THE ROLE OF VALUATION SPECIALISTS IN AUDITING COMPLEX ESTIMATES

by

EMILY ELAINE GRIFFITH

(Under the Direction of Jacqueline S. Hammersley)

ABSTRACT

Valuation specialists play an increasingly important role in auditing complex accounting estimates, yet little is known about what specialists do to help auditors evaluate estimates, how auditors use specialists' work to make judgments about estimates, and how specialists' involvement affects audit quality in this setting. I use multiple methods to address these questions. First, I interview 28 auditors with extensive experience using valuation specialists to audit estimates to understand what procedures specialists perform, how auditors review specialists' work and incorporate it into their judgments, and what problems arise out of this arrangement. I find that while valuation specialists perform many of the most difficult and important elements in auditing estimates, auditors retain the final responsibility for making overall conclusions about estimates. I also identify a tendency among auditors to make valuation specialists' work conform to the audit team's prevailing view, which suggests that auditors may be able to more effectively use their specialists' work. Second, I experimentally investigate the conditions under which auditor judgments about estimates incorporate valuation specialists' work more effectively. Specifically, I examine how auditors' perceptions of their clients' source credibility influence auditors' interpretation of specialists' caveats on their own results. I predict and find that auditors' evaluation of evidence related to a biased estimate and subsequent

judgments benefit from specialists' caveats when auditors perceive their clients to be less credible, but auditors who perceive their clients to be more credible discount specialists' caveats and judge a biased estimate as more reasonable. Collectively my findings inform academics, regulators, and practitioners about the role of valuation specialists in auditing estimates and the implications of specialists' involvement for audit quality in this important area.

INDEX WORDS: Accounting estimates, Audit quality, Fair value, Impairment, Specialist

THE ROLE OF VALUATION SPECIALISTS IN AUDITING COMPLEX ESTIMATES

by

EMILY ELAINE GRIFFITH

B.B.A., Texas A&M University, 2006

M.S., Texas A&M University, 2006

A Dissertation Submitted to the Graduate Faculty of The University of Georgia in Partial Fulfillment of the Requirements for the Degree

DOCTOR OF PHILOSOPHY

ATHENS, GEORGIA

2014

THE ROLE OF VALUATION SPECIALISTS IN AUDITING COMPLEX ESTIMATES

by

EMILY ELAINE GRIFFITH

Major Professor:	Jacqueline S. Hammersley
Committee:	E. Michael Bamber Tina D. Carpenter Kathryn Kadous

Electronic Version Approved:

Maureen Grasso
Dean of the Graduate School
The University of Georgia
May 2014

DEDICATION

To my parents, for raising me to believe that I can achieve whatever I set out to do.

ACKNOWLEDGEMENTS

First, I want to thank my advisor, mentor, and friend Jackie Hammersley for her constant and meaningful guidance and support throughout my doctoral program. From the beginning, she helped me find a path to explore issues that are important to me through my research and pushed me to always reach for more than I thought I could. I can't wait to see where that path leads and I look forward to our continued scholarship together.

Next, I want to thank my committee members Michael Bamber, Tina Carpenter, and Kathryn Kadous for their excellent feedback and guidance throughout the stages of my dissertation. I have benefitted tremendously from Michael's sage perspective on how to make my dissertation as interesting to others as it is to me, from Tina's tireless encouragement and enthusiasm, and from Kathryn's invaluable guidance in translating theory into an experimental design. I also want to thank Kathryn for her willingness to help me develop as a scholar through our work together outside of my dissertation; I hope our collaboration continues in the future.

Finally, I want to thank my family and friends for helping me celebrate the highs and weather the lows. My parents instilled in me the perseverance and curiosity that kept me going through long days and nights. My friends cheered me on when I didn't feel cheerful. My husband Matt believed in me when my own belief wavered. Marrying you was the best thing I could have done for my career and goals as a scholar, and not just for the "G."

TABLE OF CONTENTS

Page

LIST OF TABLES

Page

LIST OF FIGURES

Page

CHAPTER 1

INTRODUCTION AND LITERATURE REVIEW

Financial statements include an increasing proportion of complex estimates such as Level 2 and 3 fair values and goodwill impairments that require understanding of valuation and other models that many auditors lack (PCAOB 2009, 2010; Barth 2006; Kaplan 2011), and auditors struggle with many of the tasks required to audit complex estimates (PCAOB 2010; Griffith et al. 2014a). Auditing standards require auditors to use specialists when they "encounter complex or subjective matters potentially material to the financial statements [that] require special skill or knowledge" to evaluate (PCAOB 2003, ¶6). Thus, valuation specialists are likely to assist auditors with complex estimates that are relatively high in risk, complexity, and significance (PCAOB 2009). Consistent with the rise in complex estimates, the difficulties faced by auditors in evaluating complex estimates, and the requirements of auditing standards, valuation specialists' involvement in audits has increased in recent years (PCAOB 2009). Despite valuation specialists' increased involvement in some of the most important and challenging parts of the audit, researchers and standards-setters know little about their role in auditing or how they affect audit quality.

Auditors frequently use valuation specialists in audits of complex estimates and this can lead to problems (Griffith et al. 2014a), but researchers have not yet examined what these specialists do when they assist auditors or how auditors use their work (Cannon and Bedard 2014). Without a clear understanding of the role valuation specialists play in auditing estimates, it is difficult to understand the underlying causes of problems or propose possible solutions. To

this end, researchers have called for a greater focus on specialists because their role in auditing is not well understood and as a result has received limited attention (e.g., Martin et al. 2006; Cannon and Bedard 2014). Similarly, the PCAOB recently announced plans to reconsider the auditing standards governing the use of specialists as the current standards are unclear with respect to the role of specialists in auditing (PCAOB 2012, 2009).

My dissertation includes two studies exploring the role of valuation specialists in auditing complex estimates and its impact on audit quality. The goal of the first study is to understand the role of valuation specialists—when and why they are used, what they do, and how auditors use their work. To do this, I interview practicing auditors to develop a descriptive framework for the role of valuation specialists and the effects their involvement may have on audit quality. The goal of the second study is to investigate specific factors that affect auditors' judgments, and by extension audit quality, when auditors use the work of specialists when auditing complex estimates. To do this, I conduct an experiment to identify circumstances under which auditors make different judgments about a complex estimate despite receiving the same work from a specialist.

The first study is motivated by two limitations on researchers' current understanding of how auditors use specialists. First, descriptive studies on specialists focus solely on *technical accounting* specialists (e.g., Danos et al. 1989; Salterio 1996; Salterio and Denham 1997), who have expertise in technical accounting and auditing issues. However, auditing standards differentiate between technical accounting specialists and *non-accounting* specialists, who have expertise in fields outside of accounting or auditing such as valuation or credit risk assessment (see AU 336, "Using the Work of a Specialist," PCAOB 2003). Although the differentiation implies distinct roles for the two types of specialists in auditing, the standards do not clearly

distinguish the issues that lead to the involvement of each and extant research on specialists ignores non-accounting specialists such as valuation specialists. Second, more complex estimates are now included in financial statements (PCAOB 2009, 2010; Barth 2006; Kaplan 2011), and the number and complexity of accounting standards and regulations have increased (CAQ 2011; Bratten et al. 2013). As a result, auditors need more expertise than ever before (Copeland 2005; Martin et al. 2006). Without a detailed understanding of how auditors use valuation specialists in practice, researchers will be hampered in their efforts to understand and address the problems auditors have when auditing complex estimates and working with valuation specialists.

The first study contributes to the literature by increasing researchers' institutional knowledge about how auditors use valuation specialists to help them audit complex estimates, thereby introducing this important type of non-accounting specialist to the literature. Distinguishing the role of non-accounting specialists from technical specialists is important given auditing standards' requirement to use non-accounting specialists when auditors do not possess certain non-accounting expertise, a situation that is increasingly common as financial statements include more complex estimates based on valuation and other models. Descriptive evidence about valuation specialists provides a framework for future research on how auditors use valuation specialists. I use Giddens' (1990, 1991) theory of trust in expert systems to further analyze the interview data to understand how and why auditors have developed their practices regarding valuation specialists in the absence of relevant guidance from standard setters. This framework and analysis offers potential for researchers, standard setters, and practitioners to better understand how auditors might improve their performance when using valuation specialists to help them audit complex estimates.

The second study is motivated by the need for researchers, practitioners, and standard setters to understand how specific factors related to valuation specialists can affect the quality of audits of estimates. Prior studies investigating whether and how auditors obtain and use advice from specialists focus primarily on technical accounting specialists (e.g., Asare and Wright 2004; Hammersley et al. 2011; Ng and Shankar 2010; Gold et al. 2012) and to a lesser extent on informal advice from peers (e.g., Kennedy et al. 1997; Kadous et al. 2013). The descriptive framework developed in the first study informs the second study's investigation of factors unique to auditors' use of valuation specialists that may affect audit quality. The second study experimentally examines how a *caveat*[1] on a valuation specialist's work interacts with auditors' perceptions of their clients' source credibility to affect their judgments about estimates. Drawing on theories of elaboration and persuasion, I predict and find that auditors' evaluation of evidence related to a biased estimate and subsequent judgments benefit from a caveat when auditors perceive the initial preparer of an estimate to have relatively low source credibility; auditors who perceive the initial preparer to have higher source credibility discount the caveat and judge a biased estimate as more reasonable. Thus, the second study is broadly motivated by researchers' current lack of understanding about the effects of valuation specialists on audit quality.

