenced in part by lawyer's expectations about how jurors *would* decide a case if it were to go to trial (Seabury 2012). As Grenier et al. (2015) and Donelson et al. (2014) note, accounting research has implicitly or explicitly relied on this assumption when asserting that juror studies provide a reasonable proxy for auditor's litigation risk overall. However, this assumption also relies on an assumption that lawyer's expectations about juror judgments are accurate (Alexander 1991; Seabury 2013). Yet, as Seabury (2013, 15) states in the legal research literature, "despite the theoretical importance of litigant expectations [about jury judgments] in driving settlement behavior, we have relatively little knowledge about how expectations are actually formed." Accounting research has also not yet

studied the accuracy or inaccuracy of lawyer's expectations, factors that systematically influence that accuracy or inaccuracy, and whether or how those accurate or inaccurate expectations influence subsequent settlement negotiations (Donelson et al. 2014).

Accounting estimate uncertainty provides an interesting contextual factor to test these assumptions. Besides being a timely factor with important practical implications for auditors and their litigation risks (e.g., Hay, Knechel, and Willekens 2014; Griffith et al. 2015a, 2015b; Griffin 2014), it is also a theoretically rich factor for testing the accuracy of lawyer's expectations of juror behavior, because there are at least two possible ways jurors would react to high levels of estimate uncertainty, with potentially divergent implications.

Under one perspective of juror judgment, jurors react negatively to high estimate uncertainty and see the auditor more as blameworthy for not being more careful and expressing an incorrect audit opinion amid high uncertainty. This perspective focuses on jurors having a generalized dislike of uncertainty, reacting with negative emotional affect, and allowing that affect to spread as they look to find a cause for plaintiff's losses and spread blame. This perspective sees jurors as highly naïve, since it expects to react negatively to uncertainty, regardless of its source, not recognizing the role that environmental and chance factors beyond the auditor's control play in a misstated estimate of inherently high uncertainty. Furthermore, jurors may be so motivated by plaintiff's losses to lay blame that they do not attempt any attributions of a failure to alternative causes. Under this perspective, high estimate uncertainty would elevate jurors' assessments of auditor negligence.

In contrast to this more naïve perspective, another perspective recognizes jurors as more boundedly rational (cf. Hastie and Dawes 2010). According to Attribution Theory, evaluators of other's performance attempt to attribute an observed failure (e.g., an uncorrected material misstatement in audited financial statements) to either internal causes, relational causes, or external causes, searching for appropriate cues (Eberly et al. 2011; Burton et al. 2014). Internal causes include factors within the evaluatee's control (e.g., auditor negligence), external causes include factors outside of the evaluatee's control (e.g., chance), and relational causes include factors that arise from interactions between the evaluatee's and other actors (e.g., auditor independence problems leading to undetected management fraud). Furthermore, evaluators do not rush to attribute all possible causes of an observed failure to one of these three sources. Instead, evaluators tend to cautiously withhold some attributions, instead holding some "belief in reserve" (e.g., Shafer 1976; Curley 2007). This tendency to hold belief in reserve increases as evaluators cannot clearly attribute the cause anywhere, as the stakes of their judgment are high, and as their relative familiarity and confidence with the subject matter decreases (e.g., Macchi, Osherson and Krantz 1999). This cautious behavior has been demonstrated among jurors (Curley 2007).

The second study of my dissertation proposes this latter (less naïve) perspective of juror judgment and use it to predict that jurors will react to high estimate uncertainty by evaluating auditors more (rather than less) favorably. In particular, the second study of my dissertation proposes that jurors evaluate auditor negligence by thinking naturally in terms of whether a *properly conducted audit would have corrected* a material misstatement. They refer to this as jurors' "*standard of care*" for auditors, since, the

more jurors believe that a properly conducted audit would have corrected a misstatement, the higher a standard of care jurors are holding auditors to for failing to detect the misstatement. Attribution Theory suggests that, thinking in terms of this standard of care, jurors would then be able to see that high estimate uncertainty lowers the extent to which even a properly conducted audit could have detected a misstatement. Thus, high estimate uncertainty would make jurors less likely to attribute the cause of the accounting failure to internal factors within the auditors control (i.e., auditor negligence).

The second study of my dissertation finds supportive evidence of this latter (less naïve) perspective of jurors. Specifically, they presented mock jurors with an auditor negligence case, involving an undetected material misstatement. In a $2 \times 2 \times 2$ between-subjects experiment, they manipulated the level of uncertainty surrounding the material misstatement (higher vs. lower estimate uncertainty), whether the misstated account appeared as its own line-item on the income statement or whether it was aggregated into a single line-item with other, non-misstated accounts (aggregated vs. disaggregated income statement), as well as the size of the material misstatement (larger vs. smaller). The level of aggregation or disaggregation of accounts in financial statement line-items is discretionary to reporting firms, and financial statements in practice vary widely in their level of aggregation or disaggregation (Libby and Brown 2013; Libby and Emett 2014; Chen, Miao, and Shevlin 2015). Holding all other aspects of a material misstatement constant, disaggregating the materially misstated account with its own line-item on the income statement makes the misstatement appear larger with respect to the size of its line-item, even though it has no effect on the size of the misstatement relative to net income, sales, total assets, or any other line of the financial statements. However, because

disaggregation makes the misstatement appear more salient, the second study of my dissertation finds that it elevates both the standard of care they hold the auditors to for failing to find the misstatement, as well their assessments of auditor negligence, but only when estimate uncertainty is inherently low. In contrast, when estimate uncertainty is high, jurors appear more capable of attributing the cause of the misstatement to factors other than auditor negligence, hold auditors to a lower standard of care for failing to detect the misstatement, and find them less negligent. The findings from the second study of my dissertation appear in Figure 3.1 and Figure 3.3.¹⁶

Lawyers in out-of-court settlement will be unlikely to predict juror judgments accurately. To do so requires a prediction of what would occur if a case under settlement were to go to trial, and a large body of psychology has shown that even experts are bad predictors (see, e.g., Camerer and Johnson 1997). In particular, predictions in this task require that experts (litigation lawyers in out-of-court settlement) predict what novices' (i.e., jurors') judgments would be. Individuals in general tend to place high confidence in their own judgments and give others less credit for being boundedly rational (Pronin 2002, 2007; Pronin et al. 2004; Ross et al. 2004). Experts in particular self-servingly place too much confidence in their own judgments relative to novices' judgments (Armstrong 1991; Thom-Santelli, Cosley, and Gay 2010). When people feel that they

¹⁶ In the second study of my dissertation, the pattern of findings shown in Figure 1 was robust to the size of the material misstatement. That is, I tested the *estimate uncertainty* × *disaggregation* interaction shown in Figure 1 under conditions of (1) a material misstatement that was both quantitatively and qualitatively material, and (2) a material misstatement that was larger (by several times). Figure 1 shows the second study of my dissertation's results within the conditions of the more standard quantitatively material misstatement, and the same pattern occurs for the larger material misstatement as well. For my experiment studying attorneys' settlements, I chose to use the second study's experimental conditions using the more standard quantitatively material misstatement, to demonstrate significant effects on attorneys' out-of-court settlement negotiations on more quantitatively normal misstatements, without needing to resort to extremely large material misstatements to demonstrate effects. As a result, the means shown in Figure 1 for jurors' judgments are the basis for comparison to attorneys' beliefs about jurors' judgments.

belong to an expert or enlightened group, they become territorial, are more likely to assume that others' judgments are poor and naïve, and give novices less credit for being boundedly rational (Ehrlinger, Gilovich, and Ross 2005; Thom-Santelli et al. 2010). Empirical research suggests that lawyers often tend to view themselves overconfidently (e.g., Birke and Fox 1999; Babcock and Pogarsky 1999; Kiser, Asher and McShane 2008), suggesting that they may not always give jurors adequate credit for being boundedly rational.

If so, then lawyers may be more likely to adopt the more naïve perspective of juror decision making with respect to predicting the effects of estimate uncertainty on their judgments. That is, lawyers would likely expect jurors to hold auditors more responsible for failing to detect a material misstatement when uncertainty is high. Viewed this way by lawyers, high estimate uncertainty would elevate both (1) the standard of care jurors hold auditors to for failing to detect the material misstatement and (2) juror assessments of auditor negligence. If lawyers hold this viewpoint, their predictions of jurors would be inaccurate, compared to actual effects of estimate uncertainty on juror judgments (see Figure 3.1 and 3.3). This discussion suggests the following hypotheses:

- H1:** Auditors' legal counsel will incorrectly predict jurors' standard of care for auditors to be greater when estimate uncertainty is higher than when estimate uncertainty is lower.
- H2:** Auditors' legal counsel will incorrectly predict jurors' negligence judgments for auditors to be greater when estimate uncertainty is higher than when estimate uncertainty is lower.

H1 and H2 have important implications for negotiation outcomes and, ultimately, auditors' litigation risk. Out-of-court negotiations over settlement are likely to be influenced by a number of factors, but they are likely to reflect lawyers' predictions of

when they are more or less vulnerable to jurors. If so, then inaccuracies in lawyers' predictions are likely to influence their perceptions of the strength of their negotiating position and of the opposition's negotiating position, their willingness to concede, their negotiating strategies (e.g., the dollar amounts of their negotiating limits and targets), and, ultimately, the final negotiated settlement amounts. This suggests the following hypothesis:

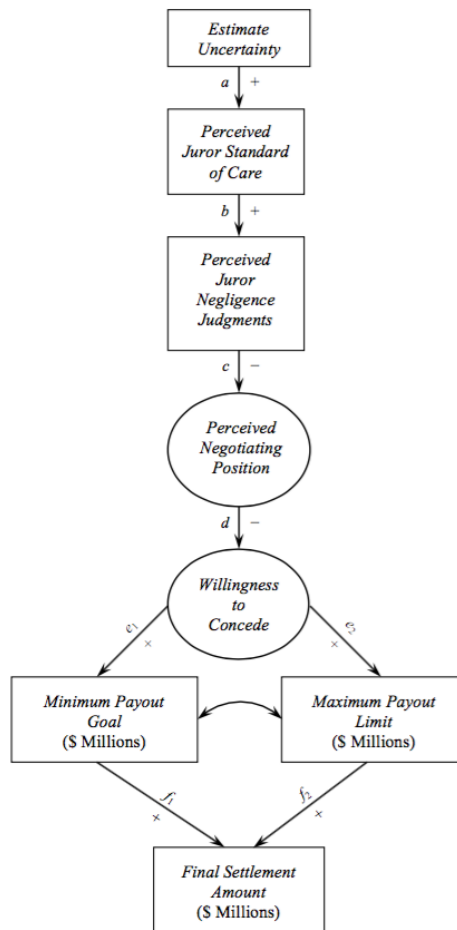
- H3:** Lawyers' incorrect beliefs about jurors' standard of care for auditors (H1) and auditor negligence judgments (H2) will, in turn, lead auditors' legal counsel to:
- (a) perceive themselves to be in a weaker negotiating position relative to the opposition,
 - (b) become more willing to concede on behalf of auditors,
 - (c) adopt less ambitious negotiating goals and negotiating limits in out-of-court settlement negotiations for auditors, and
 - (d) anticipate higher final financial settlement amounts for auditors to pay out,
- when estimate uncertainty is higher than when estimate uncertainty is lower.

Figure 4.1 shows the theoretical structural model suggested by my theory and H3. Specifically, the model in Figure 4.1 posits that higher estimate uncertainty will (incorrectly) lead attorneys to believe that jurors would hold auditors to a higher standard of care, which would lead to higher juror negligence judgments against auditors, which would weaken the attorney's perceived negotiating position (as legal counsel for the auditors), which lead them to adopt less ambitious negotiating goals and limits for auditors' payouts, and, ultimately, anticipate higher final settlement amounts for auditors to pay out. In addition, since variance is likely to exist in how "tough," "aggressive," or "ambitious" negotiating attorneys are (relative to one another), then more (less) ambitious negotiating goals would tend to co-occur with more (less) ambitious negotiating limits. Thus, the theoretical structural model allows negotiating goals and limits to co-vary (i.e.,

the double-headed arcing arrow in Figure 4.1), in order to control for this predictable source of variation.¹⁷ Besides each link in Figure 4.1 being individually significant, my theory for H3 suggests that the entire path in Figure 4.1 should be positive and statistically significant (i.e., indicating that higher estimate uncertainty ultimately leads to higher final settlement payouts for auditors, through the path posited by H3 and the model in Figure 4.1).¹⁸

Figure 4.1

Theoretical Structural Model



¹⁷ Prior negotiation research suggests that negotiation goals, negotiation limits, and expected final settlement amounts are related but distinct constructs (e.g., Hatfield, Agoglia, and Sanchez 2008, Bame-Aldred and Kida 2007). Accordingly, my theoretical model treats them this way (Figure 2).

¹⁸ Significantly positive overall paths can be demonstrated by testing whether the products-of-coefficients for a path (such as $a \times b \times c \times d \times e_1 \times f_1$, $a \times b \times c \times d \times e_2 \times f_2$, and $a \times b \times c \times d \times (e_1 \times f_1 + e_2 \times f_2)$) are significantly positive.

If supported, H3 suggests that auditors' legal counsel may make unnecessary concessions during out-of-court settlement, including unnecessary financial costs for auditors, when estimate uncertainty is high.¹⁹ It also suggests for the auditing research literature that juror judgments alone may be a poor proxy for auditor litigation outcomes in the majority of cases that are settled out of court (Table 4.1), and, therefore, an incomplete proxy for auditor litigation risk overall. More specifically, not only does my theory suggest that settlement negotiation outcomes may be different from juror judgments, high estimate uncertainty may even cause them to go in opposite directions.

4.2.4 Disaggregation, Estimate Uncertainty, and Lawyers' Predictions of Jurors

The second study of my dissertation finds that jurors' standard of care and negligence judgments are highest when estimate uncertainty is low *and* the financial statements are disaggregated, and relatively lower when *either* the estimate uncertainty is high, the financial statements are aggregated, or both (Figure 3.1 and 3.3). H1 and H2 predict that lawyers' predictions of jurors judgments will go systematically in the wrong direction with respect to estimate uncertainty. Furthermore, it is also unlikely that lawyers will predict the joint effect of estimate uncertainty and financial statement aggregation on jurors' judgments (i.e., the ordinal interactions in Figure 3.1 and 3.3). Experts are poor at predictions in general (e.g., Meehl 1986), and their predictions become increasingly poor as they attempt to predict interactive effects (e.g., Camerer and Johnson 1997). Thus, while experts are unlikely to predict jurors judgments correctly with respect to estimate

¹⁹ Archival legal research suggests that defendants' legal counsel may often offer too much in concessions, though the causes of when they do so are not yet well understood. For example, Kiser et al. (2008, 567) examine 2,043 civil lawsuits that went to trial following failed negotiations, and find that in a full 61.2% of those cases, defendant legal counsel made unnecessarily generous settlement offers during negotiations than they needed to based on trial outcomes. My study potentially illuminates when and why auditors' legal counsel may make unnecessary concessions during out-of-court negotiations, and my conclusions also extend to the majority of cases that are settled out of court without going to trial (Table 1).

uncertainty (H1 and H2), they are also unlikely to predict jurors' judgments correctly as a joint function of low estimate uncertainty and financial statement disaggregation. This suggests the following hypotheses:

H4: Auditors' legal counsel will not correctly predict the joint effect of low estimate uncertainty and financial statement disaggregation on jurors' standard of care for auditors or on jurors' negligence judgments.

In fact, whether or how financial statement disaggregation will influence lawyers' predictions of juror judgments at all is unclear. Disaggregation changes the relative size of a material misstatement when compared to its own financial statement line-item, but not when compared to earnings, sales, earnings per share, total assets, total liabilities, total equity, retained earnings, or other prominent line-items. The second study of my dissertation finds that disaggregation of a material misstatement affects jurors' perceptions of its effects on the fair presentation of its line-item, and, in turn, jurors' perceptions on the fair presentation of the financial statements as a whole. However, lawyers may feel that, once a misstatement has passed the hurdle that it can be characterized for jurors as *material*, jurors may be focused on that characterization, but after that will be insensitive to variation *relative materiality*. This viewpoint would be consistent with my theory that lawyers likely adopt a perspective of jurors as highly naïve and relatively insensitive to variation in finer gradations of materiality. If so, they would under-appreciate the sensitivity that jurors actually show to aggregation. This suggest the following research question:

RQ1: Will financial statement disaggregation influence lawyers' predictions of jurors' standard of care for auditors or jurors' negligence judgments?

4.3 Methodology

4.3.1 Participants

Because I am hypothesizing differences between jurors' judgments and lawyers' out-of-court settlement negotiations, I sought highly experienced lawyers with relevant expertise as participants for this study. To facilitate their participation, the experiment was administered through Qualtrics® online software, with a single link that randomly assigned participants to different experimental conditions. To obtain primary contacts for recruiting participants, a high-level senior executive at one of the world's largest and most prestigious commercial and investment banking firms assisted me with his personal contacts of 31 highly experienced and established senior-partner-level lawyers at major corporate law practices. I supplemented this primary contact list with another 11 first- and second-degree connections of my own. In all, I directly contacted 39 lawyers as primary contacts, asking them to participate in the study themselves and to share the Qualtrics® link with their colleagues who also have legal negotiation experience and expertise in corporate law. Of these 39 contacts, 31 are in law practices, while eight serve as counsel for corporations. Of the 31 attorneys in law practices, all came from firms practicing commercial litigation, and 14 came from Am Law 200 firms, the top 200 grossing law firms in the United States. The primary contacts generally indicated willingness to participate in the study and/or to share the link with their colleagues.

