

*Distinguished Lecture Series
School of Accountancy
W. P. Carey School of Business
Arizona State University*

Jeremy Griffin
of
Mendoza College of Business
University of Notre Dame
will discuss

“The Effects of Uncertainty and Disclosure on
Auditors’ Fair Value Materiality Decisions”

on

January 14, 2013

1:30pm in BA296

The Effects of Uncertainty and Disclosure on Auditors' Fair Value Materiality Decisions

Jeremy B. Griffin
Assistant Professor of Accountancy
Mendoza College of Business
University of Notre Dame
Notre Dame, IN 46556
Griffin.91@nd.edu

This paper is based on my dissertation at the University of Georgia. I am grateful for the contributions of my committee: Linda Bamber, Tina Carpenter, Jenny Gaver, and especially Michael Bamber (chair) and Jackie Hammersley. Special thanks to Tim Bell, Karen Braun, and the anonymous audit partners who helped me develop and refine my experimental materials. I also appreciate helpful comments received from Ann Backof, Pennie Bagley, Margaret Christ, Cory Johnson, Bill Kinney, David Koo, Roger Martin, Jason Matthews, Sean McGuire, Bill Messier, Dave Ricchiute, Chad Simon, Karl Wang, and workshop participants at the University of Georgia, University of Notre Dame, Miami University, University of South Carolina, University of Massachusetts—Amherst, University of Wisconsin—Madison, and University of Mississippi, as well as conference participants at the 2010 Deloitte/University of Kansas Symposium on Auditing Problems.

The Effects of Uncertainty and Disclosure on Auditors' Fair Value Materiality Decisions

ABSTRACT

Financial accounting standards increasingly require fair value measurements, while theory suggests that auditors view uncertainty differently in this setting than in those studied in prior research. I experimentally examine how uncertainty affects auditors' adjustment decisions in a fair value setting by manipulating two types of uncertainty, input *subjectivity* and outcome *imprecision*, and one reporting choice, *supplemental disclosure*. As expected, these variables interact. Although auditors are most likely to require adjustments when fair values are both more subjectively determined and more imprecise in outcomes, this likelihood diminishes when clients supplement recognized fair values with additional disclosure. My finding suggests that the SEC's preference for supplemental disclosure may have the unintended consequence of affecting fair values recognized in the body of the financial statements. I also provide evidence that auditors determine adjustment size by comparing recorded fair value to the nearest bound, rather than the midpoint, of the auditors' own range estimate.

Keywords: *fair value; materiality; audit adjustments; uncertainty; disclosure; subjectivity; imprecision.*

Data availability: *Contact the author*

The Effects of Uncertainty and Disclosure on Auditors' Fair Value Materiality Decisions

“The minute you start introducing ranges and judgments, it’s a fertile area for opportunistic behavior. I’m not against it, but we need to understand there will be instances of inappropriate or fraudulent behavior.”

— James D. Cox, Brainerd Currie Professor of Law, Duke University
(as quoted in *The Wall Street Journal*, [2008])

1. Introduction

SFAS No. 157 *Fair Value Measurements* prescribes how financial statement preparers measure and report assets and liabilities at fair value (FASB [2006]). Measuring fair values is straightforward when markets are operating smoothly and quoted prices are readily available. However, when market prices are either unavailable or unreliable preparers must use judgment to estimate fair values. Measuring fair values in the absence of reliable market prices is difficult because the estimation process often depends on relatively subjective information inputs, and generates imprecise ranges of possible outcomes. Investor advocates warn that preparers could use this uncertainty to bias fair value estimates (Reilly and Scannell [2008]). The SEC has responded by encouraging more voluntary disclosures regarding fair value estimates (SEC [2008b], [2008a]). Meanwhile, auditors must assess the reasonableness of their clients’ measurements and, when they deem misstatements material, require their clients to adjust fair value estimates before reporting them in the financial statements.¹

I study how two types of uncertainty, subjectivity and imprecision, and one reporting choice, supplemental footnote disclosure, influence auditors’ decisions to require fair value adjustments. Subjectivity reflects the reliability of the inputs used to prepare accounting information. In measuring fair values under SFAS No. 157, Level 1 items involve little subjectivity because highly-reliable inputs (e.g., active market prices) are available, while Level 3 items usually involve great subjectivity because they depend on less-reliable inputs (e.g.,

¹ Auditors’ adjustment decisions reflect their judgments about the materiality of detected misstatements at the evaluation stage of the audit (Iceman and Hillison [1991]). Material misstatements are those that the auditor perceives would affect the judgment of a reasonable user of the financial statements (FASB [1980], Messier, Glover, and Prawitt [2008]).

expectations about unknown future events).² In contrast, imprecision reflects the degree of variability in possible future outcomes. Wide ranges of possible outcomes suggest more variability than narrow ranges. Though subjectivity and imprecision may tend to covary in practice—i.e., more subjective inputs often suggest a more imprecise range of possible outcomes—the two constructs are distinct. SFAC No. 2 (FASB [1980]) states that “[r]eliability does not imply certainty or precision” (par. 72) and “the result of a predictive process cannot be used to assess the reliability of the inputs into it...” (par. 75). Auditing standards state that fair value measurements feature greater uncertainty, and identify five causes of uncertainty, two of which are “[a] higher degree of subjectivity associated with the assumptions and factors used in the process,” and “[a] higher degree of uncertainty associated with the future occurrence or outcome of events” (AICPA [2003, par. 24]).

I propose that subjectivity and imprecision are prominent in fair value measurement settings and test whether they interact with disclosure to influence auditors’ fair value adjustment decisions. SFAS No. 157 classifies the reliability of fair value inputs in three hierarchical levels (reflecting differential subjectivity), financial statement preparers select the amounts recognized from a range of possible values (reflecting imprecision), and may voluntarily provide additional information about the measures used to arrive at fair value (supplemental disclosure). Drawing on theory, I hypothesize that auditors (1) respond to the interaction of subjectivity and imprecision by requiring more adjustments, and (2) rely on footnote disclosure to compensate for management’s potentially opportunistic use of subjective and imprecise measures.

² SFAS No. 157 provides a three-level hierarchy of fair value measurement inputs: Level 1 inputs are quoted prices in active markets for identical assets or liabilities, Level 2 inputs are observable but do not meet the criteria for Level 1 (e.g., quoted prices in active markets for *similar* items), and Level 3 inputs are unobservable but based on the best information available. SFAS No. 157 requires preparers to give highest priority to Level 1 inputs and lowest priority to Level 3 inputs (FASB [2006, par. 22]).

Studying uncertainty in auditors' fair value materiality decisions is important for a number of reasons. First, little is known about how auditors make decisions in complex settings such as fair value measurement (Martin, Rich, and Wilks [2006]). SAB No. 99 requires auditors to look beyond a misstatement's dollar amount, or quantitative materiality, to also consider its qualitative materiality, and it specifically identifies subjectivity and imprecision as qualitative materiality factors.³ Fair value accounting is a unique setting to study the interaction of subjectivity and imprecision. SFAS No. 157 rates the subjectivity (i.e., Levels 1, 2, and 3) of the inputs managers use to estimate a range of possible future values, from which managers choose a single dollar amount to recognize in the financial statements. Managers can exploit uncertainty to mislead investors (e.g., Bamber, Hui, and Yeung [2010]), while auditors constrain this behavior by requiring adjustments.⁴ When studied in isolation, the literature suggests that auditors are *less* likely to require adjustment of more subjectively-determined amounts (e.g., Libby and Kinney [2000], Wright and Wright [1997]), but *more* likely to require adjustment of imprecise amounts (Nelson, Smith, and Palmrose [2005]). The interaction of subjectivity and imprecision is prominent in the fair value setting, however to date there has been no evidence on whether and how this interaction affects auditors' adjustment decisions.

Second, understanding how supplemental footnote disclosures affect auditors' materiality decisions is important because regulators encourage financial statement preparers to provide more information about fair value calculations (Reilly and Scannell [2008]). Prior research shows that auditors are less likely to require adjustment of disclosed (versus recognized) amounts (Libby, Nelson, and Hunton [2006]), but it is not clear that this finding will hold for fair

³ Qualitative materiality factors are "the surrounding circumstances that inform an investor's evaluation of financial statement entries" independent of dollar amount (SEC [1999, fn. 5]).

⁴ For a more complete discussion of the methods by which preparers exercise discretion to manage earnings, see Nelson et al. [2002].

value accounting where footnotes *supplement*, rather than *substitute for*, recognition in the body of the financial statements. This question is important to financial statement users and regulators, because if auditors view footnote disclosure as a “hedge” against possible misstatement of recognized amounts, they will be less likely to require adjustment to the body of the financial statements when preparers supplement recognized fair values with footnote disclosure.

Third, studying how auditors make adjustment decisions about estimates provides insights for auditing standard setters. Although auditing standards are rather specific about how to calculate the dollar amount of possible misstatements involving estimates (e.g., PCAOB [2010, par. 13], AICPA [2006]), they stress that the decision to *require* clients to correct these amounts depends on auditors’ judgment (PCAOB [2010, pars. 17 and B2]). Recent research suggests that auditors waive approximately one-quarter of the adjustments that they propose (Joe, Wright, and Wright [2011]). Further, U.S. and international accounting and auditing standards sometimes disagree about how to recognize range-defined estimates. While U.S. standards specify the difference between the client’s recorded estimate and the nearest bound of the auditor’s reasonable range of amounts as a likely misstatement, international standards sometimes specify likely misstatement using the midpoint of the auditor’s range (e.g., IASB [1998, par. 39]), resulting in a larger likely misstatement. These disparities will receive increasing attention as convergence in standard setting progresses.