The second study contributes to the literature on auditing complex estimates by providing insight into the conditions under which caveats help auditors and by demonstrating that auditors do not always effectively use the work they receive from their valuation specialists. This initial evidence about the interactive effect of caveats and perceived client source credibility has

[1] Valuation specialists who help auditors evaluate complex estimates often include *caveats* on otherwise-clean results to communicate reservations about certain items to auditors. This practice is unique to valuation specialists; work papers prepared by audit team members do not contain caveats. Although caveats can contain interpretation that may improve auditors' judgments about estimates, auditors do not uniformly view caveats as helpful and the effect of caveats on auditors' judgments has not been explored. See discussion of specialists' caveats in Chapter 2, Section 4, "Stages of Valuation Specialist Involvement in Auditing Fair Values."

implications for future research on improving audits of estimates. This contributes to researchers' understanding of the factors that influence auditors' use of the work of valuation specialists, and more generally how valuation specialists affect audit quality. This study also suggests practical implications, as contextual factors such as perceived client source credibility have important effects on the way auditors use their valuation specialists' work. Audit firms and standard setters can use this insight to consider how their requirements for auditors' use of the work of valuation and other non-accounting specialists may impact audit quality.

The rest of this dissertation is organized as follows. Chapter 2 contains the first study examining how auditors use valuation specialists to audit complex estimates. Chapter 3 contains the second study examining how auditors' perceptions of their clients' source credibility influences the way they use their valuation specialists' work. Each of these chapters includes sections to introduce the study, explain the background and relevant theories, describe the research method, present the results, and discuss the implications of the study. Chapter 4 concludes on the dissertation as a whole.

CHAPTER 2

HOW DO AUDITORS USE VALUATION SPECIALISTS WHEN AUDITING FAIR VALUES?[2]

[2] Griffith, E. E. To be submitted to *Accounting, Organizations and Society*.

Abstract

The purpose of this study is to understand how auditors use valuation specialists in auditing fair values and how their involvement affects audit quality. I interviewed 28 auditors with extensive experience using valuation specialists and analyzed the interviews from the perspective of Giddens' (1990, 1991) theory of trust in expert systems. I find that auditors adapt existing guidance from auditing standards for the use of *external* specialists to guide their use of *internal* valuation specialists. In the absence of relevant guidance in this area, I also identify a tendency among auditors to make specialists' work conform to the audit team's prevailing view. Problems arise from the division of labor between auditors and valuation specialists and from the inherent uncertainty and subjectivity in fair values because auditors, though ultimately responsible for audit judgments, must rely on work done by valuation specialists that they cannot understand or review in the way they review other audit work papers. Overall, the interviews convey tension in auditors' traditional role as experts in auditing and their new concurrent role as dependent on experts in valuation. Though counter-intuitive, it is increasingly necessary for auditors to rely on other experts in order to maintain their own expert role. The resulting study creates a framework for future research addressing problems related to auditors' use of valuation specialists, an area in which problems have already been identified by the PCAOB and prior research (PCAOB 2010e; Martin et al. 2006; Griffith et al. 2014a).

1. Introduction

Auditors' use of valuation specialists to audit fair values has increased in response to the proliferation of fair values in financial statements, but auditing standards governing the use of all types of specialists have not kept pace and as a result standards provide inadequate guidance for auditors using valuation specialists (PCAOB 2009). Consequently, researchers and standard setters do not know *how* auditors use valuation specialists in audits of fair values (Cannon and Bedard 2014), even though auditors' use of these specialists affects audit quality (e.g., PCAOB 2010e). To address this unexplored but important gap in the auditing literature, I examine the practices auditors have developed when using valuation specialists in the absence of relevant guidance and how these practices affect audit quality.

The purpose of this study is to describe how auditors use valuation specialists when auditing fair values and to understand potential problems related to their involvement, thereby providing a framework for future research to address these problems. To learn how auditors use valuation specialists and how this affects audit quality, I interviewed 28 auditors with extensive experience working with valuation specialists on audits of Level 2 and 3 fair value estimates.[3] I focus on four key areas related to valuation specialists' involvement: how auditors decide to involve valuation specialists, how auditors use valuation specialists to help with audit testing, how auditors make conclusions based on the work of valuation specialists, and problems auditors encounter when working with valuation specialists. I use Giddens' (1990, 1991) theory of trust in expert systems to identify recurring themes from the interviews to inform my analysis. This theory describes why and how people respond to increasing complexity in their lives by trusting expert systems to perform processes that have grown too complicated and difficult for them to

[3] Of the 28 auditors I interviewed, 22 reported using only internal valuation specialists, four reported using both internal and external valuation specialists, and two reported using only external valuation specialists. Therefore, this study describes auditors' use of internal valuation specialists unless explicitly noted otherwise.

understand and master. Given the lack of relevant guidance to direct auditors' use of valuation specialists, understanding themes related to trust in expert systems provides useful insight into influences on the development of audit practice in this area.

The interviews provide a nuanced picture of how auditors use valuation specialists in all stages of auditing fair values. First, the data describe how auditors decide whether and how they will use valuation specialists. While auditors consider factors suggested by the standard on specialists such as characteristics of the account and the abilities of the audit team, they also consider characteristics of the client and the available valuation specialists. Surprisingly, auditors use valuation specialists to help them decide if the audit team should use a valuation specialist, because specialists can help auditors understand the scope and complexity of work that will be required. This finding highlights specialists' involvement in *all* stages, even planning. The current auditing standard does not contemplate specialists' role in the planning stage.

The interviews also clarify the division of responsibility between auditors and valuation specialists, which the standard on specialists does not specifically outline. Auditors use specialists extensively to evaluate assumptions and valuation methods, which are among the most critical and difficult steps in auditing complex estimates (Griffith et al. 2014a). Although specialists perform the procedures that auditors lack the expertise to perform themselves, auditors nonetheless review specialists' work and make the final conclusions based on that work in conjunction with the rest of the audit work. To aid auditors' review, some specialists document caveats in their memos to alert auditors that some items may need additional follow-up by the auditors, but others leave the task of identifying those items to auditors. While some auditors perceive caveats as helpful, others view them as an attempt by specialists to limit their

responsibility and consequently ignore or discount specialists' caveats, which is part of auditors' tendency to make specialists' work conform to the audit team's view of the fair value.

The interviews also describe how auditors use the work of specialists to make conclusions. Interviewees emphasized that the ultimate conclusion on a fair value is the responsibility of auditors rather than specialists and described an iterative process through which they finalize specialists' work. This process can also result in specialists' work converging on the prevailing audit team view. Similarly, auditors' retention of ultimate responsibility for the audit has important audit quality implications, as auditors often edit their specialists' work and delete extraneous information from it to ensure conformity with the rest of the audit documentation. While interviewees stressed the importance of understanding specialists' work in order to identify any gaps in the audit documentation, no consistent formal system of ensuring that auditors obtain this understanding emerged, and current auditing standards do not offer guidance in this area.

Finally, the interviews provide insight into the problems arising from auditors' use of valuation specialists in auditing fair values. Interviewees identified three types of problems that arise from the division of labor between auditors and specialists: coordination issues between auditors and specialists, differences in perspectives between these two parties, and uncertainty about the respective responsibilities of auditors and specialists. These problems can cause auditors to discount specialists' conclusions or caveats, fail to recognize the importance of issues raised by specialists, and fail to follow up on specialists' work when necessary—all of which further contribute to the convergence of specialists' work toward the audit team's view. Interviewees also identified three types of problems arising from the inherent uncertainty in fair values: slow or incomplete information flow from clients to auditors and specialists, uncertainty

about how much evidence auditors need from their specialists, and the fact that multiple points of view are often acceptable in valuation. The problems identified by interviewees have multiple audit quality implications with respect to auditors' and specialists' judgments, the likelihood of PCAOB inspection deficiencies, audit efficiency, client service, and the auditing profession's ability to attract high-quality professionals over the long term.

This study makes several contributions of interest to researchers, practitioners, and standards setters. First, this study provides a framework for future research examining auditors' use of valuation specialists and the related effects on audit quality by describing in detail how auditors use valuation specialists and by identifying problems arising from auditors' use of valuation specialists. Second, it identifies a tendency among auditors to make specialists' work conform to the audit team's prevailing view during the review process by editing specialists' work, deleting certain information, and ignoring specialist-identified caveats as insignificant. Problems arising from the division of labor between auditors and specialists further evidence this tendency. The PCAOB has expressed the need to enhance guidance for auditors in evaluating specialists' work (PCAOB 2009); this is a specific area where changes to auditing standards have the potential to make a beneficial impact, and where research could inform those changes. More broadly, the study identifies problem areas that represent opportunities for practice improvement; this will interest researchers, regulators, and practitioners.