One hundred seventy-seven lawyers clicked on the Qualtrics® link but dropped out at the Informed Consent page, while another 87 lawyers gave their consent and began the study, with 74 completing the study. The participants had, on average, 21.4 years of legal experience and 13.5% of them were female. The post-experimental questionnaire

asked participants to rate their relative level of familiarity with civil proceedings, business law, torts, and negligence on a scale from 1 to 10 and also asked them a free-response question to provide their personal specializations. The participants indicated high levels of familiarity with civil proceedings (7.61), business law (8.07), torts (6.96), and negligence (7.65) (all significantly above the mid-point of the scale, p -values < 0.001), 95% explicitly mentioned specializations in business, corporate, or securities law in their answers to the free-response question, and 58% explicitly mentioned litigation as a specialization.²⁰ Thus it appears that the participants have appropriate knowledge and experience to make legal judgments and decisions in my experimental setting.

4.3.2 Task and Manipulations

The attorney participants read a legal case in which investors alleged auditor negligence leading to a material misstatement in audited financial statements. To facilitate comparison of attorneys' judgments to jurors' judgments, I adapted the experimental materials from the second study of my dissertation, which had mock jurors read and decide the same case.

I use a 2×2 between-subjects experimental design. I manipulate the level of *estimate uncertainty* in the account that gave rise to the alleged misstatement (high vs. low). In addition, I also manipulate the level of *disaggregation* of the misstatement. Specifically, I manipulate whether the misstated account appeared as its own line-item on

²⁰ The free-response specialization required that lawyers unpromptedly mention litigation among their specializations, and consequently this measure is likely to understate the proportion with litigation experience. My results and conclusions do not systematically depend on whether lawyers explicitly mentioned specialization in litigation and/or business, corporate, or securities law in their answers to the free-response question.

the income statement (disaggregated) or combined with other accounts into a single financial statement line-item (aggregated; see Libby and Brown 2013; FASB 2010).²¹

At the beginning of the case, participants were informed that they would be assume the role of legal counsel for the auditors and be asked for their legal judgment on the case. The attorney participants were also told that the case had also been presented to college students in the role of mock jurors, and that research in accounting, law, and psychology shows that college students are good proxies for jurors, forming judgments similar to jurors in negligence settings.²² The materials also told the attorney participants that the mock jurors averaged 2.51 years of post-high school education and that 44% were female.

The experimental materials then provided the attorney participants with background information that explained basic auditing concepts (such as material misstatements, clean audit opinions, reasonable assurance, audit procedures, etc.), as well as five related comprehension questions that the mock jurors had also read (adapted from Peecher and Piercey 2008). For each comprehension question, the attorney participants were shown the percentage of mock jurors who had answered the question correctly (which ranged from 95.1% to 99.5% for individual comprehension questions). Thus,

²¹ The second study of my dissertation manipulates these variables and also the size of the material misstatement (i.e., a quantitatively and qualitatively material misstatement vs. a much larger material misstatement). They find that low estimate uncertainty and disaggregation jointly increase jurors' standard of care for auditors and auditor negligence judgments. These effects occur similarly for extremely large vs. more normal material misstatements. For this experiment, I selected the more normal-sized material misstatement for attorneys to evaluate (see footnote 3 for more details).

²² Specifically, meta-analyses across many juror research studies show that undergraduates' and jurors' judgments are similar across a variety of task factors and contexts (Bornstein 1999; Zickafoose and Bornstein 1999). The accounting research that uses both undergraduates and wider samples of jury-eligible adults replicates this similarity in their judgments (e.g., Cornell, Warne and Eining 2009; Grenier, Pomeroy and Stern 2015, Kadous 2001). As a result, accounting research commonly uses college students as mock jurors (e.g., Kadous and Mercer, 2012; Reffett 2010; Peecher and Piercey 2008; Grenier, Pomeroy and Reffett, 2012).

lawyer participants knew that the mock jurors had a basic understanding of the concepts surrounding an auditor negligence case and had paid attention.

Participants then read about a fictional mining company, Big Time Gravel, which had been audited by Jones & Company (adapted from Kadous 200, 2001; Peecher and Piercey 2008). A large portion of the company's assets was mining equipment that was highly customized to the company's mines, quarries, and processing sites, and therefore did not have readily available market prices. As a result, the management of the mining company used mathematical valuation models to estimate the fair value of the machinery and determine whether an impairment loss should be recorded.

In the high *estimate uncertainty* condition, participants were told that the model is based on highly subjective and very complicated assumptions about the cash that the machinery will generate as well, as other difficult projections about the unpredictable future costs of operating the machinery. As a result, the auditors estimated the value of the machinery to be between \$350 and \$650 million.

In the low *estimate uncertainty* condition, participants were told that the model is based on highly objective and straightforward assumptions about the cash that the machinery will generate as well as other simple projections about the predictable future costs of operating the machinery. The auditors in this condition estimated the value of the machinery to be between \$450 and \$550 million.

In all conditions, the company recorded the value of the machinery at \$545 million, which resulted in a \$10 million impairment loss. Jones & Company issued an unqualified audit opinion on Big Time Gravel's financials.

Next, the case described the alleged misstatement in the financial statements that resulted in the lawsuit. After the audited financial statements were issued, Big Time Gravel's mining machinery went down, creating high costs of repair and lost revenue. The investors allege that the poor condition of the machinery should have been apparent to the auditors during the audit of the financial statements, before the financial statements were issued with a clean opinion. Witnesses for the investors testified that, based on information the auditors should have recognized, the true value of the machinery should have been \$495 million, and that the impairment loss should have been \$60 million, rather than \$10 million. The \$50 million misstatement exceeds 0.5% of sales, a quantitative materiality threshold used commonly in practice (Eilifsen and Messier 2015). In addition, the misstatement allowed Big Time Gravel to meet (rather than just miss) analysts' forecasts, making the misstatement qualitatively material as well as quantitatively (SEC 1999). The investors alleged further that if the loss of \$60 million was to have been recorded by the company, they would have not remained invested in the company.

Finally, following the case materials from the second study of my dissertation, participants read an excerpt from Big Time Gravel's income statement. To show the alleged misstatement, separate columns showed the numbers as reported in the audited financial statements, the numbers as the investors alleged that they should have been reported, and the difference between the two, in dollars and in percentages. In the aggregated financial statement conditions, the alleged misstatement in impairment loss was aggregated with other financial statement accounts into a single "Cost of goods sold" line-item. In the disaggregated conditions, "Cost of goods sold" was broken down into

multiple separate line-items, including a separate line-item for the impairment loss on the machinery. This *disaggregation* manipulation follows an exemplar provided by FASB (2010) extremely closely, which disaggregates “Cost of goods sold” in almost exactly the same way. This manipulation is also similar to the disaggregation manipulation of Libby and Brown (2013). Four lawyers with 38 years of legal experience combined (including a former law school dean and a U.S. district court clerk) reviewed the experimental materials to ensure that the information would be admissible in court as presented in the case.

4.3.3 Response Variables

After reviewing the financial statements, the attorneys made several judgments related to the legal settlement of the Jones & Company audit of Big Time Gravel. Specifically, for testing H1, the instrument measured attorneys’ predictions of the mock jurors’ standard of care for the auditors (*Perceived Juror Standard of Care*). Specifically, attorney’s predicted the mock jurors’ beliefs about how likely it is (on a scale from 1 to 10) that a properly conducted audit could have correctly valued the machinery and its related impairment loss. Following the example of the second study of my dissertation, I label this judgment the jurors’ “standard of care,” since, the more likely a *properly conducted* audit could have correctly valued the machinery, the higher a standard of care jurors are holding auditors to for failing to do so. For testing H2, the instrument measured attorneys’ predictions of the mock jurors’ auditor negligence judgments, on a scale from 1 to 10 (*Perceived Juror Negligence Judgments*). These two response variables also allow me to test H4 and RQ1.

For testing H3, the instrument developed several measures of the out-of-court settlement negotiation process. This included three measures of the attorney's perceptions of the strength of the auditor's out-of-court settlement negotiating position relative to the opposition's negotiation (for a latent variable *Perceived Negotiating Position*). Specifically, the instrument gathered perceptions of the absolute strength of the auditor's negotiating position (very weak vs. very strong), the absolute strength of the opposition's negotiating position (very weak vs. very strong), and the relative favorability of the auditors' settlement position compared to the opposition's (favor the investors vs. favor the auditors), all on scales from 1 to 10. The instrument also gathered three measures of the attorney's willingness to concede on behalf of the auditors during negotiations (for a latent variable *Willingness to Concede*). Specifically, the instrument asked attorneys to rate (on scales from 1 to 10) how committed they would be (as auditors' legal counsel) to their initial settlement offer (very weakly committed vs. very strongly committed), and how willing they would be to make concessions to reach a settlement with investors' legal counsel (very unwilling vs. very willing). In addition, attorneys rated the range of settlement amounts that would be acceptable to them, on a scale starting at 0 for "no acceptable range" to 10 ("the acceptable range would be very large"). Finally, to test H3, attorneys indicated (as legal counsel for the auditors) the lowest amount they would hope to convince the investors' legal counsel to accept as a proposed settlement (*Minimum Payout Goal*), the highest amount they would be willing to offer the investors' legal counsel as a proposed settlement (*Maximum Payout Limit*), and the final negotiated settlement amount they expected between themselves and the investors' legal counsel (*Final Settlement Amount*). All three of these amounts were measured in millions of

dollars, and the *Final Settlement Amount* also gave participants the option of responding with “We would not be able to reach a final negotiated settlement amount.” These goals, limits, and final settlement amount response variables are consistent with similar measures used in other accounting negotiation research (e.g., Hatfield, Agoglia, and Sanchez 2008, Bame-Aldred and Kida 2007).

In addition, the instrument gathered additional supplementary measures related to the negotiation process, each one discussed in the Results section, next. Finally, the attorney’s responded to manipulation checks and demographic questions.

4.4 Results

4.4.1 Likelihood of Being Settled out of Court

The instrument asked all attorneys to assess the likelihood that the lawsuit against “Jones & Company would end up being settled out of court as opposed to, e.g., going to trial”. On a scale from 1 (very unlikely) to 10 (very likely), participants’ mean rating was 8.55, significantly above the midpoint of the scale ($t = 20.47, p < 0.001$). In addition, the attorneys rated how much overlap they thought there would be in the range of settlement amounts that would be acceptable to both them and to the investors’ legal counsel, on a scale from 0 (there would be no overlap) to 10 (there would be complete overlap). The attorneys indicated that there would be a significant amount of overlap (mean 4.24, $t = 21.77, p < 0.001$). In fact, no attorneys selected “no overlap,” suggesting that settlement negotiations would be unlikely to reach an impasse and go to trial. Finally, my dependent variable *Final Settlement Amount* gave attorneys the option of responding with “We would not be able to reach a final negotiated settlement amount” rather than provide a dollar figure. Only six out of 74 responses selected this option. Thus, it appears that this

case would most likely be settled out of court, consistent with most lawsuits in my analysis (Table 4.1) of Palmrose's (1999) archival database.

4.4.2 Perceptions of Materiality and Estimate Uncertainty

The misstatement is material according to quantitative benchmarks common to practice (Eilifsen and Messier 2015), as well as qualitative benchmarks (SEC 1999). To test whether attorneys perceived the alleged misstatement to be material, the instrument asked how material of an effect the alleged misstatement had on the judgment of a reasonable person relying on the financial statements (*Materiality–Overall*), on a scale from 1 (no material impact) to 10 (a highly material impact). Despite being counsel for the auditors, the attorneys acknowledged that the alleged misstatement was significantly material (mean = 3.46, $t = 12.12$, $p < 0.001$), with 71 out of 74 responses (96%) acknowledging a material impact.

As a manipulation check for disaggregation, the instrument also asked the attorneys how material of an impact the alleged misstatement had on the financial statement line-item it appeared in (*Materiality–Line-item*), on a similar scale from 1 to 10. As expected, the misstatement appeared to have a more material impact on its line-item in the disaggregated condition than in the aggregated condition (4.38 vs. 3.17, $t = 2.17$, $p = 0.017$), with the means of both conditions indicating a significantly material effect of the misstatement on its line-item (p 's < 0.001). Furthermore, the effect of *disaggregation* on the *materiality–line-item*, in turn, increases attorney's perceptions of the overall impact of the misstatement on the judgment of a reasonable person relying on the financial statements (*Materiality–Overall*) (overall path estimate = 0.233, 95% of bias-corrected bootstrapped estimates > 0.078 , Hayes 2013; Sobel test = 1.97, $p = 0.025$).

Thus, it appears that my manipulation of *disaggregation* was successful, in that it predictably influenced attorneys' perceptions of the impact of the material misstatement.²³

To check my manipulation of *estimate uncertainty*, the instrument asked participants to rate on a scale from 0 to 10 the degree of uncertainty surrounding the valuation model's inputs, assumptions and estimation of the impairment loss. The attorneys' uncertainty ratings were significantly higher in the high-uncertainty conditions than in the low-uncertainty conditions (8.05 vs. 4.61, $t = 6.57$, $p < 0.001$). Thus, the *uncertainty* manipulation appears to have been successful.²⁴

Because I use them as manipulation checks, both materiality ratings and the uncertainty ratings appeared at the end of the instrument, right before demographic questions, and right after all other response variables, with the "back" button suppressed so that asking the manipulation check questions could not influence attorney's responses to any of my dependent variables.

²³ Jurors in the second study of my dissertation exhibited similar effects of *disaggregation* increasing *Materiality-Line-item*, which, in turn, increased *Materiality-Overall*. Directly comparing attorney's *Materiality-Line-item* and *Materiality-Overall* judgments to those of the jurors in the same four conditions in the second study of my dissertation, the only significant difference in their judgments is a main effect of participant type such that jurors, on average, judged the misstatement to have a more material impact on *Materiality-Line-item* and *Materiality-Overall* than did attorneys, across all experimental conditions ($p < 0.001$). This effect likely reflects the directional goals and motivated reasoning of attorneys as legal counsel for the auditors (Kunda 1990).

²⁴ The uncertainty manipulation also significantly influenced jurors' perceptions of uncertainty in the second study of my dissertation ($p < 0.001$). Comparing attorneys' and jurors' judgments directly, attorneys' uncertainty ratings appear to be more sensitive than jurors' to the different levels of estimate uncertainty. That is, the difference between attorneys' uncertainty ratings in the high and low uncertainty conditions (8.05 vs. 4.61) is significantly larger ($t = 5.47$, $p < 0.001$) than the same difference in jurors' ratings (7.63 vs. 5.73). This suggests that attorneys were able to more confidently identify differences in estimate uncertainty.

Table 4.2: Descriptive Statistics and ANOVAs

	<i>Perceived Juror Standard of Care</i>	<i>Perceived Juror Negligence Judgments</i>	<i>Auditor's Negotiating Position</i>	<i>Opposition's Negotiating Position</i>	<i>Auditor's Position Relative to Opposition's</i>	<i>Commitment to Initial Offer</i>	<i>Concede to Reach Settlement</i>	<i>Acceptable Range of Settlement Amounts</i>	<i>Maximum Payout Limit (millions)</i>	<i>Minimum Payout Goal (millions)</i>	<i>Final Negotiated Settlement (millions)</i>
Descriptive statistics: mean, (standard deviation), and [n]											
Low Estimate Uncertainty, Aggregation	4.28 (1.93) [18]	3.94 (1.59) [18]	7.62 (1.07) [21]	3.43 (1.08) [21]	7.52 (1.25) [21]	4.90 (2.39) [21]	4.76 (2.61) [21]	3.40 (1.73) [20]	\$13.67 (\$10.72) [18]	\$5.42 (\$5.11) [18]	\$10.67 (\$9.01) [18]
Low Estimate Uncertainty, Disaggregation	4.72 (2.22) [18]	4.28 (1.93) [18]	7.57 (1.25) [21]	3.29 (1.10) [21]	6.71 (1.98) [21]	4.95 (2.25) [21]	6.10 (2.26) [21]	3.71 (1.74) [21]	16.81 (12.67) [18]	\$7.17 (\$7.41) [18]	\$14.47 (\$14.44) [15]
Low Estimate Uncertainty	4.50 (2.08) [36]	4.11 (1.76) [36]	7.60 (1.16) [42]	3.36 (1.09) [42]	7.12 (1.61) [42]	4.93 (2.32) [42]	5.43 (2.43) [42]	3.56 (1.73) [41]	15.24 (11.70) [36]	\$6.30 (\$6.26) [36]	\$12.57 (\$11.73) [33]
High Estimate Uncertainty, Aggregation	5.65 (2.11) 20	5.30 (2.00) 20	7.09 (1.59) 23	4.30 (1.99) 23	6.57 (1.97) 23	4.09 (2.19) 23	6.22 (1.76) 23	5.13 (1.42) 23	21.75 (13.34) 18	\$8.78 (\$14.58) 18	\$20.72 (\$20.67) 16
High Estimate Uncertainty, Disaggregation	4.95 (1.99) 20	4.50 (2.14) 20	7.18 (1.53) 22	4.00 (1.48) 22	6.73 (1.58) 22	4.41 (2.15) 22	6.32 (1.59) 22	4.00 (1.38) 22	20.25 (18.51) 20	\$8.55 (\$11.90) 20	\$18.13 (\$16.67) 19
High Estimate Uncertainty	5.30 (2.05) [40]	4.90 (2.07) [40]	7.14 (1.56) [45]	4.15 (1.73) [45]	6.65 (1.78) [45]	4.25 (2.17) [45]	6.27 (1.67) [45]	4.57 (1.40) [45]	21.00 (15.92) [38]	\$8.67 (\$13.24) [38]	\$19.43 (\$18.67) [35]
ANOVA p-values^a											
Estimate Uncertainty^a	0.048	0.040	0.063	0.007	0.103	0.081	0.032	0.002	0.043	0.167	0.038
Aggregation	0.788	0.601	0.937	0.482	0.385	0.702	0.112	0.232	0.806	0.756	0.874
Interaction	0.231	0.207	0.811	0.799	0.193	0.776	0.171	0.036	0.487	0.686	0.406

^a Estimate uncertainty influences each variable in the direction suggested by my theory, and the associated p-values are one-tailed.