I experimentally examine the interactive effect of subjectivity and imprecision, and the role of supplementary footnote disclosure on auditors’ adjustment decisions in a fair value measurement setting. First, I manipulate subjectivity by providing fair value measurement inputs at two levels prescribed by SFAS No. 157: Level 2 (low subjectivity) and Level 3 (high

subjectivity). Second, I manipulate imprecision by providing participants with either a narrow (precise) or wide (imprecise) range of possible misstatement. Finally, I manipulate footnote disclosure by making supplemental fair value information either present or absent from the client-prepared financial statements. I measure auditors' adjustment decisions using two dependent variables: (1) the auditor's assessed likelihood of requiring a client to adjust the financial statements, and (2) the dollar amount of the adjustment.

I find that subjectivity and imprecision interact to increase the likelihood that auditors will require their clients to adjust recognized fair value estimates. I also find that supplemental footnote disclosure negates this interaction. In contrast to the non-fair value settings examined in prior literature, I find that auditors are *not* less likely to require adjustment of more subjectively-determined fair values when their amounts are precisely-defined. Instead, my findings reveal that imprecision critically influences how auditors assess the reasonableness of subjectively-determined fair value estimates. Although subjectivity and imprecision interact to increase the likelihood that auditors will require an audit adjustment, the dollar amount of that adjustment is influenced by imprecision alone. Specifically, auditors use the lower bound—rather than the midpoint—of the range of possible misstatement outcomes to calculate the size of their required adjustments.

My study contributes to our understanding of how auditors evaluate fair value measurements. Auditors respond to fair value input subjectivity differently than they have in earlier research on non-fair value materiality decisions. Though earlier studies find that auditors are *less* likely to require adjustment of subjectively-determined misstatements (Braun [2001], Wright and Wright [1997]) but *more* likely to require adjustment of imprecisely-expressed misstatements (Nelson, Smith, and Palmrose [2005]), these findings do not generalize to the fair

value setting. Previous tests of subjectivity compare perfectly objective misstatements (e.g., cutoff errors) to subjective misstatements (e.g., bad debt reserve); such tests essentially compare known misstatements to likely misstatements. In the fair value setting, known misstatements are rare when objective information is absent and inputs vary only in their *degree* of subjectivity. I show that auditors do not distinguish between the subtle difference in subjectivity between Level 2 and Level 3 inputs as they do the difference between subjective and objective inputs; thus, increasing subjectivity does not necessarily mean that auditors are more likely to forego requiring adjustments. My findings reveal that auditors have a multi-dimensional view of the uncertainty that features prominently in fair value settings, with complex interactions influencing their judgments. Both U.S. and international accounting standard setters increasingly prefer fair value as a measurement basis (Barth [2008]), and understanding how auditors evaluate fair value estimates will be a major focus of auditing research in years to come.

Finally, my study examines how supplemental disclosures affect auditors' decisions. The SEC encourages financial statement preparers to supplement recorded fair values with additional disclosure, for instance by providing the range of possible outcomes from which managers chose a recognized amount (Reilly and Scannell [2008]). Prior research indicates that auditors are less likely to require adjustments to disclosures than recognized amounts when disclosure *substitutes* for recognition (Libby, Nelson, and Hunton [2006]). I extend this research by documenting that auditors are also less likely to require adjustments to recognized amounts when preparers *supplement* them with disclosure. Thus, the SEC's call for supplemental disclosure may have the unintended consequence of actually changing recognized financial statement amounts, which could potentially distort the relationship between accounting information and security prices.

2. Background

2.1 FAIR VALUE MEASUREMENT

SFAS No. 157 defines fair value as “the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date” (FASB [2006]). SFAS No. 157 does not prescribe fair value treatment for any additional assets or liabilities beyond those covered by previous standards, but it does clarify fair value’s definition and application, and expands required disclosure (FASB [2006]). The critical difference between fair value measurements and other accounting estimates is that fair value should be based on market (rather than entity-specific) information whenever possible (FASB [2006], PCAOB [2007b]). Fair value measurement assumes that the transaction to sell an asset or transfer liability takes place in the “principal or most advantageous market” at the measurement date (FASB [2006]).

SFAS No. 157 prescribes a three-level hierarchy to prioritize fair value measurement inputs according to their reliability (FASB [2006]). The hierarchy is designed to compel the use of observable inputs (e.g., a security price quoted on NASDAQ) over unobservable inputs (e.g., internal estimates based on the firm’s past experience) (FASB [2006]). Level 1 inputs are readily observable and reside at the top of the hierarchy, Level 2 inputs are less directly observable, and Level 3 inputs are unobservable; thus the level of judgment required increases from Level 1 to Level 3. A summary of the three-level input hierarchy follows:

- **Level 1** inputs are quoted prices in active markets for identical assets or liabilities.
- **Level 2** inputs are not quoted prices on active markets, but are observable either directly or indirectly, such as
 - the quoted price of *similar* assets or liabilities in active markets or
 - the quoted price for identical or similar assets in inactive markets
 - or

- inputs other than quoted prices which are observable (e.g., interest rates) or
- other inputs corroborated by observable market information.
- **Level 3** inputs are unobservable inputs based on the best information available.

The PCAOB's guidance to auditors distinguishes fair value measurements from other types of accounting estimates, and states that less reliable inputs (e.g., Level 3) may be more susceptible to preparer bias (PCAOB [2007a]). Although the PCAOB stresses the importance of ensuring that preparers use the appropriate level of inputs so that financial statements conform to SFAS No. 157, the Board does not provide specific guidance on how input reliability affects either audit testing or the evaluation of misstatements. The guidance does state that fair value measurements may often require the use of specialists by either the auditor or client management, and that the auditor must consider both the materiality of the fair value measurement and the specialist's assumptions (PCAOB [2007a]).

Financial statement preparers, particularly banks, criticize SFAS No. 157, arguing that the market for fair value assets may not always accurately reflect value at a given measurement date (Rapoport [2009]). In the midst of the 2007-2008 subprime lending crisis, the SEC began encouraging registrants to disclose ranges of possible outcomes surrounding the fair value estimates recorded in the financial statements, and to explain the rationale for choosing a particular point for recognition (Reilly and Scannell [2008]). Investor protection groups immediately voiced concern that preparers could use such disclosures to mislead investors by presenting overly optimistic ranges (Reilly and Scannell [2008]). Proponents of these disclosures insist that the benefits of providing additional information to investors outweigh the risks of possible abuse (Reilly and Scannell [2008]).

Professional standards (e.g., SFAC No. 2) provide that, due to unreliability, uncertain amounts may be disclosed rather than recognized (FASB [1980]). But Libby et al. [2006] argue that there are often unrelated reasons for choosing disclosure over recognition (e.g., political considerations). Libby et al. [2006] find that, when presented with historical-cost misstatements that are either recognized in financial statements or disclosed in footnotes, auditors are more likely to require adjustment of recognized amounts, regardless of whether the misstatement is determined objectively or subjectively. Libby et al. [2006] suggest that the lower reliability of disclosed amounts relative to recognized amounts observed in prior research (e.g., Davis-Friday, Liu, and Mittelstaedt [2004]) may be caused by auditors using higher materiality thresholds for disclosed amounts than for recognized amounts. Whereas prior research studies the choice *between* recognition and disclosure, I study disclosures that *supplement* recognition with additional information. Prior research does not address the role of supplemental footnote disclosure on auditors' materiality decisions.

2.2 AUDITING LITERATURE ON UNCERTAINTY

Prior auditing studies have examined the role of uncertainty in reporting judgments, auditor-client negotiations, and materiality decisions. Auditing research has focused almost exclusively on the effect of uncertainty in terms of subjectivity, which has typically been operationalized as uncertainty about the probability that a given future event will occur. Consistent with Einhorn and Hogarth's [1985] ambiguity model, Nelson and Kinney [1997] report that both auditors and users tend to overestimate the likelihood of low probability outcomes and underestimate the likelihood of high probability outcomes when uncertainty is present. Nelson and Kinney [1997] manipulated uncertainty about the probability of a contingent loss (subjectivity), but not uncertainty about the dollar amount of the outcome should

it occur (imprecision). Zimbelman and Waller [1999] found that ambiguity about an asset's true value caused auditors to 1) increase their testing sample sizes, and 2) increase the rate at which they rejected the client's recorded asset value. In sum, prior research on reporting and negotiation suggests that uncertainty affects auditors' judgments, and leads to more conservative decisions about the quantity and evaluation of audit evidence.

There have been a number of studies that examine the effect of a single source of uncertainty on auditors' materiality decisions.⁵ SAB No. 99 and SAS No. 107 provide guidance to help identify characteristics that could render quantitatively small amounts material to the financial statements (i.e., *qualitatively* material misstatements). Two qualitative characteristics of misstatements mentioned in SAB No. 99 are (1) "whether it arises from an estimate," and (2) "the degree of imprecision inherent in the estimate" (Nelson et al. [2005], SEC [1999]).⁶ The first of these, which I have labeled 'subjectivity,' has received considerable attention in materiality research (Messier, Martinov-Bennie, and Eilifsen [2005]). Studies have consistently found that the presence of subjectivity reduces the likelihood that auditors will require their clients to record adjustments (e.g., Braun [2001], Libby and Kinney [2000], Wright and Wright [1997]). However, these studies' manipulations of subjectivity have always compared perfectly non-subjective amounts (e.g., cutoff errors) to subjective amounts (e.g., bad debt reserve), essentially comparing known to likely misstatements. In the fair value setting, known misstatements are rare, and there is great subtlety in the *degree* of subjectivity required to compute estimates. Further, in previous studies subjectivity is examined while holding other qualitative characteristics (e.g., imprecision) constant. How auditors respond to more subtle

⁵ For a complete review of the literature on materiality, see Messier, Martinov-Bennie, and Eilifsen [2005].

⁶ Other examples of qualitative characteristics mentioned in SAB No. 99 and SAS No. 107 include whether the misstatement (1) masks a change in a financial statement trend (e.g., EPS), (2) allows the company to meet analysts' expectations, (3) has an effect on management compensation, (4) involves fraud, or (5) allows the company to satisfy loan covenants or regulatory requirements (AICPA [2006], SEC [1999]).

changes in subjectivity, especially when other qualitative misstatement characteristics are salient, remains an open question. Auditors may not respond to incremental changes in subjectivity, or their response to subjectivity may be mediated by other factors.