This study also extends prior research by providing a more detailed understanding of one major component of auditing complex estimates such as fair values, a challenging and important audit task that has only begun to be explored and understood by researchers (Griffith et al. 2014a). Valuation specialists represent an unexamined input to audit quality in the realm of complex estimates (Cannon and Bedard 2014; Knechel et al. 2013). This study also contributes

to theory by examining how auditors develop trust in an expert system of valuation specialists while maintaining their role as experts in the system of auditing. Previous studies focus on auditors as experts to be trusted (e.g., Power 1995; Barrett and Gendron 2006) without considering auditors' need to trust in other experts to fulfill their own expert role (but see Smith-Lacroix et al. 2012 for an exception). I extend Smith-Lacroix et al.'s (2012) finding that auditors trust in other experts to fulfill their own expert role by examining *how* auditors develop trust in other experts and how auditors' use of valuation specialists reflects the tension in the dual roles of auditors in the fair value setting. Finally, this study helps bridge the gap between accounting research and practice (e.g., Kaplan 2011; Merchant and Van der Stede 2006) by giving practitioners an opportunity to voice their concerns about an area of practice fraught with challenges (PCAOB 2010e; Griffith et al. 2014a) and by considering an input to audit quality that auditors and investors view as very important (Christensen et al. 2013).

The remainder of this study proceeds as follows. First I provide background on auditors' use of specialists and describe the theoretical perspective underlying my analysis, which is informed by Giddens' (1990, 1991) theory on trust in expert systems. The next section explains my interview and data analysis methodology as well as specific research design choices. The following sections describe auditors' use of specialists in audits of fair values throughout the stages of the audit and problems encountered by auditors when working with specialists. The next section uses the theoretical perspective of trust in expert systems to examine the major themes that emerge from the interviews. The final section concludes and discusses the implications of this study for future research.

2. Background and Theory

Prior Research on Auditors' Use of Specialists

The extant research on specialists in auditing focuses on *technical accounting* specialists (e.g., Danos et al. 1989; Salterio 1996; Salterio and Denham 1997), who have expertise in accounting and auditing issues, rather than in other (non-accounting) areas such as valuation. This literature has focused in three areas: when and why auditors seek assistance outside of their audit teams, the sources of assistance available to auditors, and how auditors use the advice provided to them.[4] This literature provides valuable insights into some aspects of how auditors use specialists but leaves a number of important questions unanswered. First, while the literature documents that auditors seek the assistance of peers and technical accounting specialists to justify their decisions (Kadous 2000; Kennedy et al. 1997) or to respond to heightened risk (Asare and Wright 2004; Hammersley et al. 2011; Gold et al. 2012), it does not explain what auditors actually ask specialists to do for them. Second, the literature does not examine the role of non-accounting specialists and does not distinguish between the issues that require the involvement of non-accounting versus technical accounting specialists, or their different roles in the audit process. Finally, while the extant literature identifies some factors that affect auditors' use of advice from peers or technical specialists (e.g., Salterio 1996; Salterio and Koonce 1997; Ng and Shankar 2010; Kadous et al. 2013), it does not outline the process of working with non-accounting specialists such as valuation specialists, from initiating their involvement to incorporating their work into the audit. Detailed knowledge of this process is crucial for researchers seeking to understand how auditors use valuation specialists and the related effects

[4] Another related stream in this literature considers how characteristics of technical accounting specialist departments influence the content of advice they provide to auditors (e.g., Salterio 1996; Salterio and Denham 1997). As I focus on the perspectives of advice-seekers (i.e., auditors) rather than advice-givers, I do not discuss this stream of research above.

on audit quality because valuation specialists are an important but unexamined input to audit quality (Cannon and Bedard 2014; Knechel et al. 2013; Christensen et al. 2013).

Auditing Standards Regarding the Use of Specialists

Auditing standards differentiate specialists along two dimensions: technical accounting specialists versus non-accounting specialists (such as valuation specialists), and internal (i.e., employed by the audit firm) versus external specialists.[5] Along the first dimension, PCAOB Interim Auditing Standard 336, "Using the Work of a Specialist" (hereafter, AU 336) covers the use of non-accounting specialists, while Auditing Standard (AS) No. 9 on planning and AS No. 10 on supervision cover the use of technical accounting specialists (PCAOB 2003, 2010a, 2010b). Along the second dimension, AU 336 covers external specialists, while AS Nos. 9 and 10 cover internal specialists (PCAOB 2003, 2010a, 2010b). AU 336 refers auditors using *internal* non-accounting specialists to AS No. 10, even though this standard does not provide guidance relevant to non-accounting specialists (PCAOB 2003, 2010b). Thus auditors face a dilemma—the auditing standard that is most relevant to their use of valuation specialists is not applicable when valuation specialists are employed by the audit firm, as they frequently are.[6] Moreover, AU 336 is general to all types of non-accounting specialists; it is not tailored to the use of *valuation* specialists because they were not used as often when the standard was written in 1994 (PCAOB 2009).

Preliminary discussions with auditors suggest that auditors tend to follow the guidance for using (external) non-accounting specialists when they use valuation specialists, whether

[5] This discussion focuses on U.S. auditing standards. The U.S. standards discussed are substantively the same as the analogous international auditing standards, with one important exception. The International Standard on Auditing (ISA) 620, "Using the Work of an Auditor's Expert," provides guidance to auditors using *internal* non-accounting specialists, while the analogous U.S. standard, AU 336, explicitly excludes *internal* non-accounting specialists from the scope of the standard (International Federation of Accountants (IFAC) 2009; PCAOB 2003).

[6] I discuss this arrangement in the description and analysis of interview results (Chapter 2, Section 4).

internal or external to the firm. Therefore, I summarize the guidance included in AU 336 that relates to how auditors decide to use valuation specialists, how auditors use specialists during audit testing, and how auditors use the work of valuation specialists to make conclusions. Although AU 336 refers auditors using internal specialists to the guidance in AS No. 10, I do not include guidance from this standard. AS No. 10 treats internal specialists as equivalent to other audit team members, so it does not provide any incremental guidance about using non-accounting specialists.[7]

Valuation specialist involvement in auditing fair values begins with audit teams' decisions about whether and how to use specialists. AU 336 requires auditors to use specialists when auditors lack the "special skill or knowledge" to evaluate "complex or subjective matters" as varied as real estate to pharmaceuticals to artwork (PCAOB 2003, ¶6-7). AU 336 also provides guidance to auditors as they consider specialists' professional qualifications to decide whether they have the expertise necessary to serve in the capacity of specialist (PCAOB 2003, ¶8). Thus, AU 336 suggests that auditors consider the expertise of the audit team, the inherent account characteristics, and the appropriateness of a specialist's expertise to the given situation when deciding whether to use a specialist.

The next stage of specialist involvement begins with the audit testing (i.e., fieldwork). AU 336 does not indicate specific tasks or procedures that should be done by specialists beyond stating that "the appropriateness and reasonableness of methods and assumptions used and their application are the responsibility of the specialist" (PCAOB 2003, ¶12). Regarding auditors' responsibilities, the standard requires auditors to understand the methods and assumptions used

[7] In fact, the only mention of specialists in AS No. 10 is a statement that "the engagement partner is responsible for proper supervision of the work of engagement team members and for compliance with PCAOB standards, *including standards regarding using the work of specialists*" (emphasis added) (PCAOB 2010c, ¶3). This statement likely contributes to auditors' tendency to apply AU 336 when using internal specialists, despite its non-applicability, by referring auditors back to AU 336 after AU 336 has referred auditors using internal specialists to AS No. 10.

by specialists, test the data provided to specialists, and evaluate whether specialists' results support clients' financial statement assertions (PCAOB 2003, ¶12).

Finally, audit teams use specialists' work to make their final audit conclusions and complete their audit documentation. AU 336 requires auditors reviewing specialists' work to understand the objectives and scope of the work, the methods or assumptions used by specialists, and whether specialists' findings support the related financial statement assertions (PCAOB 2003, ¶9, ¶12). Auditors do not have to perform any additional procedures if their review indicates that specialists' work supports the related financial statement assertions, but if a material difference exists between specialists' findings and the assertions auditors must investigate the difference by "applying any additional procedures that might be appropriate" (PCAOB 2003, ¶13), though no example procedures are specified. If this fails to resolve the issue, then auditors "should obtain the opinion of another specialist" unless they believe the issue cannot be resolved (PCAOB 2003, ¶13). After fulfilling these requirements, auditors can make their final conclusions (PCAOB 2003, ¶13-14).

Given the lack of specific guidance for auditors using internal valuation specialists, I expect that auditors will have developed some practices independent of the guidance summarized above. Therefore, it is also useful to consider the development of these practices from the theoretical perspective of trust in expert systems to gain insight into other influences on auditors' use of valuation specialists (Giddens 1990; Englund et al. 2011). I describe this theory as it pertains to auditors' use of valuation specialists next.