4.4.3 Hypothesis Tests

Table 4.2 shows descriptive statistics and ANOVA results for every response variable used in my tests of H1 through H4 and RQ1. As the ANOVA results suggest, I find evidence of a generally consistent main effect of *estimate uncertainty* increasing attorney's predictions of jurors judgment against auditors, decreasing attorney's perceived negotiating position, increasing their willingness to concede, increasing the negotiating goals and limits they have for auditors' payout to plaintiffs, and increasing their anticipated final settlement amount. While these initial tests are informative, a more formal test of my theory across these variables follows, using structural equations modeling, which provides more powerful tests of my theory by (1) controlling for measurement error, (2) estimating structural relationships between variables, (3) estimating the significance of the overall causal path posited by my theory, and (4) providing goodness of fit estimates between the theoretical structural model and my theory, none of which are possible using ANOVA analyses alone. I turn to specific hypothesis tests, next.

H1 (H2) predicts that lawyers will incorrectly predict mock jurors' standard of care (negligence judgments) for auditors to be higher when estimate uncertainty is high than when estimate uncertainty is low. As Table 4.2 shows, *Estimate Uncertainty* appears to significantly increase attorneys' *Perceived Juror Standard of Care* (4.50 vs. 5.30, $t = 1.69$, $p = 0.048$) and their *Perceived Juror Negligence Judgments* (4.11 vs. 4.90, $t = 1.77$, $p = 0.040$).

Comparing these predictions of the mock jurors' judgments to the actual jurors' judgments, the attorneys' beliefs about jurors are systematically incorrect, and, in fact,

even go systematically in the opposite direction under some conditions. Specifically, estimate uncertainty caused the mock jurors to *decrease* (rather than increase) their *Standard of Care* for auditors when the financial statements were disaggregated (Figure 3.1, $t = -2.64$, $p = 0.009$), and had no significant effect on their *Standard of Care* judgments when the financial statements were aggregated (Figure 3.1, $t = -0.57$, $p = 0.57$). Similarly, estimate uncertainty caused the mock jurors to *decrease* (rather than increase) their *Negligence Judgments* when the financial statements were disaggregated (Figure 3.3, $t = -1.31$, $p = 0.096$), and had no significant effect on their *Negligence Judgments* when the financial statements were aggregated (Figure 3.3, $t = 1.09$, $p = 0.28$). In particular, jurors' judgments were harshest against auditors in the disaggregated, low estimate uncertainty condition, which was significantly higher than each of the other three conditions for both jurors' *Standard of Care* (p 's ≤ 0.096 ; Figure 3.1) and their *Negligence* judgments (p 's ≤ 0.076 ; Figure 3.3). In no case was this true of attorneys' predictions of jurors' judgments, which presumed that low estimate uncertainty would lead to lower (not higher) juror standard of care and negligence judgments. Thus, estimate uncertainty significantly increased attorneys' *Perceived Juror Standard of Care* and *Perceived Juror Negligence Judgments*, and did so incorrectly. These results support H1 and H2.

To test H3, I construct a structural equations model of the data to test the theoretical structural model posited in Figure 4.1. Results of the structural equations model appear in Figure 4.2. Overall model fit indices are very strong (RMSEA = 0.028, CFI = 0.993, Tucker-Lewis Index = 0.991, SRMR = 0.076), suggesting that this model provides an excellent fit to the data (see Brown 2015). The first link in the model shows

that high *Estimate Uncertainty* significantly increases attorneys' *Perceived Juror Standard of Care* ($a = 0.414$, $p = 0.036$), replicating my tests of H1. Higher *Perceived Juror Standard of Care*, in turn, significantly increases *Perceived Juror Negligence Judgments* ($b = 0.588$, $p < 0.001$). In addition, the product-of-coefficients $a \times b$ is significantly positive ($a \times b = 0.243$, 95% of bias-corrected bootstrapped estimates > 0.028 , Hayes 2013; Sobel test = 1.70, $p = 0.044$), suggesting that high levels of *Estimate Uncertainty* increases *Perceived Juror Negligence Judgments*, doing so through its effects on *Perceived Juror Standard of Care*. This result is consistent with my other tests of H2.

Figure 4.2
Structural Equation Model

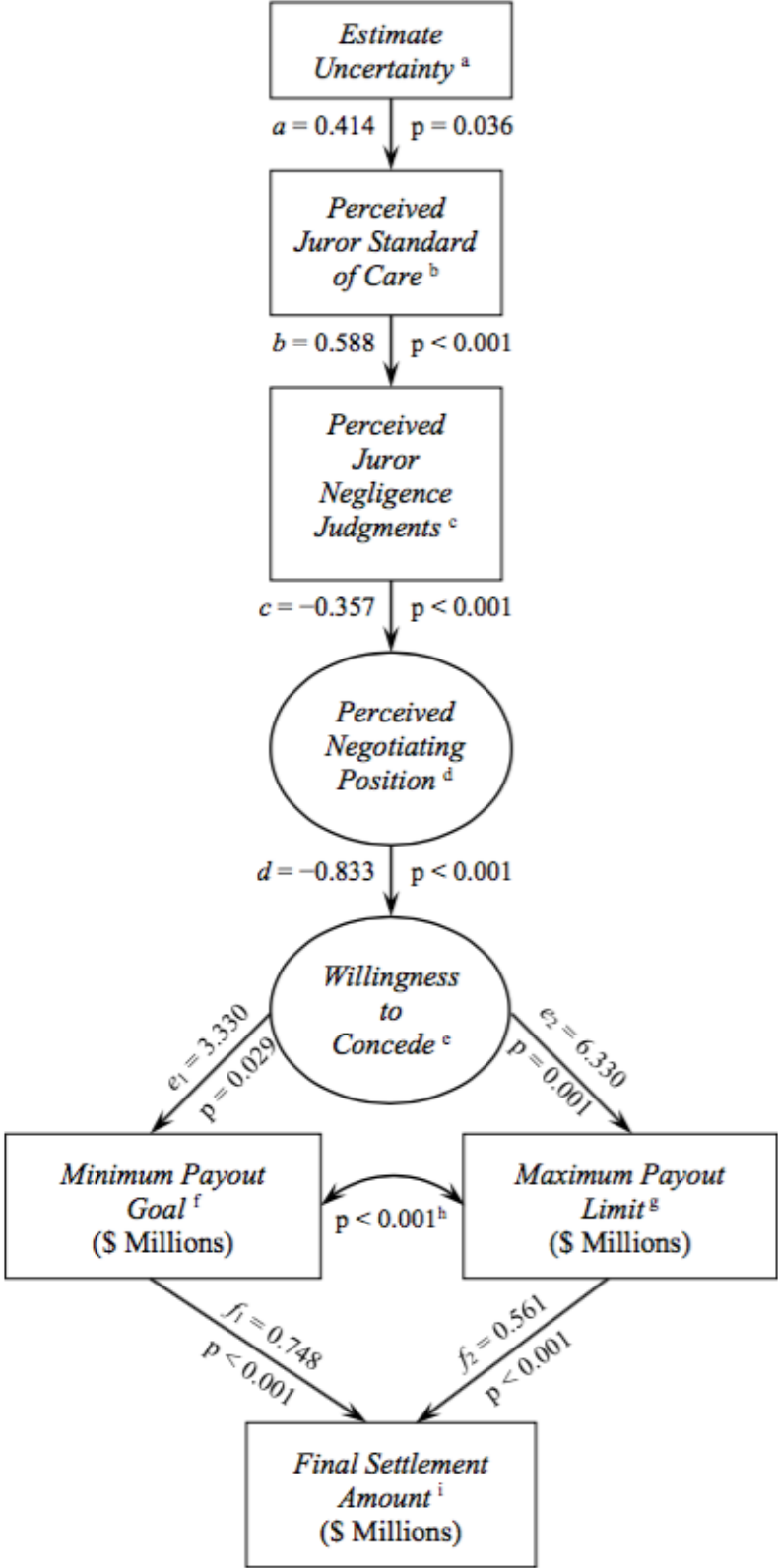


Figure 4.2, continued
Structural Equation Model

Overall path significance test ^j	Predicted sign	Path estimate	95% one-tailed bootstrapped confidence interval	Test result
Path from <i>Estimate Uncertainty</i> to <i>Final Settlement Amount</i> through <i>Minimum Payout Goal</i> (i.e., path through <i>a, b, c, d, e₁, f₁</i>)	+	0.180	95% of bootstrapped estimates > 0.036	Significant _j
Path from <i>Estimate Uncertainty</i> to <i>Final Settlement Amount</i> through <i>Maximum Payout Limit</i> (i.e., path through <i>a, b, c, d, e₂, f₂</i>)	+	0.257	95% of bootstrapped estimates > 0.046	Significant _j
Total path from <i>Estimate Uncertainty</i> to <i>Final Settlement Amount</i> (i.e., through all mediators)	+	0.438	95% of bootstrapped estimates > 0.099	Significant _j

Notes:

- ^a *Estimate Uncertainty* is coded using effects coding (cf. Little et al. 2006), and equals 1 for participants in the high uncertainty conditions, -1 otherwise.
- ^b *Perceived Juror Standard of Care* represents lawyers' predictions of mock jurors' standard of care for auditors in this case (on a 10-point scale).
- ^c *Perceived Juror Negligence Judgments* represents lawyers' predictions of mock jurors' negligence judgments of the auditors in this case (on a 10-point scale).
- ^d *Perceived Negotiating Position* represents a latent variable estimated using three measured variables, (1) participants' perceptions of the absolute strength of their own negotiating position, (2) their perceptions of the absolute strength of the opposing legal counsel's negotiating position, and (3) their perceived favorability of their out-of-court settlement position relative to the opposing legal counsel's (all on 10 point scales). The second of these variables was reverse-coded, so that higher values indicate a stronger position relative to the opposition.
- ^e *Willingness to Concede* represents a latent variable estimated using three measured variables, lawyers' (1) willingness to make concessions to reach a settlement with the investors' legal counsel, (2) level of commitment to their initial settlement offer (both rated on 10 point scales), and (3) acceptable range of negotiation outcomes. The second of these variable was reverse coded, since, the lower the level of commitment to an initial settlement offer, the more willingness there is to make further concessions from the initial offer.
- ^f *Minimum Payout Goal* represents lawyers' lowest payout they would hope to convince the investor's legal counsel to accept as a proposed settlement, in \$ millions. Larger values represent larger minimum payouts sought (i.e., less ambitious goals).
- ^g *Maximum Payout Limit* represents lawyers' highest payout they would be willing to offer investors' legal counsel as a proposed settlement, in \$ millions.

Figure 4.2, continued
Structural Equation Model

- ^h The estimated covariance between *Minimum Payout Goal* and *Maximum Payout Limit* (represented in the model by the double-headed arcing arrow) controls for individual reasons why lawyers' goals and limits would co-vary. Specifically, since some lawyers are likely to be "tougher" negotiators than others (i.e., individual variability exists), I expect that more (less) ambitious individual negotiating goals would tend to co-occur with more (less) ambitious individual negotiating limits. As expected, this covariance is positive and significant ($p < 0.001$).
- ⁱ *Final Settlement Amount* represents the final negotiated amount that auditors' lawyers expect the auditors to settle for and pay to investors, in \$ millions.
- ^j The overall paths are tested using bootstrapping procedures (cf. Preacher, Rucker and Hayes 2007; Hayes 2013). This bootstrapping procedure took 5,000 subsamples of the experimental sample, estimating the structural equation model and its path coefficients 5,000 times. Within a single subsample, an overall path is tested using the products of its path coefficients, for which signed expectations can be formed. Across all 5,000 subsamples, the procedure counts the number of subsamples that generated an overall path coefficient with the expected sign. If at least 95% of the subsamples generated a signed overall path coefficient in the expected direction (i.e., if the 95% bootstrapped confidence interval does not contain zero), then the overall path is significant (e.g., Hayes 2013).

H3 suggests that the effects of *Estimate Uncertainty* on *Perceived Juror Standard of Care* and *Perceived Juror Negligence Judgments* will, in turn, decrease the attorney's perceptions of their negotiating position as legal counsel for the auditors, leading to more willingness to concede, higher negotiated payout goals and limits, and, ultimately, higher final settlement outcomes expected for the auditor to pay. As discussed in Section IV (see also Table 4.2), I use three measures of attorneys' perceived negotiation position to construct the latent variable *Perceived Negotiation Position*, and three measures of attorneys' willingness to concede to construct the latent variable *Willingness to Concede*.²⁵

As the results in Figure 4.2 show, the effect of *Estimate Uncertainty* increasing *Perceived Juror Standard of Care* and, in turn, *Perceived Juror Negligence Judgments* led to a decrease in the attorney's *Perceived Negotiating Position* ($c = -0.357, p < 0.001$). This decrease in *Perceived Negotiating Position*, in turn, leads to an increase in the

²⁵ *Perceived Negotiating Position* and *Willingness to Concede* are estimated using effects coding for latent variables within confirmatory factor analysis (Little, Slegers and Card 2006). The three measures used for *Perceived Negotiating Position* are: (1) lawyers' perceptions of the absolute strength of their own negotiating position, (2) their perceptions of the absolute strength of the opposing legal counsel's negotiating position, and (3) their perceived favorability of their out-of-court settlement position relative to the opposing legal counsel's. The second of these three variables was reverse coded, so that higher values of this latent variable indicate that the lawyers perceive that they are in a stronger negotiating position relative to the opposing legal counsel. As expected, the factor loadings for each of these variables are positive and significant (0.983, 0.015 and 1.002, respectively; p 's < 0.001). The three measures used for *Willingness to Concede* are: (1) lawyers' willingness to make concessions to reach a settlement with the investors' legal counsel, (2) lawyers' level of commitment to their initial settlement offer, and (3) lawyers' acceptable range of negotiation outcomes. The second of these variable was reverse coded, since, the lower the level of commitment to an initial settlement offer, the more willingness there is to make further concessions from the initial offer. As expected, the factor loadings for each of these variables are positive and significant (1.068, 1.046, and 0.886, respectively; p 's < 0.001). Convergent and divergent validity tests using either CFA or EFA measurement approaches suggest that the three measures used for each of these latent variables relate to the same construct, and measure constructs that are distinct from the other constructs in this SEM (see, e.g., Harrington 2009). As latent variables, *Perceived Negotiating Position* and *Willingness to Concede* are represented in the Figure 3 by ovals, following SEM graphing norms (e.g., Brown 2015).

attorneys' *Willingness to Concede* ($d = -0.833$, $p < 0.001$).²⁶ This increase in attorney's *Willingness to Concede* leads attorneys adopt less ambitious negotiation strategies, in the form of larger *Minimum Payout Goals* and *Maximum Payout Limits* for out-of-court settlement negotiations ($e_1 = 3.330$, $p = 0.029$; and $e_2 = 6.330$, $p = 0.001$; respectively). Finally, larger *Minimum Payout Goals* and *Maximum Payout Limits* both lead to larger expected *Final Settlement Amounts* for auditors to pay plaintiffs ($f_1 = 0.748$, $p < 0.001$; and $f_2 = 0.561$, $p < 0.001$; respectively).

As my formal test of H3, I determine whether the entire path depicted in Figure 4.2, starting at *Estimate Uncertainty*, running through all mediators, and ending at *Final Settlement Amounts* is significantly positive (that is, whether *Estimate Uncertainty* increases *Final Settlement Amounts* through the path posited by H3 and my theoretical model).²⁷ This test is performed by determining whether the product-of-coefficients $a \times b \times c \times d \times (e_1 \times f_1 + e_2 \times f_2)$ is significantly positive. Note that my theoretical model (Figure 4.1) predicts that this product should be positive, or in other words that the hypothesized path ultimately explains high *Estimate Uncertainty* causing an increase in *Final Settlement Amounts*. As summarized in Figure 4.3, the structural equation model's estimate of this overall path product is 0.438, which is significantly positive (95% of bias-corrected bootstrap estimates > 0.099). This result supports H3.²⁸

²⁶ The negative coefficient $d = -0.833$ means that a decrease (increase) in *Perceived Negotiating Position* leads to an increase (decrease) in *Willingness to Concede*. That is, *Perceived Negotiating Position* and *Willingness to Concede* go in opposite directions.

²⁷ This test confirms that the relationships shown in Figure 3 are not simply a chain of unrelated bivariate correlations, but rather that the effects of *Estimate Uncertainty* on *Perceived Juror Standard of Care* flows through the structural model to each subsequent variable and ultimately to *Final Settlement Amounts*.

²⁸ In addition, I also test whether the subpath through *Negotiating Goals* (i.e., $a \times b \times c \times d \times e_1 \times f_1$) and the subpath through *Negotiating Limits* (i.e., $a \times b \times c \times d \times e_2 \times f_2$) in Figure 3 is significantly positive. I find that each of these subpaths is significantly positive (subpath through *Negotiating Goals* = 0.180, 95% of bias-corrected bootstrapped estimates > 0.036 ; and subpath through *Negotiating Limits* = 0.257, 95% of bias-

This result for H3 also suggests that attorney's incorrect perceptions of jurors makes them too willing to concede out of mistaken beliefs about their vulnerability to jurors when estimate uncertainty is high. The fact that these effects flow through to the dollar amounts of negotiation goals, limits, and final settlement amounts suggests that these mistaken beliefs can potentially result in unnecessary financial payouts on the part of auditors. As Table 4.2 shows, attorneys' *Final Settlement Amount* varied from \$12.57 million when *Estimate Uncertainty* is low to \$19.43 million when *Estimate Uncertainty* is high ($t = 1.80, p = 0.038$).²⁹ Additional SEM analyses (not tabulated) suggest that the overall hypothesized path (Figure 4.1) fully mediates the total effect of *Estimate Uncertainty* on *Final Settlement Amount* shown in Table 4.2.³⁰

H4 predicts that attorneys' *Perceived Juror Standard of Care* and *Perceived Juror Negligence Judgments* will not correctly reflect the joint effects of *Estimate Uncertainty* and *Disaggregation* on jurors' actual judgments (Figure 3.1 and 3.3). RQ1 asks whether *Disaggregation* will influence attorneys' *Perceived Juror Standard of Care* and *Perceived Juror Negligence* judgments at all. As Table 4.2 shows, I detect no effects of *Disaggregation* (in main effect or interaction) on *Perceived Juror Standard of Care* or on *Perceived Juror Negligence Judgments*. Thus, attorneys' predictions of mock juror judgments do not appear to accurately reflect the joint effects of *disaggregation* and *estimate uncertainty* present in mock jurors' actual judgments (Figure 3.1 and 3.3). These

corrected bootstrapped estimates > 0.046). Note that the two subpath estimates sum to the estimate of the overall path (i.e., 0.438).