Nelson, Smith, and Palmrose [2005] provide the only investigation of the role of imprecision in auditors' materiality decisions to date.⁷ In their study, the authors presented auditors with either a point estimate or a range of misstatement for a contingent liability (the bad debt reserve) and elicited their decision of whether to book or waive the associated audit adjustments. While the point estimate and range were equivalent under GAAP, auditors were significantly more likely to require adjustment when presented with a range-defined misstatement (Nelson, Smith, and Palmrose [2005]). The authors conclude that ranges suggest uncertainty, and lead to more conservative responses from auditors (Nelson, Smith, and Palmrose [2005]). In sum, prior research suggests that subjectivity and imprecision have opposite effects on auditors' adjustment decisions in isolation, but provides no insight about how multiple simultaneous sources of uncertainty interact.

3. Theory and Predictions

Professional standards offer great discretion to auditors in determining whether to require their clients to record adjustments, especially when the underlying misstatement pertains to an estimate. Historically standard setters and regulators have avoided establishing specific evaluative materiality criteria, and prefer to emphasize that auditors must exercise professional judgment to determine whether misstatements would affect the decisions of a reasonable user of the financial statements (e.g., AICPA [2006], FASB [1980], SEC [1999]). The U.S. Supreme

⁷ The main focus of Nelson, Smith, and Palmrose [2005] is the effect of auditors' *quantitative* materiality approach (cumulative versus current-period), in conjunction with various qualitative characteristics, on the book-or-waive decision. The quantitative materiality approach affected auditors' adjustment decisions for point estimates, but not for ranges. Subsequent to Nelson, Smith, and Palmrose's [2005] study, the SEC issued SAB No. 108 which eliminates auditors' choice of quantitative materiality approach (SEC [2006]).

Court has ruled that auditors must base materiality decisions on the “total mix” of information available to them (*TSC v. Northway*). As a result, research shows considerable variability in auditors’ decisions about whether to require their clients to record adjustments (e.g., Kinney and Martin [1994], Wright and Wright [1997]), with qualitative factors playing an important role in decision making (for a complete discussion, see Messier, Martinov-Bennie, and Eilifsen [2005]). Research empirically links a number of qualitative materiality factors mentioned within the professional standards to auditors’ adjustment decisions.

Previous studies conclude that auditors are less likely to require their clients to record adjustments when one source of uncertainty, namely subjectivity, is present. Auditing standards recognize that preparers must exercise judgment and rely on subjective factors to make estimates (AICPA [1988]). The accounting literature outside of fair value has consistently shown that auditors are less likely to require adjustment of subjectively-determined misstatements than objectively-determined misstatements when these outcomes are defined precisely. This result has held in both archival (Wright and Wright [1997], Joe, Wright, and Wright [2011]) and experimental (e.g., Braun [2001], Nelson, Smith, and Palmrose [2005]) studies. The literature suggests that auditors tend to waive adjustment of subjective estimates because they have less power in negotiations with their clients when there is significant room for judgment about an accounting issue (Deis and Giroux [1992], Magee and Tseng [1990]). Further, audit committees are less likely to support the auditor in auditor-management disagreements when the dispute involves subjective estimates (DeZoort, Hermanson, and Houston [2003]).

However, the previous result for subjectivity may not hold in the fair value setting, where differences in input subjectivity can be subtle (e.g., Level 2 versus Level 3) and outcome imprecision is explicit along with subjectivity. Earlier research compares subjectively-

determined amounts (likely misstatements) to objectively-determined amounts (known misstatements), whereas fair value measurements involve varying levels of subjectivity. Thus, earlier tests of subjectivity essentially compare black-versus-white, but fair value estimates involve shades of gray. Psychology theory suggests that auditors exhibit a certainty effect when known misstatements are evaluated, and overweight information they perceive as being certain.⁸ If auditors do not distinguish between incremental degrees of subjectivity, their adjustment decisions will not necessarily follow the same pattern as earlier subjective-versus-objective comparisons. Further, the imprecision of possible outcomes could critically influence how auditors evaluate subjective inputs.

Wallsten and Budescu [1995] provide a taxonomy of the sources of uncertainty⁹ that distinguishes between (1) the nature and inherent uncertainty surrounding an event (i.e., subjectivity), and (2) the manner in which the uncertainty is presented (i.e., imprecision).¹⁰ Most psychology research examines uncertainty about the probability of a future event's occurrence in the context of gambles (e.g., Einhorn and Hogarth [1985], Ellsberg [1961]), but exact probability information is rarely available when making risky choices. Shapira [1993] argues that when probability information is so vague that it becomes useless, decision makers shift their focus to outcome information. For example, insurance executives ignore the highly-uncertain probability of potential losses, and base decisions instead on the magnitude of possible outcomes (Kahneman and Tversky [1973], March and Shapira [1987]). As one manager put it, "I take

⁸ Tversky and Kahneman [1981] describe the certainty effect as follows: "a reduction of the probability of an outcome by a constant factor has more impact when the outcome was initially certain than when it was merely probable" (p. 455). Plous [1993] quotes economist Richard Zeckhauser's description of the certainty effect: "...most people would pay more to remove the only bullet from a gun in Russian roulette than they would to remove one of four bullets. Even though the probability of being shot is reduced by the same amount with each bullet removed, people regard the difference between 0 and 1 bullet as more important than the difference between 3 and 4 bullets" (p. 99).

⁹ Uncertainty is also sometimes labeled 'ambiguity' or 'vagueness' in the psychology literature.

¹⁰ I have labeled these characteristics 'subjectivity' and 'imprecision' in order to be consistent with the prior research in accounting and auditing.

large risks regarding the probability, but not the amounts.” (Kahneman and Tversky [1973, p. 90]). In sum, managers appear to place more weight on the monetary amount of possible outcomes when the probability of an event occurring is highly uncertain: as the probability of occurrence becomes more uncertain, the weight placed on outcomes increases.

I expect that auditors consider subjectivity and imprecision jointly when they make adjustment decisions in fair value settings. Subjectivity characterizes the reliability of the inputs preparers use to calculate estimates, while imprecision characterizes the range of possible outcomes from which preparers select an amount to recognize in the body of the financial statements. I do not expect incremental changes in subjectivity to affect auditors’ decisions when misstatements are defined precisely; auditors will not distinguish between the reliability of Level 2 versus Level 3 inputs when a narrow range of possible outcomes are unlikely to exceed their materiality threshold. However, as outcome imprecision increases, both management’s discretion and the likelihood that some outcomes will exceed their materiality threshold also increase, *ceteris paribus*. Auditors constrain management discretion by requiring their clients to record adjustments (Kinney and Martin 1994). Therefore, absent supplemental disclosure, I expect that auditors are more likely to require adjustments when misstatements are both based on subjective inputs *and* defined imprecisely. This leads to the following hypothesis:

- H1:** When supplemental disclosure is absent and input subjectivity increases, the likelihood that auditors will require their clients to adjust fair value measurements increases more when misstatements are imprecise than when they are precise.

Regulators encourage preparers to supplement the “best guess” they recognize in the body of the financial statements by providing additional disclosure about both how fair value estimates are made and the possibility of alternate outcomes. The accounting literature suggests that financial statement users consider recognized amounts more reliable than footnote

disclosures (e.g., Davis-Friday, Liu, and Mittelstaedt [2004]). Libby, Nelson, and Hunton [2006] provide evidence that auditors are more likely to require adjustment of recognized amounts than disclosed amounts when preparers are given a choice between recognition and disclosure. However, in the fair value setting estimates are made under great uncertainty and disclosure *supplements*, rather than *substitutes for*, recognition.

The prior literature makes no clear prediction about how supplemental disclosure will affect auditors' decisions to require their clients to adjust recognized amounts in the body of the financial statements. Psychology theory posits that information providers must trade-off between accuracy and informativeness when communicating imprecise amounts (Yaniv and Foster [1995]). For example, the usefulness of less accurate estimates can be improved by providing additional relevant information about their underlying uncertainty (e.g., the range of possible outcomes). Financial accounting research suggests that users tend to overemphasize explicit amounts in the absence of complete disclosure about uncertain estimates (Hobson and Kachelmeier [2005], Kennedy, Mitchell, and Sefick [1998]), but that this bias can be reduced by providing complete range information (Koonce, Lipe, and McAnally [2005]). If auditors perceive that disclosing range information is useful and compensates for potential inaccuracy in recognized amounts, they will be less likely to require adjustment of recognized likely misstatements. Consistent with psychology theory, I expect auditors to trade-off between accuracy and informativeness in deciding whether to require clients to adjust imprecise fair value estimates. I predict that auditors will be less likely to require adjustment of imprecise amounts when preparers supplement recognized fair value estimates by disclosing a range of possible outcomes, stated more formally below.

H2: When misstatements are defined imprecisely, auditors are less likely to require adjustment of fair value estimates when supplemental footnote disclosure is present than when such disclosure is absent.