Trust in Expert Systems

Changes in the auditing environment including the increased prevalence of more sophisticated and judgmental estimates such as Level 2 and 3 fair values (Power 2010),

regulatory attention to the difficulties auditors face in auditing these estimates (PCAOB 2010e), and the complicated requirements of auditing standards (Bratten et al. 2013) combine to increase the complexity of the auditor's task when evaluating fair values. As a result, auditors increasingly rely on valuation specialists when auditing fair values (PCAOB 2009). Giddens' (1990, 1991) theory of trust in expert systems can be used to understand auditors' responses to the increasing need to rely on specialists to help them audit Level 2 and 3 fair values, and I describe this theory below.

As the world becomes more complex, individuals can no longer understand all of the processes that affect their lives (Giddens 1990). Instead, people trust in *expert systems* to ensure that the processes they cannot understand function properly (Giddens 1990, 1994). Expert systems consist of individuals with specific knowledge and skills that allow them to perform and understand technical processes that laypeople cannot; experts include professionals such as doctors, lawyers, and accountants (Giddens 1990; Englund et al. 2011). Expert systems provide the basic authoritative resources (e.g., rules and guidelines) and mechanisms (e.g., provision of professional services) that allow people to cope with more complexity than they can understand (Reed 2001). Trust in expert systems therefore provides "ontological security"—a feeling of comfort and confidence in one's understanding of the world (Giddens 1990). However, laypeople continuously monitor the competence and effectiveness of expert systems because trust in the system depends on its (real or perceived) effectiveness (Reed 2001).

The increasing complexity of auditing Level 2 and 3 fair values causes auditors to rely to a greater extent than ever before on an expert system of valuation specialists to help them evaluate these complicated financial statement items (Smith-Lacroix et al. 2012). Yet, auditors themselves comprise an expert system for ensuring the reliability or trustworthiness of financial

statements for laypeople (Smith-Lacroix et al. 2012). Thus, the increasing complexity of fair values means that auditors must simultaneously serve as experts who are trusted by laypeople (i.e., financial statement users) *and* trust an expert system of valuation specialists to help them ensure the reliability of financial statements.

The development of trust is crucial for an expert system to provide ontological security (Giddens 1990). Trust in expert systems can be maintained, built up, or reduced at *access points* between a layperson and an expert that personally represents the abstract expert system (Giddens 1990). Trust develops (or decreases) at access points because trust in the individual human representative serves as a proxy for trust in the system (Knights et al. 2001). Laypeople's trust in expert systems, then, depends primarily on the trust laypeople develop for individual experts (Giddens 1990). Each interaction between an audit team member and the team's specialist represents an access point at which trust in the expert system of valuation specialists can increase or decrease, depending on the nature of the interaction and the auditor's perception of the specialist's expertise.

Many factors affect laypeople's trust in individual experts. Features of an expert such as reputation, quality of performance, and appearance influence laypeople's trust in an expert for reasons within the expert's control (Stzompka 1999). These factors convey the expert's real or perceived level of expertise. In accounting and auditing settings, specific factors such as licenses and credentials, an appropriately "business-oriented" mindset, and even professional appearance and behavior influence perceptions of expertise (Power 1995; Jones and Dugdale 2001; Busco et al. 2006). Features of the environment such as the expert's accountability to others or institutional constraints such as legal and regulatory regimes also influence laypeople's trust in the expert for reasons outside the expert's control (Stzompka 1999). The factors laypeople use to

judge expertise can be symbolic (e.g., the expert's work follows a specific format) or substantive (e.g., the expert's work is accurate) (Gendron and Bédard 2006).

Some factors that influence auditors' trust in specialists may be specific to specialists, such as professional credentials, past experience assisting with audit engagements, or personality. However, other factors may depend on *auditors'* unique personal experiences and attitudes toward the general environment surrounding audits of fair values. Examples include auditors' past experiences with the expert system of valuation specialists, or auditors' general attitudes toward fair value accounting and the consequences of its increased prevalence for audit practice. To explore the effects of these constructs on the process followed by auditors using valuation specialists to help them audit fair values, I conducted interviews as described below.

3. Method

I conducted semi-structured interviews with 28 audit partners and managers from each of the Big 4 firms and two national firms. I chose this sample for two reasons. First, these very experienced auditors are likely to have a perspective that encompasses the whole process of working with valuation specialists. Interviewing partners and managers rather than lower-ranking auditors will result in the collection of richer data, which is a primary advantage of conducting interviews (Miles and Huberman 1994). On average, interviewees had 16.6 years of experience, and 61 percent of their client engagements during the past year involved specialists to assist with auditing fair values. Second, I interviewed auditors, rather than specialists, because this more directly serves the goal of my study: to understand how auditors' use of specialists ultimately affects audit quality. To achieve this goal, interviewees must describe not only how auditors use specialists during audit testing but also how auditors decide to involve specialists and how auditors use the work of specialists to ultimately make judgments and conclusions.

While both auditors and specialists could describe the role of specialists in audit testing, auditors have better insight into how auditors decide to use specialists and how auditors use their work. The 28 interviews constitute a sample size within recommended ranges for qualitative studies that allowed me to reach a saturation point at which additional interviews would not provide incremental information (Lincoln and Guba 1985; Morse 1995, 2000). Table 2.1 provides detail about each interviewee's specific experiences, and Table 2.2 provides summarized demographic information about the interviewees and their audit firms.

I developed the semi-structured interview script based on preliminary discussions with one audit manager, two audit partners, and two valuation specialists from three different Big 4 firms, and on AU 336, "Using the Work of a Specialist." These discussions indicated that auditors use valuation specialists mainly when auditing Level 2 and 3 fair values, and that auditors use *internal* valuation specialists much more commonly than external valuation specialists.[8] Although AU 336 specifically excludes situations in which auditors use internal specialists, I consider it in developing the interview script because preliminary discussions suggested that auditors follow this standard at least somewhat for lack of more relevant guidance. The standard provides limited guidance to auditors regarding how to decide if a valuation (or other type of) specialist is needed, and how to evaluate the work of specialists once it is completed. The standard does not provide guidance as to what specialists actually do, how auditors interact with specialists, or how auditors incorporate specialists' work into their audit judgments. Thus, my interview script aims to capture the practices that have developed in the absence of specific, relevant guidance for using valuation specialists. The interview script

[8] As shown in Table 2.2, the predominant arrangement is for auditors to use internal, rather than external, specialists. The two interviewees who reported using only external specialists work for a national firm that is significantly smaller than the other firms in the sample. Thus, the interview data primarily describe the role of *internal* specialists in auditing fair values. The data do not suggest significant differences in auditors' practices regarding internal versus external specialists other than where explicitly noted in the paper, and these instances are rare.

focuses on four key areas related to valuation specialists' involvement in auditing Level 2 and 3 fair values: auditors' decisions to use specialists, auditors' use of specialists during audit testing, auditors' use of specialists' work to make conclusions on financial statement assertions related to fair values, and problems that auditors have when using specialists on audits of fair values. A detailed understanding of these four key areas is necessary in order to gain insight into the audit quality implications of auditors' use of specialists when auditing fair values.

I conducted the interviews by phone in May and June 2012. The duration of the interviews ranged from 25 to 81 minutes, with an average of 46 minutes. I began each interview by asking interviewees to recall their most recent experience working with a valuation specialist on a Level 2 or 3 fair value, and then I asked about each of the four key areas covered by the interview script. The interviews were recorded and professionally transcribed.[9] I reviewed all of the transcripts for accuracy and grouped the responses in each transcript into the four key areas covered by the interview script.

I developed a unique coding scheme for each of the four key areas by creating a "start list" of coding categories for each area based on the guidance in AU 336, and I expanded upon the start lists based on the content of the interviews (Miles and Huberman 1994). The interviews focus on areas where the standard provides relatively little guidance, so the coding schemes evolved during the coding process to fully capture details that emerge from the interviews (Miles and Huberman 1994). The coding schemes allow me to identify the practices related to using valuation specialists that have been developed by auditors in the absence of guidance as well as the practices suggested by AU 336 that auditors attempt to apply despite the non-applicability of this standard to the use of internal specialists. The coding schemes also allow for the

[9] One interviewee declined to be tape-recorded. The transcript for this interview is based on my notes which I reviewed for accuracy with the interviewee prior to concluding the interview.

identification of the parties responsible for different parts of the audit (i.e., specialist vs. audit team) and the ranks of the audit team members involved directly with specialists.

To code the interview transcripts, I parsed the responses in each of the four key areas into independent ideas. An independent coder and I then coded each idea. Initial inter-rater agreement across the four coding schemes was 88.2 percent (ranging from 85.9 to 93.1 percent) and Cohen's kappa, a measure of agreement beyond that due to chance, ranged from 0.83 to 0.91 (all $p < 0.01$). The coder and I resolved all differences, and I base the following analysis of the interviews on the resolved coding.

4. Stages of Valuation Specialist Involvement in Auditing Fair Values

In this section, I discuss interviewees' descriptions of the three stages of specialist involvement in audits of fair values: how auditors decide to use specialists, how auditors use specialists to help with audit testing, and how auditors make conclusions based on specialists' work. I discuss the practices described by interviewees related to each area, and I distinguish practices that attempt to follow the guidance contained in AU 336 from practices that have developed in the absence of relevant guidance. I also consider the audit quality implications of the practices that auditors follow when using specialists to audit fair values.