²⁹ By way of comparison, the US Treasury (2008) reports that the largest six accounting firms paid out \$5.66 billion to settle over 362 cases from 1995-2007, an average settlement of \$15.64 million per case in this period. Thus, the attorneys' in my experiment settled for relatively more for the Jones & Company audit of Big Time Gravel, but still in an amount similar to cases from 1995-2007.

³⁰ That is, the significant effect of *Estimate Uncertainty* on *Final Settlement Amount* ($p = 0.038$, Table 2) becomes statistically insignificant *after* controlling for the significant indirect path depicted in Figure 2 ($p = 0.858$). More specifically, these supplementary SEM analyses suggest that the indirect path depicted in Figure 2 accounts for 77.4% of the total effect size of *Estimate Uncertainty* on *Final Settlement Amount*.

results support H4. In addition, with respect to RQ1, as Table 4.2 shows, *Disaggregation* does not appear to systematically influence attorneys' predictions of juror judgments or any of their resulting negotiation behaviors. Thus, despite *Disaggregation* significantly influencing attorneys' perceptions of *Materiality–Line-item*, which, in turn, influenced *Materiality–Overall*, it does not impact their subsequent negotiation behaviors, likely because it does not impact their perceptions of juror judgments.

4.4.4 Supplementary Analyses

The instrument asked the lawyers how cooperative or contentious negotiations would be, on a scale from 1 (more cooperative) to 10 (more contentious), and how long it would take to negotiate a settlement for this case, on a scale from 1 (a short amount of time) to 10 (a long amount of time). The lawyers' mean ratings are 6.45 and 6.32, respectively, each significantly above the midpoint of the scale ($t = 4.96, p < 0.001$, and $t = 4.30, p < 0.001$, respectively). Thus, the lawyers believed that settlement of this case would be relatively contentious and take a relatively long time. These ratings did not vary by experimental condition (p 's ≥ 0.78).

The instrument also asked the lawyers to rate how large the *opposing* legal counsel's range of acceptable settlements would be, on a scale from 0 (no acceptable range) to 10 (very large). The lawyers expected the opposing side to have a significant range of acceptable settlements (mean rating = 5.81, $t = 25.95, p < 0.001$). This rating did not vary by experimental condition (omnibus $F = 0.65, p = 0.59$), consistent with prior research suggesting that, in competitive negotiation settings, thinking through details of

the opposition's negotiation strategies is difficult (e.g., Trotman, Wright, and Wright 2005; Bowlin 2011).³¹

Finally, the instrument measured lawyers' own beliefs about the proper standard of care, and lawyers' own beliefs about auditor negligence, each on scales from 1 to 10. For both of these measures, lawyers' beliefs do not vary by experimental condition (p 's ≥ 0.36), suggesting that the significant effects of *Estimate Uncertainty* on lawyers' *Final Negotiated Settlements* are best explained by lawyers' incorrect predictions of jurors beliefs (Figure 4.2), rather than by their own beliefs about auditor negligence and the standard of care. The fact that lawyers are willing to make more financial concessions during negotiation when estimate uncertainty is high, despite personally believing that the auditors are no more negligent when estimate uncertainty is high, provides additional evidence that lawyers tend to make unnecessary auditor payout concessions out of mistaken beliefs about juror judgments.³²

4.5 Conclusion

Findings from this study have important implications for the accounting and auditing literature on high estimate uncertainty and its effects. As contemporary financial statements include estimates of increasingly higher uncertainty, accounting researchers

³¹ In addition, the instrument asked the lawyers to estimate the lowest dollar amount the *opposing* legal counsel would be willing to settle for. In this case, I do find a main effect suggesting that they expected the opposition to be in a stronger negotiating position when *Estimate Uncertainty* is high ($t = 1.38$, $p = 0.087$), consistent with the rest of my findings. However, I also find a significant *Estimate Uncertainty* \times *Disaggregation* interaction, suggesting that this effect of *Estimate Uncertainty* may only occur when the financial statements are aggregated ($F = 4.77$, $p = 0.032$). However, this unpredicted interaction is generally not robust across my dependent variables. Future research may investigate lawyers' expectations of the opposition's negotiating strategies further, including whether this interaction appears persistent or idiosyncratic.

³² Comparing lawyers' *Standard of Care* and *Negligence Judgments* directly to jurors' judgments, I find that (in addition to lawyers not exhibiting the pattern of means shown in Figure 1 for jurors), lawyers' *Standard of Care* and *Negligence Judgments* tend to be lower than jurors' (p 's < 0.001). As with a similar difference in materiality perceptions, this result likely reflects lawyers' directional goals and motivated reasoning as legal counsel for the auditors (Kunda 1990).

and practitioners have expressed concern that such high uncertainty will increase auditor liability to onerous levels (e.g., Christensen et al. 2012; Bell and Griffin 2012). Results of this study suggest that the impact of high estimate uncertainty on auditor litigation risk for undetected misstatements goes in opposite directions depending on whether a case is decided by jurors or settled by attorneys in out-of-court settlement. While high estimate uncertainty leads jurors to judge auditors *less* harshly for undetected material misstatements in relatively disaggregated financial statement line-items in the second study of my dissertation, results of this study show that lawyers reading the same case as legal counsel for the auditors tend to concede *more* in out-of-court settlements when estimate uncertainty is high. Consistent with my theory, results of the experiment show that these directionally opposite effects stem from lawyers' inability to predict jurors' judgments accurately.

This study also makes important and early contributions to the small literature on out-of-court settlement to resolve auditor resolution. Little is known about out-of-court resolution of audit litigation in the accounting literature (Donelson et al. 2014). Findings of this study demonstrate that auditors' legal counsel may unnecessarily concede economically significant financial payouts on behalf of audit firms in response to high uncertainty, out of mistaken beliefs about juror judgments. Thus, lawyers' misunderstanding of their clients' vulnerability to jurors can carry significant and unnecessary costs for auditors, in the most common venue for resolving auditor negligence litigation. For example, in this study, high levels of estimate uncertainty led to an increase in expected final payouts from auditors from \$12.57 million to \$19.43 million, a 54.6% increase, and results indicated further that attorneys' (incorrect) beliefs

about juror judgments in the study primarily accounted for this increase. Such effects may unnecessarily increase the substantial litigation burden that audit firms face, with the largest six accounting firms paying \$5.66 billion to resolve over 362 cases from 1995-2007 (US Treasury 2008). In 2007, 15.1% of audit related revenue went to litigation and practice protection costs (US Treasury 2008).

Of course, this study examines only two experimental factors on lawyers' judgments. Future research may develop other factors which cause the accuracy of attorney's perceptions of vulnerability to juries to improve. The accounting literature would benefit from additional research building our understanding of out-of-court settlement, and when it appropriately manages, minimizes, or unnecessarily increases auditors' litigation risk. This study provides a theoretical starting point by pointing out how (consistent with psychology theory) expert-attorneys may overconfidently ascribe overly simplistic behavioral mental models to novice-jurors' judgments, underestimating the extent to which novices are at least boundedly rational as experts may be prone to do when doing the difficult task of predicting others' behavior. In addition, this study identifies *estimate uncertainty* as an important factor if this phenomenon exists. That is, boundedly rational jurors may react to high estimate uncertainty in an undetected misstatement by altering their attributions to audit negligence, altering their attributions to chance factors, and/or altering the amount of judgment they hold in reserve, consistent with Attribution Theory. In contrast, if expert attorneys hold an overly simplistic view of novice jurors, they may simply expect them to react to high estimate uncertainty by simply attributing more blame to auditors (i.e., as the failed guardians of certainty). Thus, based on the position that expert attorneys may be poor predictors of novice juror

judgments, my study tested estimate uncertainty as a factor that may well create directionally opposite effects on juror judgments versus attorney's settlements based on their beliefs about juror judgments. Future research in this under-studied area of out-of-court audit litigation settlement can build upon this theoretical foundation by identifying other accounting task factors and thinking about their implications given the different perspectives jurors and lawyers bring to the setting. Some may similarly create divergent effects on auditor liability, given the differences between juror and lawyer judgments, while others may create convergent effects.

Finally, this study makes an important contribution to the accounting literature on auditors' litigation risk overall. Although the vast majority of audit litigation is resolved out of court (Table 4.1), the vast majority of accounting research on the disposition of audit litigation has focused on juror judgments. This focus of the literature implicitly (and sometimes explicitly) assumes that juror judgments are a good proxy for auditors' litigation risk because out-of-court settlements would presumably reflect when auditors would or would not be more vulnerable to juries. However, as both accounting and legal scholars point out, it is not yet well understood how accurate lawyers' expectations about juries may be during out-of-court settlement negotiations (e.g., Donelson et al. 2014, Seabury 2013). Results of this study demonstrate that lawyers' predictions of juror judgments can be systematically inaccurate (even in ways that are directionally opposite to juror judgments), and that these incorrect predictions can in fact roll forward to affect lawyers' negotiating strategies and financial concessions on behalf of auditors. Thus, this study demonstrates that juror judgments are not a good proxy for the litigation risk faced by auditors in out-of-court settlement negotiations. Thus, just as juror cases present only

a partial picture of all audit litigation cases (Table 4.1; Palmrose 1999), they also present only a partial picture of auditors' litigation risk. My findings may help motivate future research on out-of-court settlement of auditor litigation, in order to gain a better understanding of auditors' litigation risk, which may not always be well proxied by juror judgments.

Like all empirical research, this study has limitations. There are a number of different factors that relate to the task, decision-maker, and legal environmental that I do not examine that could impact my findings. Future research could examine how other factors may change the effects demonstrated in this study. Nevertheless, this study contributes to our understanding of the important and yet poorly understood topic of out-of-court settlement of auditor negligence litigation.

CHAPTER 5

GENERAL CONCLUSION

In three independent essays, I examined how estimate uncertainty, financial statement aggregation, audit quality indicators, a company's investor base, and the size of the alleged misstatement can impact auditor liability. I find that jurors believe that an auditor is more likely to be found negligent when the AQIs indicate that the auditor performed a poor quality audit than when the AQIs are mixed or indicate the auditor performed a high quality audit. Additionally, I find that jurors believe the auditors is more likely to be found negligent when the financial statements are disaggregated and estimate uncertainty is low. In contrast, attorneys mispredict juror judgments and assume that jurors will hold the auditor to be more negligent when estimate uncertainty is high. The attorneys then use their misprediction of juror judgment to make unnecessary concessions in out of court settlement.

These findings have important implications for standard setters, audit practitioners, litigators, and accounting researchers. While practitioners have expressed some concern about the mandated disclosure of audit quality indicators, my results suggest that firms' concerns may be unwarranted as long as they do not perform a poor quality audit. Additionally, the flexibility provided in financial reporting regulations on how aggregated the income statement is could provide auditors with legal liability protection. Finally, while the degree of estimate uncertainty is increasing in the financial statements, its impact of auditor liability depends on whether a case goes to court and gets decided by a jury or is settled out of court by attorneys. This is both informative to

audit firms' legal counsel as they attempt to negotiate fairly for their client and for accounting researchers as they try to understand factors that impact auditor liability.

There are many promising avenues for future research. It is still unclear how these five variables could impact other aspects of the auditors' work environment. Future research could also explore additional factors that might cause attorneys to misplay juror judgments. More research is also needed to explore other aspects of pre-trial settlement negotiations that can influence auditor liability. It is the hope of the author that researchers will continue to explore many of the important questions raised in this dissertation.

APPENDICIES

APPENDIX A FIRST STUDY INSTRUMENT SCREENSHOTS

- EXHIBIT 1. First Screen
- EXHIBIT 2. First Screen Continued
- EXHIBIT 3. Second Screen
- EXHIBIT 4. Third Screen
- EXHIBIT 5. Fourth Screen
- EXHIBIT 6. Fifth Screen
- EXHIBIT 7. Sixth Screen
- EXHIBIT 8. Seventh Screen
- EXHIBIT 9. Eighth Screen
- EXHIBIT 10. Ninth Screen.
- EXHIBIT 11. Tenth Screen Individual Investor Condition
- EXHIBIT 12. Tenth Screen Institutional Investor Condition
- EXHIBIT 13. Tenth Screen All Conditions
- EXHIBIT 14. Eleventh Screen
- EXHIBIT 15. Twelfth Screen
- EXHIBIT 16. Twelfth Screen Bad AQI Condition
- EXHIBIT 17. Twelfth Screen Mixed AQI Condition
- EXHIBIT 18. Twelfth Screen Good AQI Condition
- EXHIBIT 19. Twelfth Screen Continued All Conditions
- EXHIBIT 20. Thirteenth Screen

- EXHIBIT 21. Fourteenth Screen Disaggregated Condition
- EXHIBIT 22. Fourteenth Screen Aggregated Condition
- EXHIBIT 23. Fifteenth Screen
- EXHIBIT 24. Sixteenth Screen
- EXHIBIT 25. Sixteenth Screen Continued
- EXHIBIT 26. Seventeenth Screen
- EXHIBIT 27. End Message for Participants Who Fail Pre-Screening
- EXHIBIT 28. End Message for Participants Who Fail Attention Check Questions
- EXHIBIT 29. End Message for Participants Who Complete the Study

EXHIBIT 1

First Screen

Demographic Survey

Please answer the following demographic questions.

IMPORTANT: For question 7, please answer with the sixth option (Food Services) regardless of what you think the best answer is.

1. Are you a U.S. citizen?

- Yes
- No

2. What is your gender?

- Male
- Female

EXHIBIT 2

First Screen Continued

3. What is your age?

4. What is the highest degree or level of school you have completed?

- No high school diploma
- High school graduate, diploma, or the equivalent (for example: GED)
- Some college credit, no degree
- Trade/technical/vocational training
- Associate's degree
- Bachelor's degree
- Master's degree or other graduate
- Other



0% 100%

EXHIBIT 3

Second Screen

5. Are you currently....?

- Employed full-time
- Employed part-time
- Self-employed
- A Homemaker
- A student
- Retired
- Unemployed
- Unable to work

6. What is your total household income?

- Less than \$40,000
- \$40,000 to \$79,000
- \$80,000 to \$119,000
- \$120,000 to \$159,000
- \$160,000 or more

7. Which industry do you associate most closely with northern Rhode Island?

- Manufacturing
- Construction
- Technology
- Agriculture
- Retail
- Food Services
- Other

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EXHIBIT 4

Third Screen

You have successfully passed a pre-screening for a research study being conducted by a PhD student at the University of Massachusetts.

It is anticipated that completing the study will take approximately 20 minutes.

You can earn a bonus for this HIT if you complete this study.

The bonus will be either \$2.50 or \$3.50, depending on whether you answer attention check questions correctly that are in the case study. The attention questions are **very easy** if you read the material.

The bonus is on top of the \$0.20 you have already earned, for a total payoff of \$3.70.

Please choose what you would like to do.

- I would like to do the study
- I would not like to do the study

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EXHIBIT 5

Fourth Screen

Thank you for participating!

By participating in this survey, you are helping to complete a study that is part of a doctoral dissertation at Isenberg School of Management at the University of Massachusetts Amherst.

The Institutional Review Board at the Isenberg School of Management has approved this study to ensure that we will protect the privacy of our participants, that it involves no unusual risks or discomforts, and that you know what to expect as a participant in this study.

In this study, you will read a hypothetical court case in which auditors are being sued by investors who are alleging that the auditors were negligent. Because you could be a potential juror, we are interested in your judgments about the case.

Specifically, this study involves making judgments that are ordinary and routine for civil jurors, and is not expected to pose any risk (physical or otherwise) beyond that normally encountered in daily life. The survey responses will be maintained in an electronic database that does not contain your name, and any presentations of the survey responses will be at the group level (e.g., average responses).

If you want a copy of this information, please print this screen, or email jpickerd@som.umass.edu for a copy. If you have other questions about the study itself, please email jpickerd@som.umass.edu. If you have any questions about your rights as a participant in this research, please contact the Isenberg School of Management Institutional Review Board at dabutter@isenberg.umass.edu.

If you understand this information and agree to be in the study, please click the next arrow to continue.



EXHIBIT 6

Fifth Screen

In this study, you will read case material and answer two types of questions:

Review Questions are true-false or multiple choice questions with right or wrong answers. They will show whether you read and understand the case material.

Case Questions are matters of judgment. Your opinion is extremely important to us!

To help ensure meaningful results, it is important that this be your own independent judgment, so please do not discuss your responses with anyone else.



EXHIBIT 7

Sixth Screen

Background Information
(needed to correctly answer Review Questions #1-4)

Companies prepare financial statements for investors, lenders, and other users.