The hypotheses above focus on whether auditors will require audit adjustments, but auditors must also decide the magnitude of the adjustments. Because input subjectivity cannot be quantified monetarily, this dimension is unlikely to systematically influence the dollar magnitude of required adjustments. If, as discussed above, auditors focus more on outcome magnitude when the probability of material misstatement becomes more uncertain, auditors will be more likely to consider imprecision information (i.e., range parameters) when calculating required adjustments. Ranges of possible misstatement feature three parameters: a midpoint, lower bound, and upper bound.¹¹

Prior research does not make a clear prediction about which parameter auditors will use to calculate adjustment size. In financial accounting settings, empirical evidence suggests that investors and analysts focus on the midpoint when presented with a range of possible outcomes (e.g., Baginski, Conrad, and Hassell [1993], Hirst, Koonce, and Miller [1999], Kennedy, Mitchell, and Sefick [1998]). Meanwhile, auditing standards define *likely* misstatement as the difference between the client's recorded value and the *nearest* boundary of auditors' independent

¹¹ Consider the case in which the client has recognized a fair value of \$100 for an asset in the financial statements, and the auditors' independent estimate of the asset's value is defined either precisely as a narrow range of \$88 to \$92, or imprecisely as a wide range from \$85 to \$95. The precise range presents a possible misstatement of \$8 to \$12, and the imprecise range presents a possible misstatement of \$5 to \$15. If auditors use the midpoints of possible misstatements to calculate audit adjustments, they will require the client to record an adjustment of \$10 in either case (\$100 recorded asset value - \$90 midpoint = \$10 adjustment) because the precise and imprecise range share a common midpoint (\$90). If, however, auditors use the lower bound of possible misstatement to calculate required adjustments, they will require an adjustment of \$8 for the precise range and \$5 for the imprecise range. Extending this logic to the upper bound of possible misstatement, auditors would require adjustments of \$12 for the precise range and \$15 for the imprecise range.

range estimate (AICPA [2006]). Thus, auditing standards call for adjustment only to the nearest bound—rather than to the midpoint—of possible misstatement.¹²

To examine how imprecision influences auditors' calculation of adjustment size, I compare a precise range to an imprecise range of possible misstatement. Specifically, I consider cases where the clients' recognized fair values fall outside auditors' range of independent estimates, which are defined either precisely or imprecisely but centered on a common midpoint. By construction the imprecise range's upper (lower) bound of possible misstatement is larger (smaller) than the comparable bounds of the precise range. Thus, the client's recognized amount will differ from the ranges' midpoints by an equal amount, but will differ from the nearest bound of an imprecise estimate by less than it differs from the nearest bound of a precise estimate. If auditors require their clients to adjust fair values to the midpoints, there will be no difference in the dollar value of adjustment between precise and imprecise ranges. Alternatively, if auditors apply professional standards, they will require adjustments only to the nearest range parameter, resulting in smaller dollar amounts of adjustment when possible misstatements are defined imprecisely than when they are defined precisely. Finally, if auditors take the most conservative possible approach, they will require their clients to adjust fair values all the way down to the auditors' "worst case scenario," resulting in larger dollar amounts of adjustment when possible misstatements are defined imprecisely than when they are defined precisely. However, auditors are unlikely to require such large adjustments given the incompatibility of this approach with both auditing standards and client preferences.

¹²Nelson, Smith, and Palmrose [2005] show that auditors sometimes act more conservatively than required by professional standards when misstatements are defined imprecisely, and may require their clients to record adjustments beyond the lower bound of possible misstatement. However, Nelson, Smith, and Palmrose's [2005] study considers only the decision to require adjustment, not adjustment magnitude, and their prediction is not inconsistent with mine.

I predict that auditors will require adjustments large enough to adjust fair values to the nearest bound of their independent estimate, consistent with application of current professional standards in the U.S. (AICPA [2006, par. 57]). Therefore, I expect auditors to require smaller adjustments for imprecise ranges than precise ranges centered on a common midpoint. Thus, although auditors are more likely to require adjustment (of *some* dollar amount) when estimates are highly uncertain (H1 above), the magnitude of those adjustments will vary according to their imprecision. Specifically, when auditors *do* require adjustments, the dollar amount required will be smaller when possible misstatement outcomes are defined imprecisely than when they are defined precisely. This leads to the following hypothesis regarding the dollar amount of audit adjustments:

H3: Auditors will require a smaller dollar amount of adjustment when misstatements are defined imprecisely than when they are defined precisely.

4. Method

4.1 OVERVIEW

In my experiment, auditors from a Big Four accounting firm assess the likelihood that they would require a client to record an audit adjustment, and report the most likely dollar amount of the adjustment. Participants read background information, assess the likelihood of requiring an audit adjustment and its most likely dollar amount, then answer a series of manipulation check and debriefing questions. The experiment takes participants approximately 15 minutes to complete.

4.2 PARTICIPANTS

Participants were chosen randomly by a contact within the firm who distributed my experimental materials to auditors in the field via inter-office mail. As summarized in Table 1, 106 practicing auditors with an average of 8.9 years of experience participated in the experiment.

Participants include Partners (20%), Senior Managers (27%), Managers (11%), and Seniors (42%). Each participant returned her or his completed experimental materials directly to the experimenter in a prepaid envelope. Although partners make the ultimate decisions about whether to require clients to record audit adjustments, all four ranks represented in my study play a part in the process of accumulating and evaluating audit adjustments. For example, seniors typically track and summarize misstatements detected throughout the workpapers, which s/he presents to successively higher ranks in the engagement team as part of the review process. Thus, it is reasonable to assume that all participants understand the audit adjustment process and features of proposed adjustments that make it more or less likely that the client will be required to record them. No significant differences were observed in my results due to rank, nor alternative measures of expertise such as years of auditing experience and familiarity with SFAS No. 157 *Fair Value Measurements*.

4.3 CASE MATERIALS

I developed original case materials to capture critical features of the fair value measurement setting. To do so, I consulted with partners from three large accounting firms (two Big Four firms and one national firm) and pilot-tested the case materials on other management-level personnel within those firms. The case provides participants with a background narrative about an audit client, AHN Integrated Products, which is a profitable, publicly-traded manufacturing firm whose liquidity and leverage are at their industry's average. As in Nelson, Smith, and Palmrose [2005], I control for auditor concerns such as the internal control environment, the competence of the audit team, and the quality of the audit review process. To ensure that there is adequate reason for the auditor to waive adjustments, I also include Nelson, Smith, and Palmrose's [2005] language stating that the client is opposed to any further audit

adjustments. Consistent with prior research, I also provide participants with a quantitative materiality threshold (e.g., Braun [2001]) of \$1,000,000.¹³

My case states that the client has determined that the value of certain fixed assets (manufacturing equipment) is impaired, and will apply SFAS No. 157 to determine the fair value of the assets at year-end. Because the fixed assets are customized to the client's specifications, there are no quoted prices on active markets (i.e., Level 1 inputs) available for computing fair value. Thus, the client uses either Level 2 or Level 3 inputs to compute fair value, depending on the participant's experimental condition described in greater detail below. As part of audit testing, the engagement team consults their firm's fair value specialists, who provide an estimate of the fair value of the impaired fixed assets. Based on that estimate, the field senior determines that the client's recorded value for the property could potentially be misstated, and posts and documents a proposed audit adjustment.

4.4 DEPENDENT VARIABLES

I measure two dependent variables: (1) the likelihood of requiring the client to record an adjustment to the financial statements, and (2) the most likely dollar amount of adjustment. The likelihood of requiring an adjustment is elicited from participants as they review the audit workpaper containing the proposed adjustment. The likelihood of requiring an audit adjustment is measured on a ten-point scale, anchored by 1 (very low likelihood of requiring correction), and 10 (very high likelihood of requiring correction). After assessing the likelihood of requiring an audit adjustment, participants report the most likely dollar amount of any required adjustment.

4.5 INDEPENDENT VARIABLES

I manipulate three independent variables in my $2 \times 2 \times 2$ between-participants design: subjectivity, imprecision, and disclosure. I create the two levels of subjectivity by providing

¹³ In the case, I specify a quantitative materiality threshold of \$1 million for the financial statements overall.

either a Level 2 (less subjective) or Level 3 (more subjective) input for the fair value measurement of the fixed assets described in the case. Consistent with SFAS No. 157, the Level 2 (less subjective) inputs are based on similar assets in an active, observable market, and the Level 3 (more subjective) inputs are based on discounted cash flow analysis. I create the two levels of imprecision by having the firm's fair value specialists provide either a narrow (precise, \$250k range), or wide (imprecise, \$1M range) estimate of possible fair values for the fixed asset in question.¹⁴ The narrow and wide ranges share a common midpoint. The narrow range suggests a possible misstatement of \$675k to \$825k, and the wide range suggests a possible misstatement of \$200k to \$1,200k. Finally, I create two levels of disclosure by making an additional paragraph about the estimate either present or absent from the client's preliminary financial statements. Because most companies are likely to provide some form of SFAS No. 157-related disclosure, I manipulate whether additional supplemental information encouraged by regulators (e.g., key assumptions and range of possible outcomes) accompanies a standard footnote.¹⁵ When supplemental disclosure is present, the client discloses a \$1,000k-wide range surrounding the recognized asset value. The midpoint of the client-disclosed range of possible asset values is higher than the auditor firm specialist's range, which biases against finding the result predicted by H2 above.

5. Results

5.1 MANIPULATION CHECKS

The data indicate that my case manipulates subjectivity successfully. One-hundred-one participants (95%) correctly identified the type of SFAS No. 157 input they encountered in the

¹⁴ I designed the width of the ranges based on their relationship to both quantitative materiality (\$1 million) and the asset value recognized by the client in the body of the financial statements (\$3.45 million). Pilot testing and subsequent manipulation checks suggest that these ranges successfully capture the construct of interest.

¹⁵ To design my supplemental disclosure manipulation, I examined a sample of 10Ks for companies resembling the one described in my case. At a minimum, those firms disclosed in footnotes that they had adopted SFAS No. 157.

experiment. As an additional check, participants rated the subjectivity of fair value inputs on a scale from 1 (Not Subjective) to 7 (Extremely Subjective). Participants rated Level 3 inputs as more subjective than Level 2 inputs (means [standard errors] are 5.68 [0.14] and 4.69 [0.12], respectively, $F_{1, 104} = 27.60$, $p = 0.00$), confirming that I successfully manipulated the construct of interest. Participant responses also indicate that both imprecision and disclosure were manipulated successfully. Using a seven-point scale ranging from 1 (Relatively Narrow) to 7 (Relatively Wide), participants rated the imprecise range as relatively wider than the precise range (means [standard errors] are 5.61 [0.13] and 3.39 [0.15], respectively, $F_{1, 103} = 127.78$, $p = 0.00$). Finally, participants rated the client's footnote disclosure as more useful to financial statement users when a supplemental fair value paragraph is present (means [standard errors] are 3.30 [0.16] and 2.16 [0.14], respectively, $F_{1, 104} = 28.07$, $p = 0.00$), using a seven-point scale ranging from 1 (Not Useful) to 7 (Extremely Useful). I also consider whether participants view subjectivity and imprecision as distinct constructs. Untabulated results confirm that participant auditors viewed subjectivity and imprecision as discrete sources of uncertainty (Spearman's Rho = .04, $p > .71$).