How do Auditors Decide to Use a Valuation Specialist?

Valuation specialist involvement in auditing fair values begins with audit teams' decisions about whether and how to use specialists. AU 336 suggests that auditors consider features of the account, the audit team, and the specialist when deciding whether to use a specialist. Interviewees consider these and other factors when making this decision as shown in Table 2.3 and discussed below.[10]

[10] In this discussion and throughout the paper, I attribute quotations to interviewees using the participant identifiers shown in Table 2.1 to provide information about the speaker while protecting anonymity.

When deciding whether to use a specialist, all interviewees considered account-specific characteristics such as the materiality of the account, the account-specific risk, the complexity of the model used to generate a fair value, and the level of inputs within the fair value hierarchy (i.e., Level 1, 2, or 3), consistent with AU 336. Interviewees also focused on the subjectivity of many fair values. One manager (M1) decided to involve a specialist to value a client's trademarks because:

> There's so much judgment involved. If you ask five people they'll all come up with a different judgment, so how do we get to an estimate that's reasonable?

Another manager (M3) explained the difficulty in auditing portfolios of alternative investments that warrants specialist involvement:

> We really have no idea what's in these funds. We get a listing of properties that they [the client] have an investment in. We have no idea how those things are valued.

Thus, valuation-related issues may require specialist involvement not only due to complexity but also because of their judgmental nature and opacity. While the complexity of fair values prompts auditors to use specialists for their technical expertise, the judgmental nature may also prompt auditors to use specialists to strengthen their position should a negotiation with the client and/or the client's third party ensue (Cannon and Bedard 2014).

All of the interviewees also considered client-specific characteristics when deciding to involve a specialist, a consideration not suggested by AU 336. A manager (M1) explained that "clearly auditors would be more comfortable if [the client] use[s] third party specialists" and that this factors into the audit team's decision of whether and how extensively they will use their own specialist. This interviewee, and three others, were more likely to use a specialist when the client did *not* use a third party specialist, but 11 interviewees suggested that when a fair value is complex enough that the client needs a third party specialist, the audit team generally needs a

specialist as well. Other characteristics include client sophistication, client expertise with different valuation approaches, and the client's history of making consistently accurate, inaccurate, or biased estimates of fair values. Interviewees are more likely to involve specialists when they expect clients to have trouble with fair values, whether due to an anticipated lack of expertise or a history of problems with estimation. This suggests auditors may be less skeptical of fair values generated by more capable clients, which has implications for auditors' judgments during the planning, testing, and conclusion stages of the audit. This also implies that auditors' decisions to involve specialists will be influenced by their opinions of their clients' capabilities. Thus, a potential implication for audit quality is that bias in auditors' opinions about their clients' capabilities can distort auditors' decisions about the involvement of specialists. That is, auditors might under-estimate their need for specialists' assistance or plan inadequately for specialists' involvement (e.g., by allocating insufficient time or resources to specialists).

Nineteen interviewees (67.9 percent) considered characteristics of the specialist and the audit team assigned to the engagement when deciding to involve a specialist. AU 336 suggests both of these considerations but does not offer specific characteristics or factors to consider. Interviewees reported that auditors' knowledge of a particular client's plans or intentions, auditors' technical accounting and auditing experience and expertise, and extensive valuation experience or a finance background all increase auditors' capability to audit fair values—but most interviewees indicated that their audit teams rarely possess the necessary combination of skills and experience to forego using a specialist. Relevant specialist characteristics discussed by auditors include expertise in a specific industry or area, prior experience with the same client or audit team, and availability. One partner (P2) described a characteristic of specialists that benefits the audit team:

> When you're doing this as part of an audit, it's very much about assessing the techniques that the client has in place, and so we like to use specialists that have a pretty broad perspective, and I think that helps.

This echoes many interviewees' comments that they use specialists when circumstances make it difficult for the audit team to see the fair value in a market context, whether due to the innate complexity in the fair value or auditor inexperience. Unlike auditors, specialists are trained to view fair values in this market context.

In addition to features of the account, client, specialist, and audit team, 14 interviewees (50.0 percent) use audit firm guidelines and decision aids when deciding to involve a specialist. Interviewees described firm guidelines such as materiality thresholds that mandate specialist involvement and certain accounts or types of fair values that automatically trigger the use of a specialist. A partner (P2) explained her firm's policy for one type of fair value:

> We actually have a policy that if you have a high level…of alternative investments which would all be either Level 2 or Level 3, we are required to involve a specialist. So that's a risk management policy on the part of the firm. I think it's if it's over 20 percent of net assets.

Other interviewees listed a set of four bright-line criteria that require specialist involvement if a fair value meets any one of the four. Specifically, auditors must use specialists if: a hypothetical 50 percent reduction in the carrying value of "hard-to-value" financial instrument assets (i.e., Level 2 and 3 fair values and other complex estimates) would impact the client's pre-tax income by an amount greater than materiality; the client makes a market in hard-to-value financial instruments; the client holds alternative investments that contain hard-to-value financial instruments comprising 20 percent or more of its investment portfolio; or the client sponsors a defined benefit plan whose plan assets contain 20 percent or more hard-to-value financial instruments either directly or through alternative investments containing such assets.

Thus, to some extent audit firms standardize the decision to use a specialist. This has audit quality implications to the extent that reliance on checklists and decision aids automates auditors' decision processes and prevents them from noticing other circumstances that would warrant the use of specialists, even if a fair value fails to meet the bright-line criteria.

Eleven interviewees (39.3 percent) described obtaining specialists' input on the decision to use a specialist. A manager (M8) explained how specialists help auditors decide if they need a specialist:

> The valuation specialist is going to educate us on whether there [are] unique [valuation] techniques being used or potential pitfalls they see in how the valuation is working.

Audit teams use specialists' input because specialists have a better understanding of the newest approaches to valuation that clients might use and a better idea of which fair values are likely to have observable inputs. As a partner (P5) described:

> Since we do have valuation professionals in the firm, they help us during the planning phases, too, in terms of which types of securities may or may not need their expertise. For example, if you've got governments, or U.S. corporate [bonds], that's something that's relatively liquid. Maybe it's not a Level 1 but upper Level 1 or Level 2, and you can get evidence from another pricing service. So there's good coverage. There's no reason to go ahead and incur the cost of a specialist that's going to develop an internal model perhaps to come up with a price.

Specialists provide input at this point that helps audit teams understand the extent and difficulty of the work required to audit the fair value, which influences the decision to use a specialist.

How do Auditors Use Valuation Specialists during Audit Testing?

The next stage of valuation specialist involvement begins with the actual audit testing. AU 336 provides minimal guidance regarding the specific responsibilities of specialists and auditors beyond requiring auditors to understand the work performed by specialists, test the data provided to specialists, and evaluate whether the specialist's results support the client's financial statement assertions (PCAOB 2003, ¶12). Interviewees provided insight into how auditors use

valuation specialists during audit testing by delineating the specific responsibilities of specialists versus audit teams for procedures and conclusions related to fair values.

Procedures Performed by Valuation Specialists vs. Audit Teams

Table 2.4, Panel A summarizes the division of responsibility across specialists and audit teams for the evidence-gathering procedures mentioned by interviewees. Responsibility for these procedures aligns with the extent of valuation expertise required to perform them. The five procedures that specialists primarily perform require significantly more valuation expertise than the three procedures that auditors primarily perform.[11] Specialists, rather than auditors, tend to evaluate assumptions underlying fair values (70.3 percent specialist's responsibility), evaluate the method used by the client or third party to estimate the fair value (92.6 percent), evaluate the expertise of the client or third party who prepared the valuation (61.1 percent), check the mathematical accuracy of the valuation model used (62.5 percent), and evaluate the client's classifications of fair values as Level 1, 2, or 3 (50.0 percent). Specialists' involvement in auditing fair values can greatly impact audit quality, as specialists typically perform two of the most critical and difficult steps in auditing these types of estimates—evaluating assumptions and evaluating the method (Griffith et al. 2014a).

Of the five procedures identified above as primarily specialists' responsibilities, AU 336 outlines only two of these—evaluating method and assumptions—as specialists' responsibilities (PCAOB 2003, ¶12). One partner (P7) went beyond the guidance in AU 336 to explain how a specialist evaluated the client's method of valuing an especially complicated acquisition for step one of the annual goodwill impairment test:

[11]I asked interviewees to describe the work they received from valuation specialists; I did not explicitly ask for a complete listing of all procedures performed to audit a fair value, nor did I explicitly ask which procedures and conclusions are the responsibilities of *auditors*. However, when describing the work received from specialists interviewees typically included explanations of the procedures and conclusions that are auditors' responsibilities in addition to those that are specialists' responsibilities.