- A company's financial statements sometimes contain **material misstatements**. A **misstatement** is either an unintentional error or an intentional misrepresentation in a company's financial statements. A misstatement is **material** if it is significant enough to alter someone's impressions of the financial statements and change their judgment and decision making based on the financial statements.
- Auditors examine a company's financial statements and express an opinion about them by issuing a report on the financial statements.
- A "**clean**" **audit opinion** means that, based on their work, the auditors believe that they can provide **reasonable assurance** to investors, lenders, and other people that the financial statements are free of material misstatements.
- Reasonable assurance is **not** the same as **absolute assurance**. That is, a clean audit opinion is an opinion, not an absolute guarantee. For example, auditors cannot examine every transaction. Even after a good audit is performed, auditors could still miss material misstatements and mistakenly give the financial statements a "clean" opinion. However, auditors are more likely to miss material misstatements and mistakenly give the financial statements a "clean" opinion if they are **negligent** in the way they conduct the audit and examine the financial statements.

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EXHIBIT 8

Seventh Screen

Review Questions #1-4

A misstatement is **material** if it is significant enough to alter someone's impressions of the financial statements and change his or her judgment and decision making based on the financial statements.

- True
- False

When an audit report on the financial statements expresses a "clean" opinion, this means that, based on their work, the auditors believe that they can provide reasonable assurance to investors, lenders, and other people that the financial statements are free of material misstatements.

- True
- False

Reasonable assurance is not the same as absolute assurance. That is, a clean audit opinion is an opinion, not an absolute guarantee. For example, auditors cannot examine every transaction.

- True
- False

While auditors can miss material misstatements even when they are conducting a good audit, they are more likely to miss material misstatements in the financial statements if they are negligent.

- True
- False

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EXHIBIT 9

Eighth Screen

What Kinds of Things Do Auditors Do? Every year, many companies in the U.S. and other parts of the world have their financial statements audited by an accounting firm. Auditors use a variety of procedures to verify the assertions made in the financial statements. For example, auditors can physically count and value random samples of the inventory that a company reports in its financial statements.

What Happens When There is a Material Misstatement? From time to time, management has material misstatements in their financial statements and, if auditors are negligent, auditors are less likely to catch these misstatements. Negligent auditors may be more concerned with pleasing the company management or cutting costs than in doing a good job. Unfortunately, undetected material misstatements can cause enormous losses of money.

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EXHIBIT 10

Ninth Screen

Jones & Company's Audit of Big Time Gravel

Jones & Company, an accounting firm, has audited the financial statements of Big Time Gravel. Assume that the following is true about the audit:

Big Time Gravel Company is a large producer of gravel, cement, and mining equipment. A critical portion of the company is the machinery that the company uses to mine the gravel.

As part of the audit performed by Jones & Company, the auditors examined the dollar value of the machinery in Big Time Gravel's financial statements. Accounting rules require that, if the current market value of the machinery is substantially less than what is stated on the company's books, the company must lower its value on the books and record a loss on the machinery in the financial statements (called an "impairment loss"). Recording this loss reduces the company's earnings reported in the financial statements.

Big Time Gravel uses extremely customized machinery that is tailor-made. Because of this, similar machinery is not bought and sold regularly on the open market, and so this market does not provide readily available market values for the machinery.

Instead, Big Time Gravel uses a mathematical model to estimate the fair market value of their machinery. However, this model is based on highly objective and very straightforward assumptions about the cash that this machinery can generate for the company. Because of the low levels of uncertainty in each of these inputs, the auditors were able to estimate a very precise range of possible fair market values for the machinery. Based on this, the auditors believe the value of the machinery to be somewhere between \$450 million and \$550 million, a very precise and certain estimate. Management had recorded the value of the machinery at \$545 million, and as a result recorded an impairment loss of \$10 million, which the auditors deemed appropriate.

Jones & Company reported that Big Time Gravel's audited financial statements were not materially misstated (i.e., they gave the financial statements a "clean" audit opinion).

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EXHIBIT 11

Tenth Screen- Individual Investor Condition

After the Audit: An Alleged Misstatement in the Value of the Machinery and a Lawsuit

After the financial statements were issued to the public (including the auditor's clean opinion on them), Big Time Gravel began to encounter some difficulty with its machinery. This caused Big Time Gravel to lose substantial money, and, as a result, their investors did as well.

Who are Big Time Gravel's Investors?

Approximately **85%** of Big Time Gravel's outstanding common stock is held by **individual investors**. These individual investors **include retirees, current and former employees, and other people saving money**. Individual investors are different from institutional investors, which include pension funds, hedge funds, mutual funds, and Wall Street investment companies, and manage at least \$100 million. Compared to institutional investors, the **individuals** who are invested in Big Time Gravel generally **have less resources, have less access to information about a company, and are often less highly educated about investments**.

EXHIBIT 12

Tenth Screen-Institutional Investor Condition

After the Audit: An Alleged Misstatement in the Value of the Machinery and a Lawsuit

After the financial statements were issued to the public (including the auditor's clean opinion on them), Big Time Gravel began to encounter some difficulty with its machinery. This caused Big Time Gravel to lose substantial money, and, as a result, their investors did as well.

Who are Big Time Gravel's Investors?

Approximately **85%** of Big Time Gravel's outstanding common stock is held by **institutional investors**. These institutional investors **include pension funds, hedge funds, mutual funds, and Wall Street investment companies**, and manage **at least \$100 million**. Institutional investors are different from individual investors, who include retirees, current and former employees, and other people saving money. Compared to individual investors, the **institutions** that are invested in Big Time Gravel generally **have more resources, have more access to information about a company, and are often more highly educated about investments**.

EXHIBIT 13

Tenth Screen- All Conditions

Review Question

Who are Big Time Gravel's primary investors?

- Individual investors, including retirees, current and former employees, and other people saving money. These individuals generally have less resources, have less access to information about a company, and are often less highly educated about investments.
- Institutional investors, including pension funds, hedge funds, mutual funds, and Wall Street investment companies, and manage at least \$100 million. These institutions generally have more resources, have more access to information about a company, and are often more highly educated about investments.






EXHIBIT 14

Eleventh Screen

Your Task

The investors have filed a lawsuit against Jones & Company alleging that they were negligent in their audit, because the condition of the machinery should have been apparent to the auditors during the audit of the financial statements.

Suppose that you are a juror in this trial. Excerpts of the information presented at Big Time Gravel's court case will be appear on the next screens.

Remember that a misstatement is **material** if it is significant enough to alter investors' impressions of the financial statements and change their judgment and decision making based on the financial statements.




EXHIBIT 15

Twelfth Screen

Background Information about the Audit

The attorneys presented the following information about the Jones & Company audit, below. The Federal Public Auditor Regulatory Board (FPARB) created the following measures (called **Audit Quality Indicators**) for auditing firms to use as benchmarks to assess the quality of the audits that they are performing.

The following are Jones Company's Audit Quality Indicators for the year of the alleged financial misstatement. For reference, an expert witness compared them to the prior year's audit quality indicators as a benchmark to judge how audit quality has changed.

EXHIBIT 16

Twelfth Screen-Bad AQI Condition

The expert witness highlighted that the six Audit Quality Indicators (below) for the Jones & Company audit of Big Time Gravel were **all lower** than in the prior year.

Big Time Gravel's Audit Quality Indicators			
	Year of Alleged Misstatement	Prior Year	% Change
Number of Hours incurred by specialists and national office	100	300	-67%
Average years of audit team's industry experience	2	4	-50%
Training hours per year of audit professional	25	50	-50%
Hours dedicated to areas of significant risks	250	500	-50%
Total hours spent on engagement	7000	8000	-13%
Percentage of audit team who are certified public accountants	40%	60%	-33%

EXHIBIT 17

Twelfth Screen-Mixed AQI Condition

The expert witness highlighted that the six Audit Quality Indicators (below) for the Jones & Company audit of Big Time Gravel were **overall about the same** as the prior year. That is, two were higher than the prior year, two were lower, and two were the same.

Big Time Gravel's Audit Quality Indicators			
	Year of Alleged Misstatement	Prior Year	% Change
Number of Hours incurred by specialists and national office	500	300	+67%
Average years of audit team's industry experience	2	4	-50%
Training hours per year of audit professional	50	50	0%
Total hours spent on engagement	8000	8000	0%
Percentage of audit team who are certified public accountants	80%	60%	+33%
Hours dedicated to areas of significant risks	250	500	-50%

EXHIBIT 18

Twelfth Screen-Good AQI Condition

The expert witness highlighted that the six Audit Quality Indicators (below) for the Jones & Company audit of Big Time Gravel were **all higher** than in the prior year.

Big Time Gravel's Audit Quality Indicators			
	Year of Alleged Misstatement	Prior Year	% Change
Number of Hours incurred by specialists and national office	500	300	+67%
Average years of audit team's industry experience	8	4	+100%
Training hours per year of audit professional	75	50	+50%
Hours dedicated to areas of significant risks	1000	500	+100%
Total hours spent on engagement	9000	8000	+13%
Percentage of audit team who are certified public accountants	80%	60%	+33%

EXHIBIT 19

Twelfth Screen-Continued-All Conditions

Review Question

Were the FPARB's Audit Quality Indicators for this year's audit of Big Time Gravel higher, lower, or about the same as the prior year's audit?

- The six FPARB Audit Quality Indicators for this year's audit were **all lower** than the prior year's.
- The six FPARB Audit Quality Indicators for this year's audit were **overall about the same** as the prior year's. That is, two were higher than the prior year, two were lower, and two were the same.
- The six FPARB Audit Quality Indicators for this year's audit were **all higher** than the prior year's.

The expert also testified that the prior year's Audit Quality Indicators were about average for the gravel industry. Furthermore, the expert testified that the business operating risks and other risks of Big Time Gravel are typical of the gravel industry, and there were no significant changes to the business operations or risks of Big Time Gravel Company in the year of alleged misstatement, compared to the prior year.

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EXHIBIT 20

Thirteenth Condition

Details of the Alleged Material Misstatement and its Impact on the Financial Statements

Expert witnesses for the investors testified that the true value of the machinery should have been \$495 million. This valuation was within of the auditor's estimate range of \$450 million to \$550 million. As a result of the incorrect valuation, the expert witnesses argued that the financial statements should have reflected an impairment loss on the machinery that was \$60 million, rather than the \$10 million impairment loss that was recorded in the financial statements. They also noted that the misstatement allowed Big Time Gravel to just meet Wall Street analysts' earnings-per-share target of \$1.28 for the year, which the company would have failed to meet if the impairment was recorded at \$60 million. The investors allege further that, if the impairment had been recorded and the company had missed analysts' earnings targets, they would not have remained invested in the company and therefore would not have lost the money that they did during 2013.

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EXHIBIT 21

Fourteenth Screen-Disaggregated Condition

Excerpt from Big Time Gravel Financial Statements

The impairment loss central to this case is recorded in the impairment loss of machinery account, also known as the impairment loss of machinery line-item.

(All amounts in thousands)	As reported in the Audited Financial Statements	According to the Plaintiffs' Witnesses		
		Corrected	Amount Misstated	Percentage Misstated
Revenue	8,148,600	8,148,600	0	0%
Cost of goods sold				
Materials	-339,104	-339,104	0	0%
Compensation expense	-905,000	-905,000	0	0%
Pension expense	-93,175	-93,175	0	0%
Overhead - depreciation	-219,300	-219,300	0	0%
Transportation	-860,800	-860,800	0	0%
Storage	-300,000	-300,000	0	0%
Other production expense	-600,000	-600,000	0	0%
Change in inventory	-160,250	-160,250	0	0%
Impairment loss on machinery	-10,000	-60,000	50,000	500%
Total cost of goods sold	-3,487,629	-3,537,629	50,000	1%
Selling expenses				
Advertising	-80,000	-80,000	0	0%
Bad debt	-83,068	-83,068	0	0%
Other selling expenses	-23,500	-23,500	0	0%
Total selling expenses	-186,568	-186,568	0	0%
General and administrative expenses				
Compensation	-141,300	-141,300	0	0%
Depreciation	-99,820	-99,820	0	0%
Other general and administrative expenses	-23,436	-23,436	0	0%
Total general and administrative expenses	-264,556	-264,556	0	0%
Other operating income				
Loss on sale of trading securities	-132,650	-132,650	0	0%
Interest expense	-190,000	-190,000	0	0%
Total other operating income	-322,650	-322,650	0	0%
Operating income before taxes	3,887,197	3,837,197	50,000	1%

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EXHIBIT 22

Fourteenth Screen-Aggregated Condition

Excerpt from Big Time Gravel Financial Statements

The impairment loss central to this case is recorded in the cost of goods sold account, also known as the cost of goods sold line-item.

(All amounts in thousands)	As reported in the Audited Financial Statements	According to the Plaintiffs' Witnesses		
		Corrected	Amount Misstated	Percentage Misstated
Revenue	8,148,600	8,148,600	0	0%
Cost of goods sold	-3,487,629	-3,537,629	50,000	1%
Selling expenses				
Advertising	-80,000	-80,000	0	0%
Bad debt	-83,068	-83,068	0	0%
Other selling expenses	<u>-23,500</u>	<u>-23,500</u>	0	0%
Total selling expenses	-186,568	-186,568	0	0%
General and administrative expenses				
Compensation	-141,300	-141,300	0	0%
Depreciation	-99,820	-99,820	0	0%
Other general and administrative expenses	<u>-23,436</u>	<u>-23,436</u>	0	0%
Total general and administrative expenses	-264,556	-264,556	0	0%
Other operating income				
Loss on sale of trading securities	-132,650	-132,650	0	0%
Interest expense	<u>-190,000</u>	<u>-190,000</u>	0	0%
Total other operating income	-322,650	-322,650	0	0%
Operating income before taxes	3,887,197	3,837,197	50,000	1%

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0% 100%

EXHIBIT 23

Fifteenth Screen

Case Questions

Please answer the following case question. You may go back and review the case information for this question if necessary. Please answer carefully. Your opinions and best judgments are very important.

Big Time Gravel's investors allege that Jones & Company was **negligent** in failing to accurately value the machinery and detect the material misstatement of the related impairment loss during its audit of Big Time Gravel.

How much do you believe that the Jones & Company auditors were **negligent** in failing to accurately assess the impairment loss?

Not at all
negligent

1



2



3



4



5



6



7



8



9



Completely
negligent 10



EXHIBIT 24

Sixteenth Screen

Case Questions

Investors allege that the misstatement of the mining machinery and its related impairment loss significantly affected their impressions of the financial statements, whether the company met analysts' earnings targets, and their decision to continue to invest in Big Time Gravel.

Having reviewed an excerpt of the financial statements, how much do you believe that the alleged misstatement would change the judgment and decision making of a reasonable person relying on the financial statements?

It would have no material impact on a reasonable person's judgment and decision making												It would have a highly material impact on a reasonable person's judgment and decision making
1	2	3	4	5	6	7	8	9	10			
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Having reviewed an excerpt of the financial statements, what impact do you believe the alleged misstatement in the machinery's impairment loss had on the financial statement account (i.e., the line-item) that it appeared in?

It had no material impact on the account												It had a highly material impact on the account
1	2	3	4	5	6	7	8	9	10			
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How would you characterize the investors in Big Time Gravel? Were they primarily **individual** investors or primarily **institutional** investors?

They were primarily individual investors												They were primarily institutional investors
1	2	3	4	5	6	7	8	9	10			
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

To what degree could you personally relate to the investors who were suing the auditors?

I could not relate to the investors at all												I could fully relate to the investors
1	2	3	4	5	6	7	8	9	10			
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

To what degree do you feel that the investors were significantly impacted by the losses from their investment in Big Time Gravel?

They were NOT significantly impacted												They were significantly impacted
1	2	3	4	5	6	7	8	9	10			
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

EXHIBIT 25

Sixteenth Screen-Continued

To what degree do you feel that the investors were significantly impacted by the losses from their investment in Big Time Gravel?

They were
NOT
significantly
impacted

1

2

3

4

5

6

7

8

9

They were
significantly
impacted

10

To what degree do you feel that the investors relied on the financial statements for their investment in Big Time Gravel?

They did
NOT rely
at all on
the
financial
statements

1

2

3

4

5

6

7

8

9

They
completely
relied on
the financial
statements

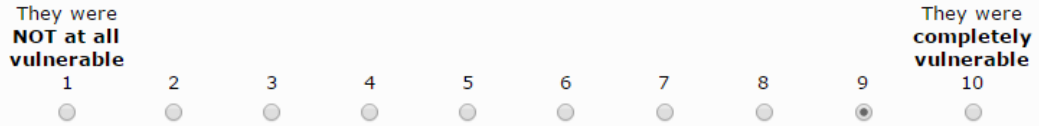
10

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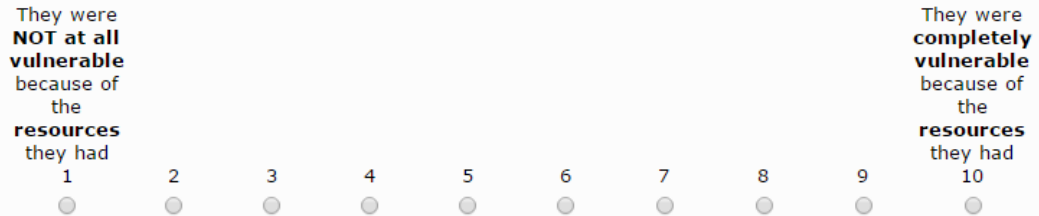
EXHIBIT 26

Seventeenth Screen

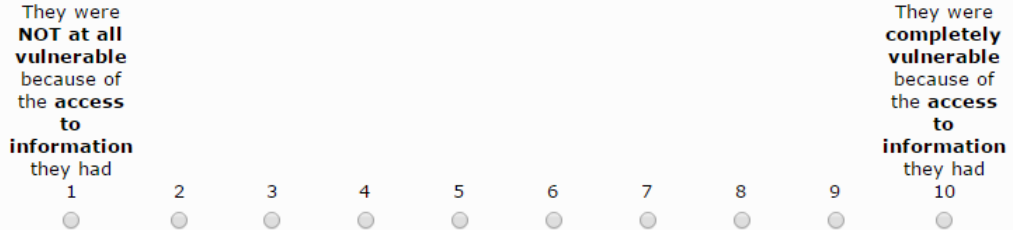
To what degree did you feel that the investors were vulnerable to the consequences of a possible accounting failure when investing in Big Time Gravel?