5.2 HYPOTHESIS TESTS

I present descriptive statistics and results for auditors' assessed likelihood of requiring an audit adjustment in Table 2. Results are illustrated in Figure 1. ANOVA results for the $2 \times 2 \times 2$ design, presented in Panel B of Table 2, indicate that the general three-way Subjectivity \times Imprecision \times Disclosure interaction is significant in the overall model at $p < .06$ ($F_{1, 98} = 3.73$). Because I make different predictions about the Subjectivity \times Imprecision interaction depending on the level of supplemental disclosure, I present separate analyses depending on whether supplemental disclosure is either absent or present.

My first hypothesis assumes that supplemental disclosure is absent, and predicts that as imprecision increases, the likelihood that auditors will require adjustment increases more when misstatements are more subjective than when they are less subjective. Because I predict an interaction in H1, I test the simple effect of the Subjectivity \times Imprecision interaction using contrast coding as prescribed by Buckless and Ravenscroft [1990].¹⁶ The simple effect test presented in Table 2 Panel C reveals that the Subjectivity \times Imprecision interaction is significant when supplemental disclosure is absent ($F_{1, 50} = 8.41, p < 0.01$). This result supports H1. As expected, the likelihood that auditors will require adjustment increases with imprecision more when misstatements are more subjectively-determined than when they are less subjectively-determined. Figure 1 Panel A illustrates the ordinal interaction.

To further examine whether auditors' adjustment decisions are affected by subjectivity when possible misstatements are defined precisely, I also conduct a planned contrast (untabulated) between the two relevant cells (labeled A and B) in my experimental design. When possible misstatements are defined precisely and supplemental disclosure is absent, means (standard errors) for the more subjective and less subjective conditions are 4.61 (0.77) and 4.61 (0.66), respectively. The assessed likelihood of requiring an audit adjustment does not differ ($F_{1, 26} = 0.00, p > 0.99$) between more subjective Level 3 inputs and less subjective Level 2 inputs when the range of possible misstatement is defined precisely. I find no effect of subjectivity when misstatements are defined precisely, and my results reveal an important distinction between auditors' treatment of fair value items and other types of estimates. Although auditors are less likely to require adjustment of subjectively-determined amounts than objectively-

¹⁶ Contrast coding provides greater statistical power than traditional ANOVA to detect interactions of the type specified in H1 (Buckless and Ravenscroft [1990]). I assign contrast weights of +3 to the More Subjective/Imprecise condition when supplemental disclosure is absent (cell B), and -1 to the remaining three conditions when disclosure is absent (cells A, C, and D, respectively).

determined amounts, this pattern does not hold for the subtler increases in subjectivity that characterize fair value estimates.

My second hypothesis examines the role of supplemental footnote disclosure in auditors' fair value adjustment decisions. I predict that supplemental disclosure makes it less likely that auditors will require adjustment of imprecisely-defined fair values. I test this prediction using a planned contrast of cells in the imprecise conditions when supplemental disclosure is absent versus present. The planned contrast reported in Table 2, Panel D is not statistically significant ($F_{1, 50} = 0.78, p < 0.19$). I further examine the simple effect of disclosure when both subjectivity and imprecision are high using a *post hoc* comparison. Holding constant high subjectivity and high imprecision, the mean (standard error) assessed likelihood of requiring an audit adjustment is 6.88 (0.75) when supplemental disclosure is absent, and 4.17 (0.78) when supplemental disclosure is present. These means are significantly different ($F_{1, 24} = 6.07, p < 0.01$), indicating that auditors are less likely to require adjustment of more subjective, imprecise amounts when clients provide a supplemental fair value footnote disclosure. This result is consistent with H2, and is illustrated in Figure 1 Panel B.

My third hypothesis predicts that imprecision significantly influences the size of required audit adjustments, and that auditors will require a smaller dollar amount of adjustment when misstatements are defined imprecisely. Table 3 provides descriptive statistics and the overall three-way ANOVA for the dollar amount of audit adjustment, and Figure 2 illustrates my results. Consistent with H3, imprecision significantly affects the dollar amount of adjustment that auditors require their clients to record ($F_{1, 94} = 4.60, p < 0.03$). Collapsing across the levels of subjectivity and disclosure, I find that auditors require mean (standard error) adjustments of \$439,951 (\$35,769) when misstatements are defined precisely, and \$326,471 (\$41,120) when

misstatements are defined imprecisely. This result reveals a positive relationship between misstatement precision and the size of adjustment that auditors will require. As expected, as misstatements become defined more precisely, auditors require larger adjustments. This result suggests that auditors' behavior is consistent with auditing standards that prescribe *how* to calculate adjustments, although the likelihood results above also suggest that qualitative materiality factors lead to differences in professional judgment about *whether* to actually require the adjustment.

6. Conclusion

I provide some of the first empirical evidence about how auditors make decisions related to fair value measurements. Fair value is distinct from other measurement settings (e.g., historical cost) because, in the absence of reliable market information, the estimation process involves greater uncertainty. Uncertainty is distinct in fair value accounting along two dimensions: the subjectivity of inputs used to compute estimates, and the imprecision of possible outcomes. To address investor concerns that financial statement preparers use uncertainty to bias their estimates, the SEC encourages companies to disclose more information about how fair values are calculated. Auditors must assess the reasonableness of their clients' fair value measurements, and ultimately decide whether to require their clients to adjust fair values before recognizing them in the financial statements.

I expect and find that auditors are most likely to require clients to adjust fair value estimates when subjectivity and imprecision are both high. This result has a number of implications. First, auditors are most likely to require adjustments when uncertainty is highest and their clients' discretion is greatest. Although investors and their advocates may welcome further evidence that auditors constrain management discretion, this finding is also not

inconsistent with financial statement preparers' complaints that auditors try to minimize their own litigation risk by requiring large adjustments to fair values (Katz [2009]). Second, this result identifies a context where auditor decision making differs from earlier settings in the literature. Although prior research finds that auditors are less likely to require adjustments when subjectivity is present (versus absent), I show that these decisions are not significantly influenced by incremental changes in subjectivity when outcomes are precisely defined. Prior literature argues that auditors are less likely to require adjustment of subjective amounts because these decisions are harder to justify in negotiations with the client (DeZoort, Hermanson, and Houston [2003]). My finding suggests that this does not necessarily hold when changes in subjectivity are subtler (i.e. Level 2 vs. Level 3 inputs) and subjectivity's effect depends on the imprecision of possible misstatement outcomes.

My study is also the first to examine whether supplemental disclosure affects auditors' adjustment decisions. Though auditors are most likely to require adjustments when uncertainty is highest, I find that supplemental disclosure negates this effect. My finding indicates that auditors, like the SEC, believe that supplemental disclosure is useful to financial statement users, and that providing more information compensates for the potential unreliability of recognized amounts. However, because capital market participants weight recognized amounts more heavily than disclosures (Davis-Friday, Liu, and Mittelstaedt [2004]), auditors' tradeoff between reliability and supplemental disclosure could potentially distort the relation between accounting information and security prices. Thus, the SEC's preference for supplemental disclosure may have the unintended consequence of changing, rather than merely explaining, fair values recognized in the body of the financial statements.

I find that auditors calculate the size of their adjustments by comparing the client's recognized estimate to the nearest bound of the auditors' range of acceptable amounts. Although this approach is consistent with current U.S. auditing standards, it highlights an area where the adoption of international accounting standards is likely to affect auditors' decision making. The auditing standards' convention of using the nearest bound to calculate likely misstatement is based on present U.S. GAAP, and specifically cites SFAS No. 5 *Accounting for Contingencies* (AICPA [2006, par. 57]). In contrast, IFRS bases recognition on the midpoint of a range, rather than a bound, in such cases (IASB [1998, par. 39]). International auditing standards (e.g., ISA 540) recommend that auditors compare client estimates to their own independent range estimates, but do not suggest calculating likely misstatement by using the nearest bound of auditors' range estimate (IAASB [2008]).

My paper explicitly considers the interaction of qualitative materiality factors and contributes to the literature on auditors' adjustment decisions. Auditors' adjustment decisions have an immediate impact on the external financial statements, and therefore capital market outcomes. If auditors' adjustment decisions systematically differ based on qualitative characteristics, they could potentially distort the earnings-return relation and impose costs on financial statement users (Barron, Pratt, and Stice [2001]). Understanding systematic patterns in how auditors make these decisions provides insights that extend beyond the auditing process *per se*. Future research should focus on identifying new contexts where qualitative materiality interactions are meaningful .