> [The specialist] really helped with the logic in terms of what happened during the year: How do you value the company early in the year when the capital is raised? How do you value them after the acquisitions were done? How do you look at the controlling value of all the shares that were bought? The company's recapitalized versus individual shares and the type of control premium on those shares later in the year? Because the deal's valuation date was November 30th but the capital raise date was February 28th. So, how do you reconcile all the values and events and transactions to come up with an overall valuation model that makes sense?

Other interviewees emphasized that specialists "have the better understanding of when certain models are appropriate and when they're not" (M6), which helps them recognize when clients use unusual methods.

Auditors rely extensively on specialists to evaluate assumptions; every interviewee mentioned evaluating assumptions when discussing procedures performed by specialists. The division of responsibility for particular assumptions has developed in practice without the benefit of specific guidance from standards because AU 336 stops with the assignment of responsibility for assumptions to specialists (PCAOB 2003, ¶12). Table 2.4, Panel A details the division of responsibility across specialists and audit teams for specific assumptions discussed by interviewees.[12] Specialists evaluate the assumptions that require valuation knowledge: discount rates, risk premiums, and other inputs into income-approach valuation models (such as discounted cash flow models); benchmarks or market comparables used either as Level 2 "observable inputs" or as inputs into Level 3 market-approach valuation models (such as those used in real estate valuations); and industry-level data and projections (such as expected growth in a client's industry in different regions). Many of these assumptions can significantly impact the ultimate fair value. One implication of specialists' overwhelming responsibility for evaluating most of these assumptions is that audit teams may not fully understand all of the "moving parts" of the fair value when they ultimately conclude whether the balance is fairly

[12] Interviewees primarily discussed assumptions that valuation specialists evaluate, as explained in footnote 11.

stated. If auditors lack awareness or understanding of some elements of specialists' work, they are more likely to overlook or discount issues raised by specialists, which will result in auditors causing specialists' work to converge toward the audit team's view. Moreover, in audits of complex estimates such as fair values, "problems at one stage often cascade to affect other steps" when auditors lack sufficient understanding of the estimate (Griffith et al. 2014a, 34), and the division of responsibility for assumptions described by interviewees likely exacerbates the "cascade."

The only assumptions that interviewees identified as the responsibility of audit teams a majority of the time are assumptions about clients' projected financial information such as clients' forecasted revenues, expenses, cash flows, EBITDA, and changes in margins. A partner (P7) explained why audit teams, rather than specialists, typically evaluate these assumptions:

> We're the audit team; we know the client better than [specialists] do, right? Specialists are supposed to know for valuation of a certain thing, goodwill or investment or whatever, but if it's something related to a five year projection for the company, the valuation team in almost every case is going to say, "The audit team knows the company better than we do; we're just doing one small piece of this." So the audit team is responsible for getting comfortable with the reasonableness of those forecasts of revenue for five years.

Despite audit teams' advantage over specialists in client-specific knowledge, interviewees still identified specialists as responsible for evaluating assumptions about clients' financial projections one-third of the time (32.7 percent specialist versus 65.3 percent audit team).

Interviewees identified audit teams as primarily responsible for planning the audit approach (58.8 percent auditor's responsibility), testing objective data that goes into the valuation (85.7 percent), and testing controls over the process of generating the fair value (80.0 percent). Auditors perform these procedures every time they audit an account balance (even

non-fair values), so they have expertise in these areas relative to specialists. A manager (M5) described planning the approach as follows:

> From an audit side, we can go in and look at the various inputs and determine which ones really matter. And which ones materially drive the calculation. And we might limit the number of inputs that we're going to get [the specialist] to look at. And then in some cases there might be certain inputs that are ones that we, as a team, can audit ourselves.

A partner (P6) explained circumstances in which the audit team and specialist share responsibility for planning the audit approach:

> It all starts with what the client does to build their fair value estimate, and then from there we build our procedures. The more the client has for us to work off of, obviously the better off we are, but the more we're really auditing their process versus coming up with our own. When we have to come up with our process to audit it, that's when the valuation specialist gets more involved in the nuts and bolts.

These comments illustrate the importance of thoroughly understanding clients' valuation methods in planning an effective audit approach and the potential negative consequences of making planning decisions without this understanding. Yet, audit teams generally retain the responsibility for planning the audit approach despite their lack of expertise that warrants the involvement of a specialist.

Table 2.4, Panel B details additional functions performed by valuation specialists that are not evidence-gathering procedures but are still important in this process. Eighteen interviewees (64.3 percent) described specialists' identification of caveats—explicit follow-up items for audit teams to consider before concluding on the fair value—as one of these functions. A manager (M12) explained why the specialist included caveats in the documentation related to a real estate valuation:

> Those things are outlined in the [specialist's] memo, one, to identify that the valuation expert did not do anything with it. And two, to identify to the auditor that they need to do something with it. Those are very explicitly pointed out to the auditor; it's very clear.

Caveats direct auditors' attention to specific items that specialists believe require additional work or are otherwise important for audit teams to note. Interviewees described three different types of caveats: recommended changes to the client's process (i.e., a recommendation caveat, noted by 11 of the 18 interviewees who discussed caveats), inputs to the valuation that the specialist has not tested because it was agreed in planning that the auditor would do so (i.e., an open item caveat, noted by 12 of the 18 interviewees), and reservations about specific inputs arising from the results of the specialist's testing of those inputs (i.e., a reservation caveat, noted by 5 of the 18 interviewees). A recommendation caveat might note in the specialist's memo that the client did not perform a look-back analysis to consider the historical accuracy of their own estimation process, and instituting this review practice will improve the client's process (P2). An open item caveat might note that the specialist did not verify the accuracy of prior year revenues included in a discounted cash flow model and expects the audit team to perform this procedure (P4). A reservation caveat might note that the client's growth rate remains steady at three percent per year for five years, then jumps up to 20 percent (M1), or that while the client's weighted average cost of capital of nine percent falls just outside the specialist's acceptable range of ten to 12 percent, the discount rate based on this input still appears reasonable (P4). Despite one partner's (P12) assertion that caveats are "really the key" to understanding what is left for audit teams to do after specialists finish their testing, others conveyed that specialists include caveats less to help audit teams and more to minimize their own responsibility. Thus, the extent to which caveats help audit teams is unclear—they might aid auditors by focusing their attention on key issues, or they might inadvertently misdirect auditors' attention to less important areas.

Conclusions Made by Valuation Specialists vs. Audit Teams

Table 2.5 summarizes seven types of conclusions made by specialists and/or audit teams during audits of fair values that interviewees discussed. In general, specialists conclude on the various pieces that comprise the fair value, while auditors conclude on the fair value as a whole. Specifically, specialists conclude on the method, assumptions, and fair values of components of financial statement balances (e.g., a particular investment from an entire portfolio that constitutes one balance sheet line item), but not on the balances that appear in the financial statements.[13]

Interviewees described the nature of specialists' conclusions about inputs and assumptions and the resulting level of reliance that audit teams can (or should) place on specialists' conclusions. A manager (M1) explained that:

> Auditors are very good at saying this is material or this is not material. Specialists are better at saying: yes, this is a premium I have seen in the 20 other times I've done this work; I would expect there to be a risk premium included; or this is what we would see in peer companies.

Other interviewees gave examples of specialists concluding that "any discount rate between five and 15 percent is reasonable" (M4), or that a market comparable used by the client is commonly used by other companies in the same industry (P8). These types of conclusions do not explicitly state whether the item being evaluated is reasonable, so audit teams must consider the implications of these conclusions when they make their final fair value conclusions. The ambiguity in these types of conclusions creates an opportunity for auditors to (unintentionally or otherwise) align their specialists' work with the audit team's view. For example, even if the client's discount rate falls into the specialist's reasonable range, the audit team must consider whether a discount rate at the low end of the range indicates potential client bias and whether they must perform further procedures before they can make a final conclusion.

[13] Table 2.4, Panel A details the specific assumptions evaluated by specialists.

Interviewees identified audit teams as primarily responsible for the ultimate conclusion about whether the financial statements are materially misstated. A partner (P9) explained:

> They [specialists] really leave it up to us. They clearly explain their conclusions and any exceptions they have. But it's clearly up to us as the audit team as to how that fits into the overall audit.

Audit teams, rather than specialists, conclude whether the financial statements are materially misstated because they have a better understanding of materiality and how "to put together all the pieces to get to the whole" (P7). In addition, a manager (M2) explained that specialists are reluctant to make the final conclusion:

> They [specialists] would typically limit their conclusions to the specific things that they worked on. They wouldn't want to take responsibility for signing off on valuation for X client's entire portfolio.

While auditors must understand the "overall audit" in order to make the final conclusion about a fair value, dissociation from the intermediate conclusions may lessen auditors' awareness of qualitative materiality factors that might only be salient to someone who evaluated and concluded on the method, assumptions, or other specific components of a fair value. This lack of awareness may also contribute to auditors' tendency to make specialists' work conform to the prevailing audit team view by making it easier for auditors to justify their belief about the fair value rather than adjusting it toward the specialist's view (Kunda 1990).