To what degree did you feel that the investors were vulnerable because of the resources that they had?



To what degree did you feel that the investors were vulnerable because of the access to information that they had to evaluate Big Time Gravel?



To what degree did you feel that the investors were vulnerable because of the ability they had to evaluate Big Time Gravel's financial statements?

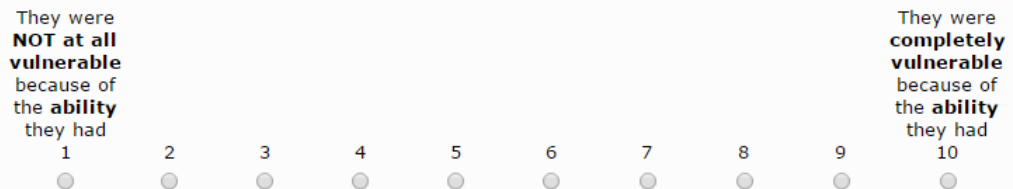


EXHIBIT 27

End Message for Participants Who Fail Pre-Screening

Thank you for your participation. Based on your answers you qualify for compensation of \$0.20. Your base pay will be given within 4 hours.

Please put the following verification code in the space provided to complete the hit and earn your compensation: **24601352**.

EXHIBIT 28

End Message for Participants Who Fail Attention Check Questions

Thank you for your participation. Based on your answers you qualify for a bonus of \$2.50 for total compensation of \$2.70. Your base pay will be given within 4 hours. Your bonus will be paid within 24 hours of completing the study.

Please put the following verification code in the space provided to complete the hit and earn your compensation: **1925756**.

EXHIBIT 29

End Message for Participants Who Complete the Study

Thank you for your participation. Based on your answers you qualify for a bonus of \$3.50 for total compensation of \$3.70. Your base pay will be given within 4 hours. Your bonus will be paid within 24 hours of completing the study.

Please put the following verification code in the space provided to complete the hit and earn your compensation: **1337544**.

APPENDIX B
SECOND STUDY INSTRUMENT SCREENSHOTS

- EXHIBIT 1. First Screen
- EXHIBIT 2. Second Screen
- EXHIBIT 3. Third Screen
- EXHIBIT 4. Fourth Screen
- EXHIBIT 5. Fifth Screen
- EXHIBIT 6. Sixth Screen
- EXHIBIT 7. Seventh Screen
- EXHIBIT 8. Eighth Screen
- EXHIBIT 9. Ninth Screen: High Estimate Uncertainty Condition
- EXHIBIT 10. Ninth Screen: Low Estimate Uncertainty Condition
- EXHIBIT 11. Tenth Screen: High Estimate Uncertainty/Smaller Misstatement Condition
- EXHIBIT 12. Tenth Screen: High Estimate Uncertainty/Larger Misstatement Condition
- EXHIBIT 13. Tenth Screen: Low Estimate Uncertainty/Smaller Misstatement Condition
- EXHIBIT 14. Tenth Screen: Low Estimate Uncertainty/Larger Misstatement Condition
- EXHIBIT 15. Eleventh Screen: Larger Material Misstatement/Aggregated Condition
- EXHIBIT 16. Eleventh Screen: Larger Material Misstatement/Disaggregated Condition
- EXHIBIT 17. Eleventh Screen: Smaller Material Misstatement/Aggregated Condition

- EXHIBIT 18. Eleventh Screen: Smaller Material Misstatement/Disaggregated Condition
- EXHIBIT 19. Twelfth Screen
- EXHIBIT 20. Twelfth Screen Continued
- EXIBHIT 21. Thirteenth Screen
- EXHIBIT 22. Fourteenth Screen

EXHIBIT 8

First Screen

Introduction to the study: In this study, you will read a hypothetical court case in which auditors are being sued by an investor who is alleging that the auditors were negligent. Because you could be a potential juror, we are interested in your judgments about the case.

How your privacy is protected: Your responses will be kept in an electronic database that includes no personally identifiable information. Any personally identifiable information (e.g., your name) will be replaced in the database with index numbers (e.g., "Participant #86"). Once entered into the database, any record linking your responses to any personally identifiable information will be destroyed. Any presentations of this research will present participants' responses at the aggregate level without personally identifiable information.

Risks and discomforts: We do not know of any personal risk or discomfort from being in this study. Participation involves making judgments that are ordinary and routine for civil jurors, and is not expected to pose any risk (physical or otherwise) beyond that normally encountered in daily life.

Your rights: You should decide on your own whether or not you want to be in this study. If you choose not to participate in this study, an alternative activity that involves comparable time and effort, and is worth the same amount of extra course credit, is available. The alternative activity will not be used for any research project. You will not be treated any differently if you decide not to be in the study. Participation in the study is voluntary. If you do decide to be in the study, you have the right to stop being in the study at any time.

You can earn **extra credit** for participating today by putting in a good faith effort as you read and complete this case. "Good-faith effort" will be determined based on whether you spend a reasonable amount of time reading the text and whether you answer the review questions **reasonably and completely**.

If you want a copy of this form, please print this screen, or contact [REDACTED] for a copy.

Review Board approval: The Institutional Review Board at [REDACTED] has approved this study.

PLEASE READ THE FOLLOWING STATEMENT AND CLICK ACCEPT BELOW IF YOU AGREE

I have had the chance to ask any questions I have about this study and any questions have been answered. I have read the information in this consent form and I agree to be in the study. A second copy of this form has been made available to me.

- ACCEPT
- DECLINE

EXHIBIT 2

Second Screen

Instructions: In this experiment, you will read about a legal case and answer questions.

This case will ask you three types of questions:

1. **Review questions** are easy to answer correctly as long as you read and understand the case material.
2. **Case questions** do not have a "right" answer, but instead ask you for your best judgments.
3. **Wrap-up questions** at the end ask some brief demographic questions.



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EXHIBIT 3

Third Screen

To help ensure meaningful results, it is important that this be your own independent judgment, so please do not discuss your responses with anyone else.

Please provide us with your name and  this is your  to make sure you receive extra credit:

First name

Last name



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EXHIBIT 4

Fourth Screen

Information Needed to Correctly Answer Review Questions #1-4

- Companies prepare financial statements for investors, lenders, and other users.
- A company's financial statements sometimes contain **material misstatements**. A **misstatement** is either an unintentional error or an intentional misrepresentation in a company's financial statements. A misstatement is **material** if it is significant enough to alter someone's impressions of the financial statements and change their judgment and decision making based on the financial statements.
- Auditors examine a company's financial statements and express an opinion about them by issuing a report on the financial statements.
- A "**clean**" **audit opinion** means that, based on their work, the auditors believe that they can provide **reasonable assurance** to investors, lenders, and other people that the financial statements are free of material misstatements.
- Reasonable assurance is **not** the same as **absolute assurance**. That is, a clean audit opinion is an opinion, not an absolute guarantee. For example, auditors cannot examine every transaction. Even after a good audit is performed, auditors could still miss material misstatements and mistakenly give the financial statements a "clean" opinion. However, auditors are more likely to miss material misstatements and mistakenly give the financial statements a "clean" opinion if they are **negligent** in the way they conduct the audit and examine the financial statements.

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EXHIBIT 5

Fifth Screen

Review Questions

Please answer the following true or false questions. You may go back and review the previous information.

A misstatement is **material** if it is significant enough to alter someone's impressions of the financial statements and change his or her judgment and decision making based on the financial statements.

- True
- False

When an audit report on the financial statements expresses a "clean" opinion, this means that, based on their work, the auditors believe that they can provide reasonable assurance to investors, lenders, and other people that the financial statements are free of material misstatements.

- True
- False

Reasonable assurance is not the same as absolute assurance. That is, a clean audit opinion is an opinion, not an absolute guarantee. For example, auditors cannot examine every transaction.

- True
- False

While auditors can miss material misstatements even when they are conducting a good audit, they are more likely to miss material misstatements in the financial statements if they are negligent.

- True
- False

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EXHIBIT 6

Sixth Screen

What Kinds of Things Do Auditors Do? Every year, many companies in the U.S. and other parts of the world have their financial statements audited by an accounting firm. Auditors use a variety of procedures to verify the assertions made in the financial statements. For example, auditors can observe management's physical count of the inventory that a company reports in its financial statements.

What Happens When There is a Material Misstatement? From time to time, management has material misstatements in their financial statements and, if auditors are negligent, auditors are less likely to catch these misstatements. Negligent auditors may be more concerned with pleasing the company management or cutting costs than in doing a good job.

Unfortunately, undetected material misstatements can cause enormous losses of money. They can cause investors and lenders who rely on financial statements to lose their money. Employees who are invested in the companies that they work for can lose their jobs *and* their life savings. Many innocent people, both inside and outside of the company, can be harmed when they rely on financial statements with undetected material misstatements.

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EXHIBIT 8

Seventh Screen

Review Questions

Please answer the following. You may go back and review the previous information.

Which of the following can happen when a company's financial statements include an undetected material misstatement: (choose **ALL** that apply)

- Investors and lenders who rely on financial statements with an undetected material misstatement can lose their money.
- Employees who are invested in the company can lose their jobs and their life savings.
- Many innocent people, both inside and outside the company, can be harmed.

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EXHIBIT 8

Eighth Screen

Jones & Company's Audit of Big Time Gravel

Jones & Company, an accounting firm, has audited the financial statements of Big Time Gravel. Assume that the following is true about the audit:

Big Time Gravel Company is a large producer of gravel and cement. The gravel and cement products it makes are sold to various customers. A critical portion of the company is the machinery that the company uses to mine the gravel.

As part of the audit performed by Jones & Company, the auditors examined the dollar value of the machinery in Big Time Gravel's financial statements. Accounting rules require that, if the current market value of the machinery is substantially less than what is stated on the company's books, the company must lower its value on the books and record a loss on the machinery in the financial statements (called an "impairment loss"). Recording this loss reduces the company's earnings reported in the financial statements.



EXHIBIT 9

Ninth Screen: High Estimate Uncertainty Condition

Big Time Gravel uses extremely customized machinery that is tailor-made for their mines, quarries, and processing sites. Because of this, similar machinery is not bought and sold regularly on the open market, and so this market does not provide readily available market values for the machinery.

Instead, Big Time Gravel uses a mathematical model to estimate the fair market value of their machinery. This model is based on highly subjective and very complicated assumptions about the cash that this machinery can generate for the company, as well as other difficult projections about the rather unpredictable future costs of operating the machinery. Because of the high levels of uncertainty in each of these inputs, the auditors were only able to estimate a very wide range of possible fair market values for the machinery. Based on this, the auditors believe the value of the machinery to be somewhere between \$350 million and \$650 million, a very imprecise and uncertain estimate. Management recorded the value of the machinery at \$545 million, and as a result recorded an impairment loss of \$10 million, which the auditors deemed appropriate.

Because of this and the other auditing work performed for other sections of the 2012 financial statements, Jones & Company reported that Big Time Gravel's audited financial statements were not materially misstated (i.e., a "clean" audit opinion).



EXHIBIT 10

Ninth Screen: Low Estimate Uncertainty Condition

Big Time Gravel uses extremely customized machinery that is tailor-made for their mines, quarries, and processing sites. Because of this, similar machinery is not bought and sold regularly on the open market, and so this market does not provide readily available market values for the machinery.

Instead, Big Time Gravel uses a mathematical model to estimate the fair market value of their machinery. However, this model is based on highly objective and very straightforward assumptions about the cash that this machinery can generate for the company, as well as other simple projections about the rather predictable future costs of operating the machinery. Because of the low levels of uncertainty in each of these inputs, the auditors were able to estimate a very precise range of possible fair market values for the machinery. Based on this, the auditors believe the value of the machinery to be somewhere between \$450 million and \$550 million, a very precise and certain estimate. Management had recorded the value of the machinery at \$545 million, and as a result recorded an impairment loss of \$10 million, which the auditors deemed appropriate.

Because of this and the other auditing work performed for other sections of the 2012 financial statements, Jones & Company reported that Big Time Gravel's audited financial statements were not materially misstated (i.e., a "clean" audit opinion).



EXHIBIT 11

Tenth Screen: High Estimate Uncertainty/Smaller Material Misstatement Condition

After the Audit: An Alleged Misstatement in the Value of the Machinery and a Lawsuit

After the 2012 financial statements were issued to the public (including the auditor's clean opinion on them), Big Time Gravel began to encounter some difficulty operating some of its machinery during 2013. The high cost of repairing the machinery, plus the cash lost while that machinery was down caused Big Time Gravel to lose substantial money.

Investors in Big Time gravel sued the company's audit firm, Jones & Company, alleging that the condition of the machinery should have been apparent to the auditors during the audit of the 2012 financial statements. Expert witnesses for the investors testified that the true value of the machinery should have been \$495 million. This valuation was within the auditor's estimate range of \$350 million to \$650 million. As a result of the incorrect valuation, the expert witnesses argued that the financial statements should have reflected an impairment loss on the machinery that was \$60 million, rather than the \$10 million impairment loss that was recorded in the financial statements. They also noted that the misstatement allowed Big Time Gravel to just meet Wall Street analysts' earnings-per-share target of \$1.28 for 2012, which the company would have failed to meet if the impairment was recorded at \$60 million. The investors allege further that, if the impairment had been recorded and the company had missed analysts' earnings targets, they would not have remained invested in the company and therefore would not have lost the money that they did during 2013.

Suppose that you are a juror in this trial. Relevant excerpts from Big Time Gravel's 2013 financial statements appear on the following page in two ways: (1) as reported in the audited financial statements with the "clean" audit opinion, and (2) as the investors' expert witnesses testified that the financial statements should have been reported, with the differences between the two highlighted.

Remember that a misstatement is **material** if it is significant enough to alter someone's impressions of the financial statements and change their judgment and decision making based on the financial statements.

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EXHIBIT 12

Tenth Screen: High Estimate Uncertainty/Larger Material Misstatement Condition

After the Audit: An Alleged Misstatement in the Value of the Machinery and a Lawsuit

After the 2012 financial statements were issued to the public (including the auditor's clean opinion on them), Big Time Gravel began to encounter some difficulty operating some of its machinery during 2013. The high cost of repairing the machinery, plus the cash lost while that machinery was down caused Big Time Gravel to lose substantial money.

Investors in Big Time gravel sued the company's audit firm, Jones & Company, alleging that the condition of the machinery should have been apparent to the auditors during the audit of the 2012 financial statements. Expert witnesses for the investors testified that the true value of the machinery should have been \$255 million. This valuation was outside of the auditor's estimate range of \$350 million to \$650 million. As a result of the incorrect valuation, the expert witnesses argued that the financial statements should have reflected an impairment loss on the machinery that was \$300 million, rather than the \$10 million impairment loss that was recorded in the financial statements. They also noted that the misstatement allowed Big Time Gravel to just meet Wall Street analysts' earnings-per-share target of \$1.28 for 2012, which the company would have failed to meet if the impairment was recorded at \$300 million. The investors allege further that, if the impairment had been recorded and the company had missed analysts' earnings targets, they would not have remained invested in the company and therefore would not have lost the money that they did during 2013.

Suppose that you are a juror in this trial. Relevant excerpts from Big Time Gravel's 2013 financial statements appear on the following page in two ways: (1) as reported in the audited financial statements with the "clean" audit opinion, and (2) as the investors' expert witnesses testified that the financial statements should have been reported, with the differences between the two highlighted.

Remember that a misstatement is **material** if it is significant enough to alter someone's impressions of the financial statements and change their judgment and decision making based on the financial statements.

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EXHIBIT 13

Tenth Screen: Low Estimate Uncertainty/Smaller Material Misstatement Condition

After the Audit: An Alleged Misstatement in the Value of the Machinery and a Lawsuit

After the 2012 financial statements were issued to the public (including the auditor's clean opinion on them), Big Time Gravel began to encounter some difficulty operating some of its machinery during 2013. The high cost of repairing the machinery, plus the cash lost while that machinery was down caused Big Time Gravel to lose substantial money.

Investors in Big Time gravel sued the company's audit firm, Jones & Company, alleging that the condition of the machinery should have been apparent to the auditors during the audit of the 2012 financial statements. Expert witnesses for the investors testified that the true value of the machinery should have been \$495 million. This valuation was within the auditor's estimate range of \$450 million to \$550 million. As a result of the incorrect valuation, the expert witnesses argued that the financial statements should have reflected an impairment loss on the machinery that was \$60 million rather than the \$10 million impairment loss that was recorded in the financial statements. They also noted that the misstatement allowed Big Time Gravel to just meet Wall Street analysts' earnings-per-share target of \$1.28 for 2012, which the company would have failed to meet if the impairment was recorded at \$60 million. The investors allege further that, if the impairment had been recorded and the company had missed analysts' earnings targets, they would not have remained invested in the company and therefore would not have lost the money that they did during 2013.

Suppose that you are a juror in this trial. Relevant excerpts from Big Time Gravel's 2013 financial statements appear on the following page in two ways: (1) as reported in the audited financial statements with the "clean" audit opinion, and (2) as the investors' expert witnesses testified that the financial statements should have been reported, with the differences between the two highlighted.

Remember that a misstatement is **material** if it is significant enough to alter someone's impressions of the financial statements and change their judgment and decision making based on the financial statements.

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EXHIBIT 14

Tenth Screen: Low Estimate Uncertainty/Larger Material Misstatement Condition

After the Audit: An Alleged Misstatement in the Value of the Machinery and a Lawsuit

After the 2012 financial statements were issued to the public (including the auditor's clean opinion on them), Big Time Gravel began to encounter some difficulty operating some of its machinery during 2013. The high cost of repairing the machinery, plus the cash lost while that machinery was down caused Big Time Gravel to lose substantial money.