REFERENCES

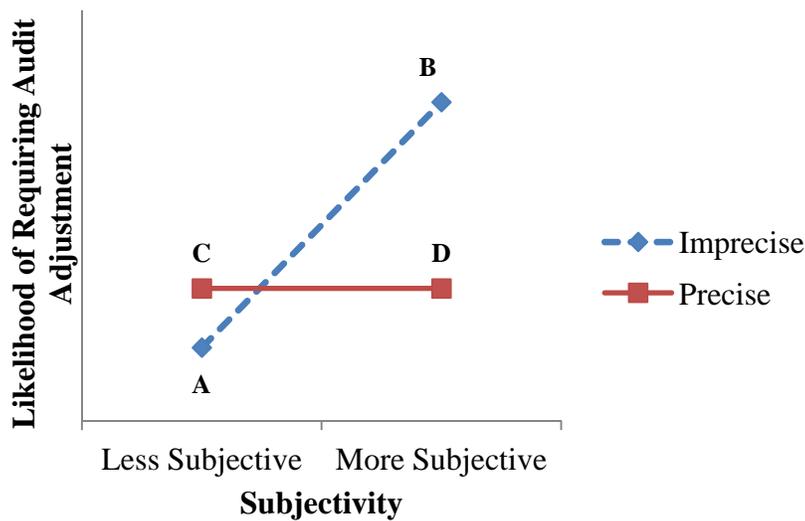
- AMERICAN INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS (AICPA). *Auditing Accounting Estimates*. Statement on Auditing Standards No. 57. (August 12). New York, NY: AICPA, 1988.
- AMERICAN INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS (AICPA). *Auditing Fair Value Measurements and Disclosures*. Statement on Auditing Standards No. 101. New York, NY: AICPA, 2003.
- AMERICAN INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS (AICPA). *Audit Risk and Materiality in Conducting an Audit*. Statement on Auditing Standards No. 107. (August 12). New York, NY: AICPA, 2006.
- BAGINSKI, S. P., E. J. CONRAD, AND J. M. HASSELL. "The Effects of Management Forecast Precision on Equity Pricing and on the Assessment of Earnings Uncertainty." *The Accounting Review* 68 (1993): 913-927.
- BAMBER, L. S., K. W. HUI, AND P. E. YEUNG. "Managers' EPS Forecasts: Nickeling and Diming the Market?" *The Accounting Review* 85 (2010): 63-95.
- BARRON, O., J. PRATT, AND J. D. STICE. "Misstatement Direction, Litigation Risk, and Planned Audit Investment." *Journal of Accounting Research* 39 (2001): 449-462.
- BARTH, M. E. "Global Financial Reporting: Implications for U.S. Academics." *The Accounting Review* 83 (2008): 1159-1179.
- BRAUN, K. W. "The Disposition of Audit-Detected Misstatements: An Examination of Risk and Reward Factors and Aggregation Effects." *Contemporary Accounting Research* 18 (2001): 71-99.
- BUCKLESS, F. A., AND S. P. RAVENSCROFT. "Contrast Coding: A Refinement of Anova in Behavioral Analysis." *The Accounting Review* 65 (1990): 933-945.
- DAVIS-FRIDAY, P. Y., C. S. LIU, AND H. F. MITTELSTAEDT. "Recognition and Disclosure Reliability: Evidence from SFAS No. 106." *Contemporary Accounting Research* 21 (2004): 399-429.
- DEIS, D. R. J., AND G. A. GIROUX. "Determinants of Audit Quality in the Public Sector." *The Accounting Review* 67 (1992): 462-479.
- DEZOORT, F. T., D. R. HERMANSON, AND R. W. HOUSTON. "Audit Committee Support for Auditors: The Effects of Materiality Justification and Accounting Precision." *Journal of Accounting and Public Policy* 22 (2003): 175-199.
- EINHORN, H. J., AND R. M. HOGARTH. "Ambiguity and Uncertainty in Probabilistic Inference." *Psychological Review* 92 (1985): 433-461.

- ELLSBERG, D. "Risk, Ambiguity, and the Savage Axioms." *Quarterly Journal of Economics* 75 (1961): 643-669.
- FINANCIAL ACCOUNTING STANDARDS BOARD (FASB). *Qualitative Characteristics of Accounting Information*. Statement of Financial Accounting Concepts No. 2. Norwalk, CT: FASB, 1980.
- FINANCIAL ACCOUNTING STANDARDS BOARD (FASB). *Fair Value Measurements*. Statement of Financial Accounting Standards No. 157. Norwalk, CT: FASB, 2006.
- HIRST, D. E., L. KOONCE, AND J. MILLER. "The Joint Effect of Management's Prior Forecast Accuracy and the Form of Its Financial Forecasts on Investor Judgment." *Journal of Accounting Research* 37 (1999): 101-124.
- HOBSON, J. L., AND S. J. KACHELMEIER. "Strategic Disclosure of Risky Prospects: A Laboratory Experiment." *The Accounting Review* 80 (2005): 825-846.
- INTERNATIONAL AUDITING AND ASSURANCE STANDARDS BOARD (IAASB). *Auditing Accounting Estimates, Including Fair Value Accounting Estimates, and Related Disclosures*. International Standard on Auditing 540. (February). New York, NY: International Federation of Accountants, 2008.
- INTERNATIONAL ACCOUNTING STANDARDS BOARD (IASB). *Provisions, Contingent Liabilities and Contingent Assets*. International Accounting Standards 37 (EC staff consolidated version as of 16 September 2009). (August 12). London, UK: IASB, 1998.
- ICERMAN, R. C., AND W. A. HILLISON. "Disposition of Audit-Detected Errors: Some Evidence on Evaluative Materiality." *Auditing: A Journal of Practice & Theory* 10 (1991): 22-34.
- JOE, J., A. WRIGHT, AND S. WRIGHT. "The Impact of Client and Misstatement Characteristics on the Disposition of Proposed Audit Adjustments." *Auditing: A Journal of Practice & Theory* 30 (2011): 103-124.
- KAHNEMAN, D., AND A. TVERSKY. "On the Psychology of Prediction." *Psychological Review* 80 (1973): 237-251.
- KATZ, D. M. "Can PCAOB Fair-Value Guidance Calm Jittery Auditors?" *CFO.com*, April 22, 2009.
- KENNEDY, J., T. MITCHELL, AND S. E. SEFICK. "Disclosure of Contingent Environmental Liabilities: Some Unintended Consequences?" *Journal of Accounting Research* 36 (1998): 257-277.
- KINNEY, W. R., JR., AND R. D. MARTIN. "Does Auditing Reduce Bias in Financial Reporting? A Review of Audit-Related Adjustment Studies." *Auditing: A Journal of Practice & Theory* 13 (1994): 149-156.

- KOONCE, L., M. G. LIPE, AND M. L. MCANALLY. "Judging the Risk of Financial Instruments: Problems and Potential Remedies." *The Accounting Review* 80 (2005): 871-895.
- LIBBY, R., AND W. R. KINNEY, JR. "Does Mandated Audit Communication Reduce Opportunistic Corrections to Manage Earnings to Forecasts?" *The Accounting Review* 75 (2000): 383.
- LIBBY, R., M. W. NELSON, AND J. E. HUNTON. "Recognition V Disclosure, Auditor Tolerance for Misstatement, and the Reliability of Stock-Compensation and Lease Information." *Journal of Accounting Research* 44 (2006): 533-560.
- MAGEE, R. P., AND M.-C. TSENG. "Audit Pricing and Independence." *The Accounting Review* 65 (1990): 315-336.
- MARCH, J. G., AND Z. SHAPIRA. "Managerial Perspectives on Risk and Risk Taking." *Management Science* 33 (1987): 1404-1418.
- MARTIN, R. D., J. S. RICH, AND T. J. WILKS. "Auditing Fair Value Measurements: A Synthesis of Relevant Research." *Accounting Horizons* 20 (2006): 287-303.
- MESSIER, W. F., JR., N. MARTINOV-BENNIE, AND A. EILIFSEN. "A Review and Integration of Empirical Research on Materiality: Two Decades Later." *Auditing: A Journal of Practice & Theory* 24 (2005): 153-187.
- MESSIER, W. F., JR., S. M. GLOVER, AND D. F. PRAWITT. *Auditing & Assurance Services: A Systematic Approach*. 6th ed. New York: McGraw-Hill Irwin, 2008.
- NELSON, M. W., AND W. R. KINNEY, JR. "The Effect of Ambiguity on Loss Contingency Reporting Judgements." *The Accounting Review* 72 (1997): 257.
- NELSON, M. W., J. A. ELLIOTT, AND R. L. TARPLEY. "Evidence from Auditors About Managers' and Auditors' Earnings Management Decisions." *The Accounting Review* 77 (2002): 175.
- NELSON, M. W., S. D. SMITH, AND Z.-V. PALMROSE. "The Effect of Quantitative Materiality Approach on Auditors' Adjustment Decisions." *The Accounting Review* 80 (2005): 897-920.
- PUBLIC COMPANY ACCOUNTING OVERSIGHT BOARD (PCAOB). *Matters Related to Auditing Fair Value Measurements of Financial Instruments and the Use of Specialists*. Staff Audit Practice Alert No. 2. (December 10). Washington, D.C.: PCAOB, 2007a.
- PUBLIC COMPANY ACCOUNTING OVERSIGHT BOARD (PCAOB). *Auditing Accounting Estimates and Fair Value Measurements*. Standing Advisory Group Meeting. (June 21). 2007b.
- PUBLIC COMPANY ACCOUNTING OVERSIGHT BOARD (PCAOB). *Evaluating Audit Results*. Auditing Standard No. 14. (August 5). Washington, D.C.: PCAOB, 2010.