Interactions and Influence between Specialists and Audit Teams during Audit Testing Stage

When asked about valuation specialists' involvement in audit testing, interviewees also described how auditors and specialists interact and influence one another's work as summarized in Table 2.6. Twenty-seven interviewees (96.4 percent) described how specialists, audit teams, clients, and clients' third party specialists (if used) obtain information from each other. Audit teams filter information from clients and third parties to specialists in an effort to increase

specialists' efficiency. One partner (P2) explained, "We don't necessarily load them up with a whole bunch of detail on what we've looked at," while another (P7) recalled that he only sent the client's valuation report to the specialist "after I went through a few drafts." Audit teams also filter follow-up requests from specialists to clients, which a partner (P8) described as "part of the client service—you don't want to get [a client] all fired up if we already know the answer." Though efficiency concerns motivate audit teams' role as intermediary between specialists and clients or third parties, this role requires audit teams to judge what information is ready for or important enough to share with specialists and which of specialists' questions should be relayed to clients or third parties even though audit teams may not fully understand the information. By providing specialists with only partial information from the client, auditors may also influence specialists to take a perspective that is more similar to the audit team's than they would if they had access to all of the information from the client; this may result in the specialist's work conforming to the audit team's view.

Twenty-four interviewees (85.7 percent) also described the nature of interactions between audit teams and specialists, and two insights emerged regarding the audit team's engagement in the specialist's process and the coordination of responsibilities between the audit team and specialist. First, the importance of "constant, early, and often communication with the valuation experts" (M6) emerged as a key to ensuring that the audit team's and specialist's work proceed smoothly and to avoiding "surprises" such as issues identified by the specialist that require additional work by the audit team to resolve. A partner (P13) explained the importance of communication in:

> Really making sure that [specialists] feel that accountability. We need to be communicating that they're accountable for whatever they tell us. If they tell us something that's a little bit irrational, then we need to push back on that.

Second, interviewees described the importance of formalizing key communication related to coordination into "a memo of understanding between the valuation experts and us as the audit team, as far as who's responsible for what" (M6). Interviewees depicted the interactions between audit teams and specialists as the main mechanism by which each party understands its respective responsibilities and by which auditors monitor the progress of specialists' work.

Finally, nine interviewees (32.1 percent) explained specialist involvement in terms of specialists sharing general knowledge about their area of expertise with audit teams, while four interviewees (14.3 percent) indicated that auditors give specialists little discretion over the procedures they will perform to fulfill their responsibilities. To demonstrate the potential benefit of knowledge-sharing, a partner (P5) explained the extent of a specialist's specific expertise in the real estate valuations underlying a portfolio of alternative investments:

> We have a specialist that really tracks the mortgage market, both the primary and secondary markets with respect to what's out there, what're the yields out there, what's hot and what's not sort of thing. What's happening with delinquency rates, with different types of properties. A, B, C, or D property—is it a multi-family residential? Is it single family? Is it in a sand state—California, Arizona, Florida? Or is it in Iowa or Minnesota or so forth?

Specialists' deep understanding of their areas of expertise can inform the planned approach to auditing fair values and the evaluation of clients' methods and assumptions. Despite the potential benefits of general knowledge-sharing for audit quality, interviewees did not mention any systematic methods by which specialists share knowledge with audit teams. Moreover, auditors' limitations on specialist discretion oppose the professed benefits of specialists' knowledge—specialists might improve audits of fair values if auditors allowed them to use their expertise to a greater extent in determining which procedures to perform and how to perform them.

How do Auditors Use Valuation Specialists' Work?

In the third stage of specialists' involvement in auditing fair values, audit teams use specialists' work to make their final audit conclusions and complete their audit documentation. Specialists summarize their work in a conclusion memo (hereafter, specialist's memo) that auditors include in the audit file as documentation of specialists' work. AU 336 requires auditors to review specialists' work for understanding and to ensure that sufficient audit evidence has been obtained. Interviewees explained how auditors review specialists' work and described the additional procedures that auditors perform to use the work of specialists.

Audit Teams' Review of Specialists' Work

Table 2.7, Panel A summarizes the major areas of focus for auditors as they review specialists' work. Audit teams review specialists' work to obtain an understanding of what specialists did (16 interviewees, or 57.1 percent), to evaluate the sufficiency of the work performed and documented (14 interviewees, or 50.0 percent), to evaluate the consistency of specialists' work with other audit information (11 interviewees, or 39.3 percent), and to ensure that the respective responsibilities of specialists and audit teams have been fulfilled (11 interviewees, or 39.3 percent). A partner (P8) described reviewing specialists' work for understanding:

> I don't know if it's anything that technical, but to me it's reading through and making sure that it makes sense. . . Not that I'm challenging their expertise and their knowledge of valuation, because that's why we're using them—because they're specialists. But does it make sense to me, what they did. And if so, then it's ok.

Other descriptions of this element of review echo the vagueness of the audit team's task in reviewing the specialist's work to understand how the specialist arrived at the conclusions documented. While auditors must understand specialists' work to make good judgments about fair values, interviewees were not specific about how to obtain this understanding.

Interviewees expressed relatively more certainty when describing how audit teams review the sufficiency of specialists' work as audit evidence and the consistency of specialists' work with the rest of the audit. When reviewing for sufficiency, auditors ensure the adequacy of specialist's documentation for possible PCAOB inspection. A partner (P9) stated precisely what the audit team looks for in a specialist's memo pertaining to Level 2 alternative investments:

> Do we have enough competent, sufficient evidence to conclude on this population of securities for the valuation assertion?

The inspection process seems to motivate auditors to focus on the sufficiency of specialists' documentation during their review. Auditors reviewing for consistency aim to "make sure that there's nothing in that memo that contradicts other statements that we're making in the [audit] file" (M5). This description reveals auditors' reference point for their review as the audit team's view, against which they compare the specialist's view for conformity. While a large part of this review consists of straightforward ticking and tying among the specialist's memo, other audit work papers, and the trial balance, reconciling judgment-based inconsistencies (e.g., the specialist and the audit team disagree on the client's future growth prospects) is difficult because the audit team "has the ownership but not the expertise" (M7) over the entire process.

When describing auditors' review of specialists' work, 11 interviewees (39.3 percent) discussed ensuring the fulfillment of respective responsibilities on both sides. Audit teams are responsible for this, in one manager's (M1) words, "because we have the best broad picture of what everyone is doing." This review typically entails going back to the division of responsibility agreed upon and documented during planning, and some interviewees also referred to checklists that their firms require for fair values to document the fulfillment of all responsibilities. A manager (M8) explained the need for such checklists:

> You've got different people taking responsibility for items, and it would be hard to combine that together. I don't want to take responsibility for something that I'm not a specialist on. And they don't want to take responsibility for something that they're not a specialist on.

The emphasis on the division of responsibility fostered by this part of the review process has implications for audit quality because divided responsibility may reduce the extent to which audit teams critically review specialists' work if they perceive specialists' work to be outside of their jurisdiction.

In contrast with the above items detailing auditors' focus during their review of specialists' work, 10 interviewees (35.7 percent) described instances in which audit teams rely upon specialists' work without extensive review. Reasons for this reliance range from insufficient audit team expertise (P1) to the wide ranges surrounding many estimates that render audit teams' reviews too imprecise to be helpful (P3).

Additional Procedures Performed by Audit Teams

Table 2.7, Panel B presents the additional procedures performed by audit teams that interviewees described as they recounted how they use specialists' work. Twenty-six interviewees (92.9 percent) discussed resolving differences between specialists' findings and clients' assertions. Differences often arise because the specialist used a different approach or assumption than the client or third party. The resolution process usually involves going back to the client for further explanation, as a manager (M4) explained:

> Sometimes we have to go push on the client or the third party to provide us more information that would help us understand the judgments that they made. That's a more common situation. That's where it makes sense to get the client on the phone with the specialist to talk through the issue. And I'm always involved, or the audit representative's typically involved in those conversations to facilitate that, to make sure that the focus and the scope is appropriate. . . I've seen a lot of times where the specialist may spend hours trying to do their own independent research and/or get comfortable with the number but after going back to the client, a lot of times the client can provide that extra data to get us over the hump.

Iteration with the client often uncovers information the specialist lacked that caused the difference. In addition to learning the cause of the difference, audit teams also determine if the difference between the specialist and the client arose because the client used an unreasonable method, assumption, or input in developing the fair value, or whether the two parties simply used different approaches that are both acceptable. Finally, auditors consider materiality when resolving differences. A manager (M5) explained:

> The audit team needs to get involved at some points in the process to be able to think about the bigger picture of materiality. Because the specialist in certain occasions, you know they don't really have the ability to make that judgment. They don't understand. So they could keep beating it up forever but if it's a hundred thousand dollars and materiality's five million the engagement team needs to step in and try to make sure we're spending the right time in the right place.

Interviewees intoned that specialists are unaccustomed to the idea that a fair value in the audit context will not be a precise number calculated down to the penny. This may have implications for audit quality if it causes audit teams to discount the potential impact of differences that are quantitatively insignificant—but may be qualitatively significant—because specialists tend to identify small and seemingly insignificant differences so frequently that audit teams may not thoroughly consider the possible implications of these differences alone or in combination. In addition, audit teams may even use these quantitatively small differences to justify their clients' use of questionable methods or assumptions, consistent with auditors' biased evaluations of client-preferred accounting treatments (Hackenbrack and Nelson 1996; Kadous et al. 2003) and with auditors' tendency to make specialists' work conform to their own view.