Investors in Big Time gravel sued the company's audit firm, Jones & Company, alleging that the condition of the machinery should have been apparent to the auditors during the audit of the 2012 financial statements. Expert witnesses for the investors testified that the true value of the machinery should have been \$255 million. This valuation was outside of the auditor's estimate range of \$450 million to \$550 million. As a result of the incorrect valuation, the expert witnesses argued that the financial statements should have reflected an impairment loss on the machinery that was \$300 million, rather than the \$10 million impairment loss that was recorded in the financial statements. They also noted that the misstatement allowed Big Time Gravel to just meet Wall Street analysts' earnings-per-share target of \$1.28 for 2012, which the company would have failed to meet if the impairment was recorded at \$300 million. The investors allege further that, if the impairment had been recorded and the company had missed analysts' earnings targets, they would not have remained invested in the company and therefore would not have lost the money that they did during 2013.

Suppose that you are a juror in this trial. Relevant excerpts from Big Time Gravel's 2013 financial statements appear on the following page in two ways: (1) as reported in the audited financial statements with the "clean" audit opinion, and (2) as the investors' expert witnesses testified that the financial statements should have been reported, with the differences between the two highlighted.

Remember that a misstatement is **material** if it is significant enough to alter someone's impressions of the financial statements and change their judgment and decision making based on the financial statements.

0%  100%



EXHIBIT 15

Eleventh Screen: Larger Material Misstatement/Aggregated Condition

Excerpt from Big Time Gravel Financial Statements

The impairment loss central to this case is recorded in the cost of goods sold account, also known as the cost of goods sold line-item.

(All amounts in thousands)	As reported in the Audited Financial Statements	According to the Plaintiffs' Witnesses		
		Corrected	Amount Misstated	Percentage Misstated
Revenue	8,148,600	8,148,600	0	0%
Cost of goods sold	-3,487,629	-3,777,629	290,000	8%
Selling expenses				
Advertising	-80,000	-80,000	0	0%
Bad debt	-83,068	-83,068	0	0%
Other selling expenses	<u>-23,500</u>	<u>-23,500</u>	0	0%
Total selling expenses	-186,568	-186,568	0	0%
General and administrative expenses				
Compensation	-141,300	-141,300	0	0%
Depreciation	-99,820	-99,820	0	0%
Other general and administrative expenses	<u>-23,436</u>	<u>-23,436</u>	0	0%
Total general and administrative expenses	-264,556	-264,556	0	0%
Other operating income				
Loss on sale of trading securities	-132,650	-132,650	0	0%
Interest expense	<u>-190,000</u>	<u>-190,000</u>	0	0%
Total other operating income	-322,650	-322,650	0	0%
Operating income before taxes	3,887,197	3,597,197	290,000	7%



EXHIBIT 16

Eleventh Screen: Larger Material Misstatement/Disaggregated Condition

Excerpt from Big Time Gravel Financial Statements

The impairment loss central to this case is recorded in the impairment loss of machinery account, also known as the impairment loss of machinery line-item.

(All amounts in thousands)	As reported in the Audited Financial Statements	According to the Plaintiffs' Witnesses		
		Corrected	Amount Misstated	Percentage Misstated
Revenue	8,148,600	8,148,600	0	0%
Cost of goods sold				
Materials	-339,104	-339,104	0	0%
Compensation expense	-905,000	-905,000	0	0%
Pension expense	-93,175	-93,175	0	0%
Overhead - depreciation	-219,300	-219,300	0	0%
Transportation	-860,800	-860,800	0	0%
Storage	-300,000	-300,000	0	0%
Other production expense	-600,000	-600,000	0	0%
Change in inventory	-160,250	-160,250	0	0%
Impairment loss on machinery	<u>-10,000</u>	<u>-300,000</u>	290,000	2900%
Total cost of goods sold	-3,487,629	-3,777,629	290,000	8%
Selling expenses				
Advertising	-80,000	-80,000	0	0%
Bad debt	-83,068	-83,068	0	0%
Other selling expenses	<u>-23,500</u>	<u>-23,500</u>	0	0%
Total selling expenses	-186,568	-186,568	0	0%
General and administrative expenses				
Compensation	-141,300	-141,300	0	0%
Depreciation	-99,820	-99,820	0	0%
Other general and administrative expenses	<u>-23,436</u>	<u>-23,436</u>	0	0%
Total general and administrative expenses	-264,556	-264,556	0	0%
Other operating income				
Loss on sale of trading securities	-132,650	-132,650	0	0%
Interest expense	<u>-190,000</u>	<u>-190,000</u>	0	0%
Total other operating income	-322,650	-322,650	0	0%
Operating income before taxes	3,887,197	3,597,197	290,000	7%



EXHIBIT 17

Eleventh Screen: Smaller Material Misstatement/Aggregated Condition

Excerpt from Big Time Gravel Financial Statements

The impairment loss central to this case is recorded in the cost of goods sold account, also known as the cost of goods sold line-item.

(All amounts in thousands)	As reported in the Audited Financial Statements	According to the Plaintiffs' Witnesses		
		Corrected	Amount Misstated	Percentage Misstated
Revenue	8,148,600	8,148,600	0	0%
Cost of goods sold	-3,487,629	-3,537,629	50,000	1%
Selling expenses				
Advertising	-80,000	-80,000	0	0%
Bad debt	-83,068	-83,068	0	0%
Other selling expenses	-23,500	-23,500	0	0%
Total selling expenses	-186,568	-186,568	0	0%
General and administrative expenses				
Compensation	-141,300	-141,300	0	0%
Depreciation	-99,820	-99,820	0	0%
Other general and administrative expenses	-23,436	-23,436	0	0%
Total general and administrative expenses	-264,556	-264,556	0	0%
Other operating income				
Loss on sale of trading securities	-132,650	-132,650	0	0%
Interest expense	-190,000	-190,000	0	0%
Total other operating income	-322,650	-322,650	0	0%
Operating income before taxes	3,887,197	3,837,197	50,000	1%



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EXHIBIT 17

Eleventh Screen: Larger Material Misstatement/Disaggregated Condition

Excerpt from Big Time Gravel Financial Statements

The impairment loss central to this case is recorded in the impairment loss of machinery account, also known as the impairment loss of machinery line-item.

(All amounts in thousands)	As reported in the Audited Financial Statements	According to the Plaintiffs' Witnesses		
		Corrected	Amount Misstated	Percentage Misstated
Revenue	8,148,600	8,148,600	0	0%
Cost of goods sold				
Materials	-339,104	-339,104	0	0%
Compensation expense	-905,000	-905,000	0	0%
Pension expense	-93,175	-93,175	0	0%
Overhead - depreciation	-219,300	-219,300	0	0%
Transportation	-860,800	-860,800	0	0%
Storage	-300,000	-300,000	0	0%
Other production expense	-600,000	-600,000	0	0%
Change in inventory	-160,250	-160,250	0	0%
Impairment loss on machinery	<u>-10,000</u>	<u>-60,000</u>	50,000	500%
Total cost of goods sold	-3,487,629	-3,537,629	50,000	1%
Selling expenses				
Advertising	-80,000	-80,000	0	0%
Bad debt	-83,068	-83,068	0	0%
Other selling expenses	<u>-23,500</u>	<u>-23,500</u>	0	0%
Total selling expenses	-186,568	-186,568	0	0%
General and administrative expenses				
Compensation	-141,300	-141,300	0	0%
Depreciation	-99,820	-99,820	0	0%
Other general and administrative expenses	<u>-23,436</u>	<u>-23,436</u>	0	0%
Total general and administrative expenses	-264,556	-264,556	0	0%
Other operating income				
Loss on sale of trading securities	-132,650	-132,650	0	0%
Interest expense	<u>-190,000</u>	<u>-190,000</u>	0	0%
Total other operating income	-322,650	-322,650	0	0%
Operating income before taxes	3,887,197	3,837,197	50,000	1%



EXHIBIT 19

Twelfth Screen

Please answer the following case questions. You may go back and review the case information if necessary. Please answer carefully. Your opinions and best judgments are very important.

Big Time Gravel's investors allege that Jones & Company was **negligent** in failing to accurately value the machinery and detect the material misstatement of the related impairment loss during its audit of Big Time Gravel.

How much do you believe that the Jones & Company auditors were **negligent in failing to accurately assess the impairment loss?**

Not at all negligent									Completely negligent
1	2	3	4	5	6	7	8	9	10
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How much do you believe that the Jones & Company auditors had the **ability** to value the machinery and its related impairment loss accurately?

They had no ability at all to value the machinery and its related impairment loss accurately									They had complete ability to value the machinery and its related impairment loss accurately
1	2	3	4	5	6	7	8	9	10
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

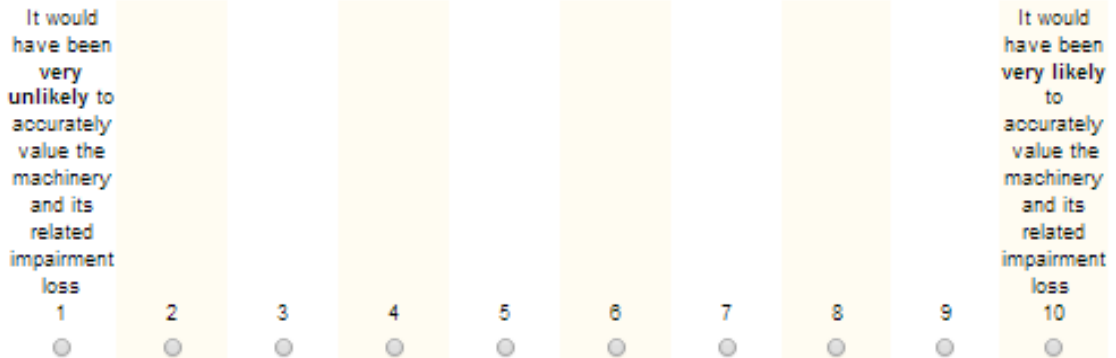
How much do you believe that the Jones & Company auditors had the **obligation** to value the machinery and its related impairment loss accurately?

They had no obligation at all to value the machinery and its related impairment loss accurately									They had complete all to value the machinery and its related impairment loss accurately
1	2	3	4	5	6	7	8	9	10
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

EXHIBIT 20

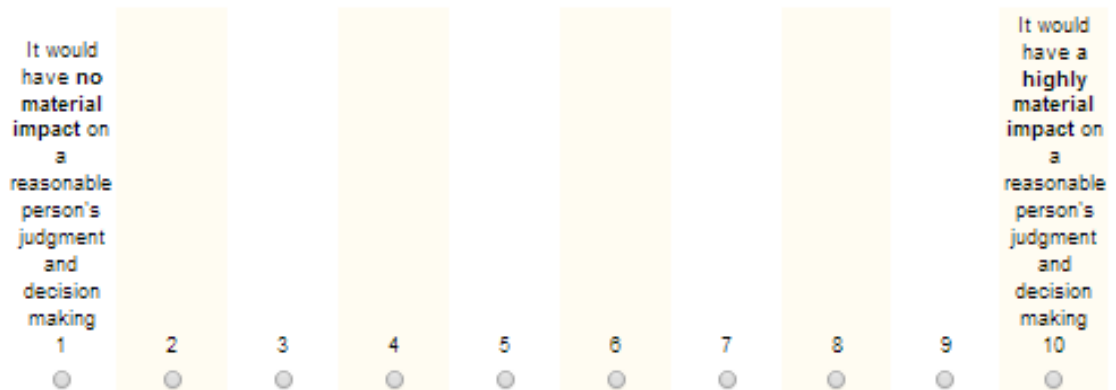
Twelfth Screen, Continued

How likely do you believe that a properly conducted audit by the auditors at Jones & Company could have correctly valued the machinery and its related impairment loss?



Investors allege that the misstatement of the mining machinery and its related impairment loss significantly affected their impressions of the financial statements, whether the company met analysts' earnings targets, and their decision to continue to invest in Big Time Gravel.

Having reviewed the financial statements, how much do you believe that the alleged misstatement would change the judgment and decision making of a reasonable person relying on the financial statements?



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EXHIBIT 21

Thirteenth Screen

Having reviewed an excerpt of the financial statements, what impact do you believe the alleged misstatement in the machinery's impairment loss had on the financial statement account (i.e. the line-item) that it appeared in?

It would have no material impact on the account									It would have a highly material impact on the account
1	2	3	4	5	6	7	8	9	10
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Having reviewed an excerpt of the financial statements, what impact do you believe the alleged misstatement in the machinery's impairment loss had on the overall presentation of that financial statement?

It would have no material impact on the financial statement									It would have a highly material impact on the financial statement
1	2	3	4	5	6	7	8	9	10
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Recall that Big Time Gravel uses a mathematical model to estimate the fair market value of their machinery, generating a range of possible values. In your opinion, what degree of uncertainty surrounded the valuation model's inputs, assumptions, and estimation of the impairment loss on fixed assets?

There was a very low degree of uncertainty. The estimate involved straightforward and predictable inputs, and therefore precise range of possible values									There was a very high degree of uncertainty. The estimate involved subjective and unpredictable inputs, and therefore a wide range of possible values
1	2	3	4	5	6	7	8	9	10
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

EXHIBIT 222

Fourteenth Screen

Wrap-Up Questions

Instructions: Please give the best answer you can to the following questions.

I have completed _____ years of post-high school education.

I have completed _____ accounting courses.

I have completed _____ management, accounting, and/or economics courses in college.

My major is _____

My gender is:

Male

Female



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APPENDIX C
THIRD STUDY INSTRUMENT SCREENSHOTS

- EXHIBIT 1. First Screen
- EXHIBIT 2. Second Screen
- EXHIBIT 3. Third Screen
- EXHIBIT 4. Fourth Screen
- EXHIBIT 5. Fifth Screen
- EXHIBIT 6. Sixth Screen
- EXHIBIT 7. Seventh Screen
- EXHIBIT 8. Eighth Screen- High Estimate Uncertainty Condition
- EXHIBIT 9. Eighth Screen- Low Estimate Uncertainty Condition
- EXHIBIT 10. Ninth Screen
- EXHIBIT 11. Tenth Screen- Aggregated Condition
- EXHIBIT 12. Tenth Screen- Disaggregated Condition
- EXHIBIT 13. Eleventh Screen
- EXHIBIT 14. Eleventh Screen Continued
- EXHIBIT 15. Twelfth Screen
- EXHIBIT 16. Thirteenth Screen
- EXHIBIT 17. Fourteenth Screen
- EXHIBIT 18. Fifteenth Screen
- EXHIBIT 19. Sixteenth Screen
- EXHIBIT 20. Seventeenth Screen
- EXHIBIT 21. Seventeenth Screen Continued

- EXHIBIT 22. Eighteenth Screen

EXHIBIT 1

First Screen




Thank you for participating!

By participating in this case study, you are helping to complete a study that is part of a doctoral dissertation at the University of Massachusetts Amherst. The case study is expected to take 20 to 25 minutes.

The Institutional Review Board at the Isenberg School of Management has approved this study to ensure that we will protect the privacy of our participants and that it involves no unusual risks or discomforts beyond that encountered in daily life. The survey responses will be maintained in an electronic database that does not identify who you are or who your firm is. Any presentations of the survey responses in academic journals or conferences will be at the group level (e.g., average responses).

If you want a copy of this information or have any questions concerning the survey, please email jpickerd@som.umass.edu. If you have any questions about your rights as a participant in this research, please contact the Isenberg School of Management Institutional Review Board at dabutter@isenberg.umass.edu.

If you understand this information and agree to be in the study, please click the next arrow to continue.



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EXHIBIT 2

Second Screen

In this study, you will read a hypothetical case involving allegations of auditor negligence. Investors are suing an audit firm, alleging that the auditors' negligence allowed false and misleading information to remain in their company's audited financial statements.

Please assume the role of **legal counsel for the auditors**.

After carefully reading through the case, you will be asked for **your legal judgments**. The questions we will ask include details about how you believe this case might be settled out of court. We are very interested in **your opinion**.

This study was also presented to 217 college students who assumed the role of mock jurors. Research in accounting, law, and psychology suggests that college students are good mock jurors, and form judgments similar to those of jurors in negligence settings. These students averaged 2.51 years of post-high school education and 44% were female.

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EXHIBIT 3

Third Screen

Mock Jurors Read This Background Information

- Companies prepare financial statements for investors, lenders, and other users.
- A company's financial statements sometimes contain **material misstatements**. A **misstatement** is either an unintentional error or an intentional misrepresentation in a company's financial statements. A misstatement is **material** if it is significant enough to alter someone's impressions of the financial statements and change their judgment and decision making based on the financial statements.
- Auditors examine a company's financial statements and express an opinion about them by issuing a report on the financial statements.
- A "**clean**" **audit opinion** means that, based on their work, the auditors believe that they can provide **reasonable assurance** to investors, lenders, and other people that the financial statements are free of material misstatements.
- Reasonable assurance is **not** the same as **absolute assurance**. That is, a clean audit opinion is an opinion, not an absolute guarantee. For example, auditors cannot examine every transaction. Even after a good audit is performed, auditors could still miss material misstatements and mistakenly give the financial statements a "clean" opinion. However, auditors are more likely to miss material misstatements and mistakenly give the financial statements a "clean" opinion if they are **negligent** in the way they conduct the audit and examine the financial statements.

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EXHIBIT 4

Fourth Screen

Mock Jurors Answered These Review True/False Questions

A misstatement is **material** if it is significant enough to alter someone's impressions of the financial statements and change his or her judgment and decision making based on the financial statements.