- PLOUS, S. *The Psychology of Judgment and Decision Making*. New York: McGraw-Hill, 1993.
- RAPOPORT, M. "FASB Looks to Expand Mark Rules." *Wall Street Journal*, August 14, 2009.
- REILLY, D., AND K. SCANNELL. "SEC Aims to Let Firms Explain Crunch Thorns." *Wall Street Journal*, March 14, 2008.
- SECURITIES AND EXCHANGE COMMISSION (SEC). *Materiality*. Staff Accounting Bulletin No. 99. (August 12). Washington, D.C.: SEC, 1999.
- SECURITIES AND EXCHANGE COMMISSION (SEC). *Considering the Effects of Prior Year Misstatements When Quantifying Misstatements in Current Year Financial Statements*. Staff Accounting Bulletin No. 108. (September 13). Washington, D.C.: SEC, 2006.
- SECURITIES AND EXCHANGE COMMISSION (SEC). *Sample Letter Sent to Public Companies on MD&A Disclosure Regarding the Application of SFAS 157 (Fair Value Measurements)*. Letter March 2008. (March 31). Washington, D.C.: SEC, 2008a.
- SECURITIES AND EXCHANGE COMMISSION (SEC). *Sample Letter Sent to Public Companies on MD&A Disclosure Regarding the Application of SFAS 157 (Fair Value Measurements)*. Letter September 2008. (September 13). Washington, D.C.: SEC, 2008b.
- SHAPIRA, Z. "Ambiguity and Risk Taking in Organizations." *Journal of Risk & Uncertainty* 7 (1993): 89-94.
- TVERSKY, A., AND D. KAHNEMAN. "The Framing of Decisions and the Psychology of Choice." *Science* 211 (1981): 453-458.
- WALLSTEN, T. S., AND D. V. BUDESCU. "A Review of Human Linguistic Probability Processing : General Principles and Empirical Evidence." *The Knowledge Engineering Review* 10 (1995): 43-62.
- WRIGHT, A., AND S. WRIGHT. "An Examination of Factors Affecting the Decision to Waive Audit Adjustments." *Journal of Accounting, Auditing & Finance* 12 (1997): 15-36.
- YANIV, I., AND D. P. FOSTER. "Graininess of Judgment under Uncertainty: An Accuracy-Informativeness Trade-Off." *Journal of Experimental Psychology: General* 124 (1995): 424-432.
- ZIMBELMAN, M. F., AND W. S. WALLER. "An Experimental Investigation of Auditor-Auditee Interaction under Ambiguity." *Journal of Accounting Research* 37 (1999): 135-155.

Panel A: Results when supplemental disclosure is absent (H1)



Panel B: Results when supplemental disclosure is present (H2)

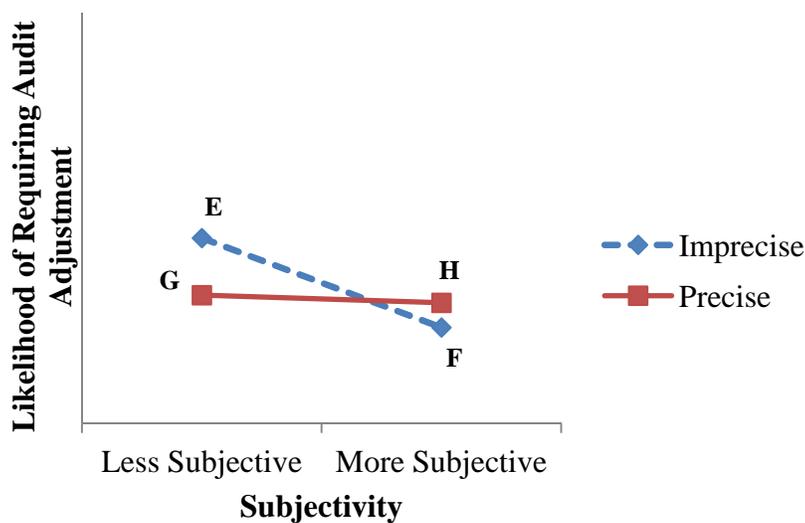


FIG. 1—Likelihood of requiring audit adjustment. The dependent variable is the likelihood that the auditor will require the client to record an audit adjustment to a fair value estimate. Auditors assess this likelihood on a 10-point scale anchored by 1 (very low likelihood) and 10 (very high likelihood). I manipulate *Subjectivity* at two levels, between participants. In the more subjective condition the client uses a Level 3 input from SFAS No. 157 to estimate fair value, and in the less subjective condition the client uses a Level 2 input. I manipulate *Imprecision* at two levels, between participants. In the precise condition there is a narrow range of possible fair value outcomes, and in the imprecise condition a wide range of possible outcomes. I manipulate *Disclosure* at two levels, between participants, by having the client either include or exclude a supplemental paragraph in the footnotes disclosing range (imprecision) information about the fair value estimate.

Across levels of disclosure

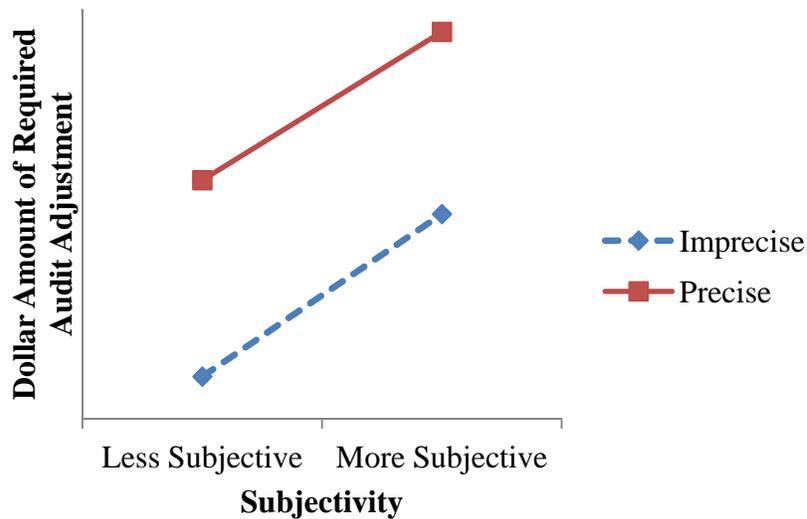


FIG. 2—Dollar amount of audit adjustment required. The dependent variable is the dollar amount of adjustment that auditors would require their client to record. I manipulate *Subjectivity* at two levels, between participants. In the more subjective condition the client uses a Level 3 input from SFAS No. 157 to estimate fair value, and in the less subjective condition the client uses a Level 2 input. I manipulate *Imprecision* at two levels, between participants. In the precise condition there is a narrow range of possible fair value outcomes, and in the imprecise condition a wide range of possible outcomes. I manipulate *Disclosure* at two levels, between participants, by having the client either include or exclude a supplemental paragraph in the footnotes disclosing range (imprecision) information about the fair value estimate.

TABLE 1
Descriptive Statistics for Participants' Experience and Ratings of Input Subjectivity, Outcome Imprecision, Disclosure Usefulness, and Familiarity with SFAS No. 157 (by Rank)

		Rank				
		Partner	Sr. Manager	Manager	Senior	Overall
		(n = 21)	(n = 29)	(n = 12)	(n = 44)	(n = 106)
Audit Experience (Years)	Median	19.0	10.0	5.8	3.3	6.0
	Mean	20.3	10.2	5.7	3.6	8.9
	SD	5.96	1.86	0.81	1.17	6.93
Input Subjectivity ^a	Median	5.0	5.4	5.0	5.0	5.0
	Mean	5.2	5.3	5.3	5.0	5.1
	SD	0.98	1.14	1.04	1.11	1.08
Outcome Imprecision ^b	Median	3.5	5.1	4.0	5.0	4.5
	Mean	4.0	4.8	4.1	4.7	4.5
	SD	1.68	1.63	1.46	1.27	1.50
Disclosure Usefulness ^c	Median	2.9	2.0	2.8	2.5	2.5
	Mean	2.8	2.3	2.9	2.9	2.7
	SD	1.34	1.25	1.31	1.15	1.24
SFAS No. 157 Familiarity ^d	Median	5.8	5.2	4.3	4.0	5.0
	Mean	5.6	5.1	4.3	4.0	4.6
	SD	1.09	0.88	0.94	1.11	1.20

a. Measured on a seven-point scale with one being "Not Subjective" and seven being "Extremely Subjective."

b. Measured on a seven-point scale with one being "Relatively Narrow" and seven being "Relatively Wide."

c. Measured on a seven-point scale with one being "Not Useful" and seven being "Extremely Useful."

d. Measured on a seven-point scale with one being "Not at all Familiar" and seven being "Very Familiar."

TABLE 2
Likelihood of Requiring Audit Adjustment Results

Panel A: Likelihood of Requiring Audit Adjustment - LS Mean (SE) [n] Cell

When Supplemental Disclosure is Absent

Subjectivity:

	Less Subjective	More Subjective
Imprecise	3.89 (0.66) [14] A	6.88 (0.75) [12] B
Precise	4.61 (0.66) [15] C	4.61 (0.77) [13] D

When Supplemental Disclosure is Present

Subjectivity:

	Less Subjective	More Subjective
Imprecise	5.26 (0.78) [14] E	4.17 (0.78) [14] F
Precise	4.56 (0.71) [11] G	4.47 (0.65) [13] H

The dependent variable is the likelihood that the auditor will require the client to record an audit adjustment to a fair value estimate. Auditors assess this likelihood on a 10-point scale anchored by 1 (very low likelihood) and 10 (very high likelihood).

I manipulate *Subjectivity* at two levels, between participants. In the more subjective condition the client uses a Level 3 input from SFAS No. 157 to estimate fair value, and in the less subjective condition the client uses a Level 2 input.

I manipulate *Imprecision* at two levels, between participants. In the precise condition there is a narrow range of possible fair value outcomes, and in the imprecise condition a wide range of possible outcomes.

I manipulate *Disclosure* at two levels, between participants, by having the client either include or exclude a supplemental paragraph in the footnotes disclosing range (imprecision) information about the fair value estimate.

Panel B: Overall ANOVA (Subjectivity × Imprecision × Disclosure)

Source	Sum of Squares	df	F	p > F
Subjectivity	5.32	1	0.76	0.39
Imprecision	6.26	1	0.90	0.35
Disclosure	3.75	1	0.54	0.47
Subjectivity × Imprecision	6.53	1	0.94	0.34
Subjectivity × Disclosure	28.71	1	4.12	0.05
Imprecision × Disclosure	2.13	1	0.31	0.58
Subjectivity × Imprecision × Disclosure	26.05	1	3.73	0.06
Error	683.57	98		

Panel C: Test of H1 (Disclosure Absent)

Simple Effect of Subjectivity × Imprecision Interaction When Disclosure is Absent	F_{1, 50}	p > F (one-tailed)
Planned Contrast	8.41	0.01

Contrast coefficients are +3 in the More Subjective/Imprecise condition and -1 for the other three conditions.

Panel D: Tests of H2 (Disclosure Present)

Planned Contrast: Effect of Disclosure When Misstatement is Imprecise	F_{1, 50}	p > F (one-tailed)
$[(E + F) / 2] < [(A + B) / 2]$	0.78	0.19

<i>Post Hoc</i> Comparison: Simple Effect of Disclosure When Misstatement is Subjective and Imprecise	F_{1, 24}	p > F (one-tailed)
F < B	6.07	0.01

TABLE 3
Dollar Amount of Required Audit Adjustment Results

Panel A: Dollar Amount of Required Audit Adjustment - Mean (SE) [n] Cell

When Supplemental Disclosure is Absent

Subjectivity:

	Less Subjective	More Subjective
Imprecise	269,231 (71,955) [14] A	420,833 (90,340) [12] B
Precise	374,167 (71,281) [15] C	403,846 (86,457) [13] D

When Supplemental Disclosure is Present

Subjectivity:

	Less Subjective	More Subjective
Imprecise	283,333 (79,852) [12] E	335,714 (88,085) [14] F
Precise	425,000 (79,487) [11] G	575,000 (15,386) [12] H

Across Levels of Supplemental Disclosure

Subjectivity:

	Less Subjective	More Subjective	Overall
Imprecise	276,000 (52,450) [25]	375,000 (62,465) [26]	326,471 (41,120) [51]
Precise	395,673 (52,307) [26]	486,000 (47,960) [25]	439,951 (35,769) [51]
Overall	337,010 (37,634) [51]	429,412 (39,968) [51]	

Panel B: Test of H3

H3: Subjectivity × Imprecision × Disclosure ANOVA

Source	Sum of Squares^a	df	F	p > F
Subjectivity	232.59	1	3.08	0.08
Imprecision	347.43	1	4.60	0.03
Disclosure	36.02	1	0.48	0.49
Subjectivity × Imprecision	0.93	1	0.01	0.91
Subjectivity × Disclosure	0.70	1	0.01	0.92
Imprecision × Disclosure	135.66	1	1.80	0.18
Subjectivity × Imprecision × Disclosure	76.16	1	1.01	0.32
Error		94		

^a All sums of squares are in '000,000,000.

See Table 2 for descriptions of the independent variables.

The *dependent variable* is the dollar amount of adjustment that auditors would require their client to record.

JEREMY B. GRIFFIN

CONTACT

343 Mendoza College of Business
University of Notre Dame
Notre Dame, IN 46556
574.631.6195
Griffin.91@nd.edu

EDUCATION

Doctor of Philosophy, Accounting, May 2010
University of Georgia

Master of Science in Accountancy, May 2000
University of Notre Dame

Bachelor of Accountancy, May 1999
University of Mississippi

EMPLOYMENT HISTORY

University of Notre Dame
Assistant Professor (2010-present)

University of Georgia
Research Assistant (2005 – 2010)

University of Mississippi
Adjunct Professor (2004-2005)

BorgWarner, Inc.
Plant Accounting Manager (2002-2005)

Deloitte & Touche, LLP
Audit Staff (2000 – 2002)

PUBLICATIONS

“Commentary on Auditing High-Uncertainty Fair Value Estimates” (with Timothy B. Bell). *Auditing: A Journal of Practice and Theory* 31 (1): 147-155.

RESEARCH IN PROGRESS

“The Effects of Uncertainty and Disclosure on Auditors’ Fair Value Materiality Decisions”

“Concurrent Processing, Cognitive Load, and the Evaluation of Audit Evidence” (with David N. Ricchiute).

“Does Having a Say-on-Pay Improve Investor Perceptions?” (with Kendall O. Bowlin and Margaret H. Christ).

“Expertise versus Trustworthiness in Financial Reporting” (with Joseph F. Brazel and Jane M. Thayer).

“Auditor Disclosure of Material Imprecision and Non-professional Investors’ Judgments and Decisions” (with Sean Dennis and Karla Johnstone).

INVITED PRESENTATIONS

Auburn University (2012)

University of Montana (2011)

Management Accounting Section Research and Case Conference (2011)

Deloitte/University of Kansas Symposium on Auditing Problems (2010)

University of Notre Dame (2010)

University of South Carolina (2010)

University of Wisconsin—Madison (2010)

University of Massachusetts—Amherst (2010)

Miami University (2010)

University of Mississippi (2010)

HONORS, AWARDS, & RESEARCH GRANTS

Dincolo Outstanding Undergraduate Professor Award, 2012

Outstanding Auditing Dissertation Award, American Accounting Association, 2012

University of Georgia Graduate Teaching Assistant Award, 2010

Institute of Management Accountants Research Grant, 2009

AAA Deloitte J. Michael Cook Doctoral Consortium Fellow, 2008

National Winner, PricewaterhouseCoopers xTreme Faculty Competition, 2008

PricewaterhouseCoopers INQUIRES Award, 2008

National Winner, PricewaterhouseCoopers xTreme Faculty Competition, 2007

George Erwin Keen Scholarship, 2005-2007

University of Georgia Graduate School Assistantship, 2005-2007

Mississippi Society of CPAs Scholarship, 1998

SERVICE

National/Editorial

AAA Annual Meeting Coordinator, Accounting, Behavior and Organizations Section, 2013

Ad Hoc Reviewer, *Accounting, Organizations and Society*

Ad Hoc Reviewer, *Auditing: A Journal of Practice and Theory*

Conference Reviewer: Mid-year Meeting of the Auditing Section of the American Accounting Association, 2012.

American Accounting Association Annual Meeting (Auditing Section), 2011.

Conference Discussant: Mid-year Meeting of the Auditing Section of the American Accounting Association, 2009, 2010, 2012.

American Accounting Association Annual Meeting (Auditing Section), 2009, 2011.

Department

Accountancy Research Workshop Committee, 2010-present (Notre Dame)

Faculty Recruiting Committee, 2010-2011 (Notre Dame)

TEACHING INTERESTS

Auditing and Managerial Accounting

COURSES TAUGHT

<u>Term</u>	<u>Institution</u>	<u>Course</u>	<u>Description</u>	<u>Overall Rating</u>
Spring 2004	U. of Mississippi	ACCY202	Managerial Acctg.	4.58/5
Fall 2004	U. of Mississippi	ACCY201	Financial Acctg.	4.30/5
Spring 2005	U. of Mississippi	ACCY202	Managerial Acctg.	4.68/5
Summer 2006	U. of Georgia	ACCT2102	Managerial Acctg.	4.71/5
Spring 2009	U. of Georgia	ACCT5200	Auditing	4.50/5
Spring 2010	U. of Georgia	ACCT5200	Auditing	4.37/5
Fall 2010	U. of Notre Dame	ACCT40510	Auditing	4.68/5
Fall 2011	U. of Notre Dame	ACCT40510	Auditing	4.23/5
Fall 2012	U. of Notre Dame	ACCT40510	Auditing	4.63/5

CONFERENCES ATTENDED

American Accounting Association Annual Meeting, 2012.

Deloitte Foundation/University of Kansas Auditing Symposium, 2012.

Public Company Accounting Oversight Board Academic Conference, 2012.

Mid-year Meeting of the Auditing Section of the American Accounting Association, 2012.

Research Conference of the Accounting, Behavior, and Organizations Section of the American Accounting Association, 2011.

American Accounting Association Annual Meeting, 2011.

Deloitte Foundation/Federation of Schools of Accountancy Faculty Consortium, 2011.

Public Company Accounting Oversight Board Academic Conference, 2011.

Center for Accounting Research and Education/ Center for Excellence in Accounting and Security Analysis Conference, "Accounting for Uncertainty and Risk: Investor, Management and Policy Implications," 2011.

AAA/Ernst & Young New Faculty Consortium, 2011.

Mid-year Meeting of the Auditing Section of the American Accounting Association, 2011.

American Accounting Association Annual Meeting, 2010.

Mid-year Meeting of the Auditing Section of the American Accounting Association, 2010.

Research Conference of the Accounting, Behavior, and Organizations Section of the American Accounting Association, 2009.

American Accounting Association Annual Meeting, 2009.

Southeast Summer Accounting Research Conference (SESARC), 2009.

American Accounting Association Southeast Region Meeting, 2009.

Mid-year Meeting and Doctoral Consortium of the Auditing Section of the American Accounting Association, 2009.

Research Conference and Doctoral Consortium of the Accounting, Behavior, and Organizations Section of the American Accounting Association, 2008.

Mid-year Meeting and Doctoral Consortium of the Auditing Section of the American Accounting Association, 2008.

Research Conference and Doctoral Consortium of the Accounting, Behavior, and Organizations Section of the American Accounting Association, 2007.

Southeast Summer Accounting Research Conference (SESARC), 2007.

Mid-year Meeting and Doctoral Consortium of the Auditing Section of the American Accounting Association, 2007.

Research Conference and Doctoral Consortium of the Accounting, Behavior, and Organizations Section of the American Accounting Association, 2006.

DISSERTATION COMMITTEE

E. Michael Bamber (Chair)
Heckman Chair of Public Accounting

E-mail: mbamber@terry.uga.edu
Phone: (706)542-3601

Linda S. Bamber
Tull Professor of Accounting

E-mail: lbamber@terry.uga.edu
Phone: (706)542-3501

Tina D. Carpenter
Associate Professor of Accounting

E-mail: tcarpenter@terry.uga.edu
Phone: (706)542-3619

Jennifer J. Gaver
Edwards Chair in Corporate Acctg. Policy

E-mail: jgaver@terry.uga.edu
Phone: (706)542-3699

Jacqueline S. Hammersley
Associate Professor of Accounting

E-mail: jhammers@terry.uga.edu
Phone: (706)542-3500

PROFESSIONAL CERTIFICATION

Certified Public Accountant (Inactive), Tennessee, 2001-present

PROFESSIONAL AFFILIATIONS

American Accounting Association
American Institute of Certified Public Accountants
Institute of Management Accountants