99.5% of mock jurors correctly answered True
0.5% of mock jurors incorrectly answered False

When an audit report on the financial statements expresses a "clean" opinion, this means that, based on their work, the auditors believe that they can provide reasonable assurance to investors, lenders, and other people that the financial statements are free of material misstatements.

97.7% of mock jurors correctly answered True
2.3% of mock jurors incorrectly answered False

Reasonable assurance is not the same as absolute assurance. That is, a clean audit opinion is an opinion, not an absolute guarantee. For example, auditors cannot examine every transaction.

96.3% of mock jurors correctly answered True
3.7% of mock jurors incorrectly answered False

While auditors can miss material misstatements even when they are conducting a good audit, they are more likely to miss material misstatements in the financial statements if they are negligent.

97.2% of mock jurors correctly answered True
2.8% of mock jurors incorrectly answered False


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EXHIBIT 5

Fifth Screen



Mock Jurors Read the Following Information

What Kinds of Things Do Auditors Do? Every year, many companies in the U.S. and other parts of the world have their financial statements audited by an accounting firm. Auditors use a variety of procedures to verify the assertions made in the financial statements. For example, auditors can observe management's physical count of the inventory that a company reports in its financial statements.

What Happens When There is a Material Misstatement? From time to time, management has material misstatements in their financial statements and, if auditors are negligent, auditors are less likely to catch these misstatements. Negligent auditors may be more concerned with pleasing the company management or cutting costs than in doing a good job.

Unfortunately, undetected material misstatements can cause enormous losses of money. They can cause investors and lenders who rely on financial statements to lose their money. Employees who are invested in the companies that they work for can lose their jobs *and* their life savings. Many innocent people, both inside and outside of the company, can be harmed when they rely on financial statements with undetected material misstatements.

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EXHIBIT 6


Sixth Screen

Mock Jurors Answered This Review Question

Which of the following can happen when a company's financial statements include an undetected material misstatement: (choose **ALL** that apply)

- Investors and lenders who rely on financial statements with an undetected material misstatement can lose their money.
- Employees who are invested in the company can lose their jobs and their life savings.
- Many innocent people, both inside and outside the company, can be harmed.

95.1% of mock jurors answered all three could happen.





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EXHIBIT 7

Seventh Screen



Jones & Company's Audit of Big Time Gravel

Jones & Company, an accounting firm, has audited the financial statements of Big Time Gravel. Assume that the following is true about the audit:

Big Time Gravel Company is a large producer of gravel and cement. The gravel and cement products it makes are sold to various customers. A critical portion of the company is the machinery that the company uses to mine the gravel.

As part of the audit performed by Jones & Company, the auditors examined the dollar value of the machinery in Big Time Gravel's financial statements. Accounting rules require that, if the current market value of the machinery is substantially less than what is stated on the company's books, the company must lower its value on the books and record a loss on the machinery in the financial statements (called an "impairment loss"). Recording this loss reduces the company's earnings reported in the financial statements.

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EXHIBIT 8

Eighth Screen-High Estimate Uncertainty

Big Time Gravel uses extremely customized machinery that is tailor-made for their mines, quarries, and processing sites. Because of this, similar machinery is not bought and sold regularly on the open market, and so this market does not provide readily available market values for the machinery.

Instead, Big Time Gravel uses a mathematical model to estimate the fair market value of their machinery. This model is based on highly subjective and very complicated assumptions about the cash that this machinery can generate for the company, as well as other difficult projections about the rather unpredictable future costs of operating the machinery. Because of the high levels of uncertainty in each of these inputs, the auditors were only able to estimate a very wide range of possible fair market values for the machinery. Based on this, the auditors believe the value of the machinery to be somewhere between \$350 million and \$650 million, a very imprecise and uncertain estimate. Management recorded the value of the machinery at \$545 million, and as a result recorded an impairment loss of \$10 million, which the auditors deemed appropriate.

Because of this and the other auditing work performed for other sections of the 2012 financial statements, Jones & Company reported that Big Time Gravel's audited financial statements were not materially misstated (i.e., a "clean" audit opinion).



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EXHIBIT 9

Eighth Screen- Low Estimate Uncertainty

Big Time Gravel uses extremely customized machinery that is tailor-made for their mines, quarries, and processing sites. Because of this, similar machinery is not bought and sold regularly on the open market, and so this market does not provide readily available market values for the machinery.

Instead, Big Time Gravel uses a mathematical model to estimate the fair market value of their machinery. However, this model is based on highly objective and very straightforward assumptions about the cash that this machinery can generate for the company, as well as other simple projections about the rather predictable future costs of operating the machinery. Because of the low levels of uncertainty in each of these inputs, the auditors were able to estimate a very precise range of possible fair market values for the machinery. Based on this, the auditors believe the value of the machinery to be somewhere between \$450 million and \$550 million, a very precise and certain estimate. Management had recorded the value of the machinery at \$545 million, and as a result recorded an impairment loss of \$10 million, which the auditors deemed appropriate.

Because of this and the other auditing work performed for other sections of the 2012 financial statements, Jones & Company reported that Big Time Gravel's audited financial statements were not materially misstated (i.e., a "clean" audit opinion).



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EXHIBIT 10

Ninth Screen

After the Audit: An Alleged Misstatement in the Value of the Machinery and a Lawsuit

After the 2012 financial statements were issued to the public (including the auditor's clean opinion on them), Big Time Gravel encountered some difficulty operating some of its machinery during 2013. The high cost of repairing the machinery, plus the cash lost while that machinery was down caused Big Time Gravel to lose substantial money.

Investors in Big Time gravel sued the company's audit firm, Jones & Company, alleging that the condition of the machinery should have been apparent to the auditors during the audit of the 2012 financial statements. Expert witnesses for the investors testified that the true value of the machinery should have been \$495 million. This valuation was within the auditor's estimate range of \$350 million to \$650 million. As a result of the incorrect valuation, the expert witnesses argued that the financial statements should have reflected an impairment loss on the machinery that was \$60 million, rather than the \$10 million impairment loss that was recorded in the financial statements. They also noted that the misstatement allowed Big Time Gravel to just meet Wall Street analysts' earnings-per-share target of \$1.28 for 2012, which the company would have failed to meet if the impairment was recorded at \$60 million. The investors allege further that, if the impairment had been recorded and the company had missed analysts' earnings targets, they would not have remained invested in the company and therefore would not have lost the money that they did during 2013.

Relevant excerpts from Big Time Gravel's 2013 financial statements appear on the following page in two ways: (1) as reported in the audited financial statements with the "clean" audit opinion, and (2) as the investors' expert witnesses testified that the financial statements should have been reported, with the differences between the two highlighted.

Mock jurors were reminded that a misstatement is **material** if it is significant enough to alter someone's impressions of the financial statements and change their judgment and decision making based on the financial statements.

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EXHIBIT 11

Tenth Screen-Aggregated Condition

Excerpt from Big Time Gravel Financial Statements

The impairment loss central to this case is recorded in the cost of goods sold account, also known as the cost of goods sold line-item.

(All amounts in thousands)	As reported in the Audited Financial Statements	<u>According to the Plaintiffs' Witnesses</u>		
		<u>Corrected</u>	<u>Amount Misstated</u>	<u>Percentage Misstated</u>
Revenue	8,148,600	8,148,600	0	0%
Cost of goods sold	-3,487,629	-3,537,629	50,000	1%
Selling expenses				
Advertising	-80,000	-80,000	0	0%
Bad debt	-83,068	-83,068	0	0%
Other selling expenses	<u>-23,500</u>	<u>-23,500</u>	0	0%
Total selling expenses	-186,568	-186,568	0	0%
General and administrative expenses				
Compensation	-141,300	-141,300	0	0%
Depreciation	-99,820	-99,820	0	0%
Other general and administrative expenses	<u>-23,436</u>	<u>-23,436</u>	0	0%
Total general and administrative expenses	-264,556	-264,556	0	0%
Other operating income				
Loss on sale of trading securities	-132,650	-132,650	0	0%
Interest expense	<u>-190,000</u>	<u>-190,000</u>	0	0%
Total other operating income	-322,650	-322,650	0	0%
Operating income before taxes	3,887,197	3,837,197	50,000	1%

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EXHIBIT 12

Tenth Screen-Disaggregated Condition

Excerpt from Big Time Gravel Financial Statements

The impairment loss central to this case is recorded in the impairment loss of machinery account, also known as the impairment loss of machinery line-item.

(All amounts in thousands)	As reported in the Audited Financial Statements	<u>According to the Plaintiffs'</u> <u>Witnesses</u>		
		<u>Corrected</u>	<u>Amount Misstated</u>	<u>Percentage Misstated</u>
Revenue	8,148,600	8,148,600	0	0%
Cost of goods sold				
Materials	-339,104	-339,104	0	0%
Compensation expense	-905,000	-905,000	0	0%
Pension expense	-93,175	-93,175	0	0%
Overhead - depreciation	-219,300	-219,300	0	0%
Transportation	-860,800	-860,800	0	0%
Storage	-300,000	-300,000	0	0%
Other production expense	-600,000	-600,000	0	0%
Change in inventory	-160,250	-160,250	0	0%
Impairment loss on machinery	<u>-10,000</u>	<u>-60,000</u>	50,000	500%
Total cost of goods sold	-3,487,629	-3,537,629	50,000	1%
Selling expenses				
Advertising	-80,000	-80,000	0	0%
Bad debt	-83,068	-83,068	0	0%
Other selling expenses	<u>-23,500</u>	<u>-23,500</u>	0	0%
Total selling expenses	-186,568	-186,568	0	0%
General and administrative expenses				
Compensation	-141,300	-141,300	0	0%
Depreciation	-99,820	-99,820	0	0%
Other general and administrative expenses	<u>-23,436</u>	<u>-23,436</u>	0	0%
Total general and administrative expenses	-264,556	-264,556	0	0%
Other operating income				
Loss on sale of trading securities	-132,650	-132,650	0	0%
Interest expense	<u>-190,000</u>	<u>-190,000</u>	0	0%
Total other operating income	-322,650	-322,650	0	0%
Operating income before taxes	3,887,197	3,837,197	50,000	1%

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EXHIBIT 13

Eleventh Screen

Case Questions

Please assume the role of **legal counsel for the auditors** as you answer the following questions.

We understand that in a real legal case, you would have much more information to form your judgments, but please provide your best judgments based on the information provided. You may go back and review the case information if necessary. Please answer carefully. Your opinions and best judgments are very important.

As legal counsel for the auditors, how strong of a negotiating position do you believe that you would have in an out-of-court settlement?

I would have a very weak negotiating position										I would have a very strong negotiating position
1	2	3	4	5	6	7	8	9	10	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

As legal counsel for the auditors, how strong of a negotiating position do you believe that the **investors' legal counsel** would have in an out-of-court settlement?

They would have a very weak negotiating position										They would have a very strong negotiating position
1	2	3	4	5	6	7	8	9	10	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Do you believe that the outcome of the out-of-court settlement would tend to favor the auditors or the investors?

The outcome is very likely to favor the investors										The outcome is very likely to favor the auditors
1	2	3	4	5	6	7	8	9	10	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

EXHIBIT 14

Eleventh Screen-Continued

How long do you think it would take to negotiate with the investors' legal counsel to settle this case?

The negotiations would take a short amount of time										The negotiations would take a long amount of time
1	2	3	4	5	6	7	8	9	10	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Do you believe that the negotiations in an out-of-court settlement between the investors and the auditors would tend to be more cooperative or more contentious?

The negotiations would be more cooperative										The negotiations would be more contentious
1	2	3	4	5	6	7	8	9	10	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How committed would you be to your initial settlement offer?

I would be very weakly committed										I would be very strongly committed
1	2	3	4	5	6	7	8	9	10	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How likely would you be willing to make concessions to reach a settlement with the investors' legal counsel?

I would be very unwilling to make concessions										I would be very willing to make concessions
1	2	3	4	5	6	7	8	9	10	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

EXHIBIT 15

Twelfth Screen

How would you describe the range of settlement amounts that would be acceptable to you?

There would be no acceptable range											The acceptable range would be very large
0	1	2	3	4	5	6	7	8	9	10	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How would you describe the range of settlement amounts that would be acceptable to the investors' legal counsel?

There would be no acceptable range											The acceptable range would be very large
0	1	2	3	4	5	6	7	8	9	10	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How much overlap do you think there would be in the range of settlement amounts that would be acceptable to both you and the investors' legal counsel?

There would be no overlap											There would be complete overlap
0	1	2	3	4	5	6	7	8	9	10	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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EXHIBIT 16

Thirteenth Screen

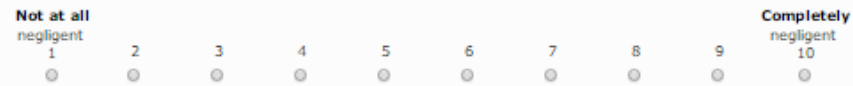
As legal counsel for the auditors, how would you approach negotiations with the plaintiffs' legal counsel? What negotiation strategies would you use?

How likely do you believe that the lawsuit by the investors against the audit firm Jones & Company would end up being settled out of court, as opposed to, e.g., going to trial?



Big Time Gravel's investors allege that Jones & Company was **negligent** in failing to accurately value the machinery and detect the material misstatement of the related impairment loss during its audit of Big Time Gravel.

How much do you believe that the Jones & Company auditors were **negligent in failing to accurately assess the impairment loss**?



What factors of the case influenced your assessment of whether Jones & Company auditors were negligent in failing to accurately assess the impairment loss?

How likely do you believe that a properly conducted audit by the auditors at Jones & Company could have correctly valued the machinery and its related the impairment loss?

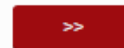
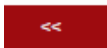


EXHIBIT 17

Fourteenth Screen

For the next two questions, please imagine the mock jurors who also read this case.

How much do you think **the mock jurors believed** that the Jones & Company auditors were **negligent in failing to accurately assess the impairment loss?**

Mock jurors believed the auditors were not at all negligent											Mock jurors believed that the auditors were completely negligent
1	2	3	4	5	6	7	8	9	10		
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How much do you think that **mock jurors believed** that a properly conducted audit by the auditors at Jones & Company could have correctly valued the machinery and its related the impairment loss?

Mock jurors believed it would have been very unlikely for the auditors to accurately value the machinery and its related impairment loss											Mock jurors believed that it would have been very likely for the auditors to accurately value the machinery and its related impairment loss
1	2	3	4	5	6	7	8	9	10		
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



EXHIBIT 18

Fifteenth Screen

For the rest of the questions, please provide **your opinion as legal counsel for the auditors**:

Assume that the investors' legal counsel has proposed settling the case out of court if the auditors pay the investors \$100 million.

To the nearest million, what is the lowest amount you would hope to convince the investors' legal counsel to accept as a proposed settlement?

\$ million

To the nearest million, what is the highest amount of money you would be willing to offer the investors' legal counsel as a proposed settlement?

\$ million

To the nearest million, what is the lowest amount you think the investors' legal counsel would be willing to accept as a settlement amount?

\$ million

To the nearest million, what do you believe the final negotiated settlement amount between you and the investors' legal counsel would be?

- We would settle for around \$ million
- We would not be able to reach a final negotiated settlement amount

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EXHIBIT 19

Sixteenth Screen

Recall that Big Time Gravel uses a mathematical model to estimate the fair market value of their machinery, generating a range of possible values. In your opinion, what degree of uncertainty surrounded the valuation model's inputs, assumptions, and estimation of the impairment loss on fixed assets?

There was a **very low degree of uncertainty.** The estimate involved **straightforward and predictable** inputs, and therefore **precise** range of possible values

There was a **very high degree of uncertainty.** The estimate involved **subjective and unpredictable** inputs, and therefore a **wide** range of possible values

1 2 3 4 5 6 7 8 9 10

Investors allege that the misstatement of the mining machinery and its related impairment loss significantly affected their impressions of the financial statements, whether the company met analysts' earnings targets, and their decision to continue to invest in Big Time Gravel.

Having reviewed the financial statements, how much do you believe that the alleged misstatement would change the judgment and decision making of a reasonable person relying on the financial statements?

It would have **no material impact** on a reasonable person's judgment and decision making

It would have a **highly material impact** on a reasonable person's judgment and decision making

1 2 3 4 5 6 7 8 9 10

Having reviewed an excerpt of the financial statements, what impact do you believe the alleged misstatement in the machinery's impairment loss had on the financial statement account (i.e. the line-item) that it appeared in?

It would have **no material impact** on the account

It would have a **highly material impact** on the account

1 2 3 4 5 6 7 8 9 10

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EXHIBIT 20

Seventeenth Screen

Wrap-Up Questions

Instructions: Please give the best answer you can to the following questions.

I have _____ years of legal experience.

How familiar are you with civil proceedings?

I am very unfamiliar with civil proceedings										I am very familiar with civil proceedings
1	2	3	4	5	6	7	8	9	10	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How familiar are you with business law?

I am very unfamiliar with business law										I am very familiar with business law
1	2	3	4	5	6	7	8	9	10	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How familiar are you with torts?

I am very unfamiliar with torts										I am very familiar with torts
1	2	3	4	5	6	7	8	9	10	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

EXHIBIT 21

Seventeenth Screen- Continued

How familiar are you with the legal concepts surrounding negligence?

I am **very unfamiliar** with negligence 1 2 3 4 5 6 7 8 9 10 I am **very familiar** with negligence

What are your areas of legal specialization (e.g. business law)?

Your gender is:

Male

Female

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0% 100%

EXHIBIT 22

Eighteenth Screen

Thank you for participation! I greatly appreciate your help as I complete my doctoral dissertation at the University of Massachusetts.

If you know other lawyers who practice business law and have experience in legal negotiations who you believe would also be willing to take this study, please feel free to forward them the following link: XXXX. Please do not describe the specifics of the case as I need all participants to make their own independent judgments.

You can email me directly at jpickerd@som.umass.edu with any comments, concerns, or questions you have regarding this study.

Once again, thank you so much for your help!

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