Twenty-four interviewees (85.7 percent) noted that the audit team edits and finalizes the specialist's memo. Interviewees described clarifying the language and explanations contained in specialists' memos, deleting extraneous information, and adding references to other audit work

to satisfy limitations in specialists' memo (e.g., referencing to the audit team's work around revenue projections if the memo noted that specialists did not evaluate them). A manager (M11) explained why audit teams clarify specialists' memos:

> A lot of times [specialists] make these statements. They're not used to writing audit memos that would be acceptable for the PCAOB or whoever. A lot of times it's just sitting down with them and saying here's the way we interpret what you've said. And they'll say no that's not what we meant at all. We'll re-write it so it's clearer. Not changing the result, but sometimes making those statements that are kind of loaded better. A loaded sentence or two, they'll take those out or fine tune them more. Ultimately we'll agree that the audit team just has to document around what they've done.

For similar reasons, audit teams also delete extraneous information in specialists' memos when that information contradicts what the audit team has documented in other audit work papers or when it constitutes specialists "over-reaching" (M7) the scope of their responsibility. A manager (M9) described the type of extraneous information his audit team deleted:

> Stuff where we're not specifically discussing it in our work, I wouldn't want them to say something about what they expect to be happening with the business over the next several years if it contradicted what we've documented that we expect.

The emphasis on documentation resulting from the inspection process motivates audit teams' changes to specialists' memos. One consequence of this focus on air-tight audit documentation is that removing the concerns noted by specialists in the current year prevents audit teams in the next year from learning of potentially problematic issues identified in the prior year. Another consequence is that auditors alter specialists' work to conform to the audit team's view.

Twenty-one interviewees (75.0 percent) also described how audit teams identify and address limitations and follow-up items in specialists' work as part of their additional procedures. Two general approaches emerged; these approaches are not mutually exclusive. First, as a manager (M11) explained, audit teams scan specialists' memos for explicit caveats or limitations:

> That's the first pass that I do when I get a memo back from them, to make sure that there's nothing in there that they absolutely said they wouldn't or couldn't do.

When specialists do explicitly identify caveats, audit teams must decide how to follow up. Second, audit teams search for limitations or problems that may be "buried" within specialists' memos. As a partner (P4) described:

> Sometimes maybe there's something embedded in the memo, this particular factor or assumption appears out of range. And even though maybe they concluded overall it was okay, you still want to know some of those things. So I always encourage our folks, don't just get those things and stick them in the workpapers. Make sure you read them and know what's in them.

Other examples of potential issues embedded in specialists' memos mentioned by interviewees include instances where an item falls within the range deemed reasonable by the specialist but that range exceeds audit materiality, or evaluations of the client's method of estimating a fair value that suggest possible control deficiencies. Interviewees emphasized the length and density of specialists' memos, implying that searching these memos for unidentified limitations is a substantial task.

Once audit teams identify these items, they must decide how to address them. To do this audit teams first decide if items warrant follow-up procedures by considering, as one partner (P8) suggested,

> Does it blow something up? Is it a big deal? Or can we say well we at least know we've mitigated this risk to an appropriate level where this input can be off two percent and it has no bearing on the ultimate outcome, as well as considering all the inputs that were looked at that [specialists] might not look at?

When deciding what type of follow-up to do, audit teams consider materiality, inputs into the fair value examined by audit teams but not specialists, or other client- or audit-specific information to which specialists lack access. These considerations also contribute to auditors' tendency to make specialists' work conform to the audit team's view by providing justification for

dismissing specialists' issues as insignificant. Regarding explicit caveats identified by specialists, a partner (P1) noted that:

> Sometimes we might dispose of them by saying it's not material or we didn't feel that we needed to test it, or we're satisfied with the work done to date and just be done.

Thus, specialists' caveats do not always result in the performance of additional procedures by audit teams. For items that require follow-up, potential procedures include supporting revenue projections with client documentation such as board minutes, budgets, and corporate strategy (P7); performing sensitivity analyses on discount rates (P8); or talking to the client or third party to ascertain, in one manager's (M3) words, "Do we really have an issue or do we not have an issue?" Overall, interviewees described a collaborative process between the audit team and specialist that focuses on determining whether an item could potentially cause a material misstatement.

The remaining additional procedures performed by audit teams relate to documenting overall conclusions (16 interviewees, or 57.1 percent) and deciding whether to communicate specialists' recommendations to clients (13 interviewees, or 46.4 percent). Audit teams consider all of the evidence obtained throughout an audit, such as analytical procedures and tests of data performed by audit teams, in tandem with the evidence supplied by specialists before documenting the final conclusion. Audit teams also consider potential management bias that would not be evident to specialists with limited perspectives on the audit (e.g., a specialist helping with one or a selection of fair values cannot notice whether *all* of a client's fair values are "consistently biased at the low end or the high end of [the] range" (M4)). Audit teams also decide whether, and how, to communicate any recommendations made by specialists for client process improvements. Specialists' recommendations include suggested changes to clients' valuation methods or specific assumptions used or suggested third parties that may provide better

service. All of these suggestions tend to be communicated verbally or sometimes in a management letter. A manager (M1) explained why:

> Our firm has a policy around that: the recommendations and suggestions would never ever be in a final conclusion. Because I mean really, if we're trying to make an audit conclusion, making recommendations or suggestions might be appropriate in a management letter that we would give at the end of an audit. . . Our perspective is that if there are suggestions or recommendations that you want to make, is their process so wrong that they have to do it? And are these deficiencies? Or is it not wrong enough, or is this not a very big deal? A judgment needs to be made for all of those things and it just leaves outstanding questions.

Audit teams make final conclusions and communicate recommendations because specialists see only one part of the whole audit and consequently lack the perspective to make these judgments.

When describing how they use specialists' work, interviewees focused much more on the procedures audit teams perform to complete the audit (234 items, shown in Table 2.7, Panel B) than on auditors' review of specialists' work (107 items, shown in Table 2.7, Panel A). To the extent that the focus of interviewees' responses reflects the prominence of different parts of this stage of the audit, this imbalance implies that reviewing specialists' work is less prominent than completing the final audit procedures and finalizing documentation. The imbalance in auditors' attention has potential audit quality implications, as careful reviews of specialists' work may reveal additional issues not identified by specialists or by audit teams' other procedures.

Interactions and Influence between Specialists and Audit Teams during Review Stage

Finally, interviewees described the interactions between specialists and audit teams as auditors review specialists' work (not tabulated).[14] Even in this final stage when audit teams focus on reviewing specialists' work and completing any necessary additional procedures,

[14] Fourteen interviewees (50.0 percent) discussed interactions with specialists during the review stage, for a total of 28 items. Interviewees described these interactions in general terms, suggesting that they pertain to many of the additional procedures and areas of focus identified in Table 2.7.

interviewees described a collaborative effort between specialists and audit teams to finish the audit. A manager (M4) described the benefit of this collaboration:

> Lots of times the phone and email and live meetings are incredibly valuable, because it helps [specialists] understand better what you're trying to solve for and it helps develop rapport in the relationship. You really are working as a team trying to solve complex problems.

Interviewees who worked with *external* specialists engaged by the audit firm described interactions that are the opposite of those between audit teams and internal specialists. Those interviewees reported that external specialists limit interactions with audit teams to two occasions: when audit teams provide their clients' valuation reports to specialists, and when specialists provide their conclusion memos to audit teams. While the use of external specialists likely results in a lost opportunity for the beneficial collaboration described above, the cost of maintaining a department of internal specialists may exceed the potential benefits for some firms.

Ranks of Auditors Working with Valuation Specialists

Interviewees described participation of audit team members at all levels throughout the stages of specialists' involvement in audits of fair values, as shown in Table 2.8. When deciding whether to involve a valuation specialist, three interviewees (10.7 percent) described the involvement of staff-level auditors as observers of the decision process. Nine interviewees (32.1 percent) described seniors and 15 (53.6 percent) described managers as actively participating in the decision making process. Finally, 16 interviewees (57.1 percent) described partner involvement, mainly in a review capacity. Only two of these 16 noted that partners alone make the decision, suggesting that auditors at the manager and senior level play an important role in determining specialists' involvement in auditing fair values.

During the audit testing stage, seniors and managers most frequently interact with specialists; 19 interviewees (67.9 percent) identify seniors and 20 (71.4 percent) identify

managers as the primary contact between the audit team and the specialist. While 14 interviewees (50.0 percent) also identify partners as highly involved with specialists during this stage, interviewees who named partners noted that partners participate primarily through review or when client issues become particularly contentious. Only one interviewee said partners alone work with specialists. As the fair values and related audit issues become more complicated, higher-ranking audit team members increase their involvement with specialists. Lower-level auditors (i.e., seniors and staff) are more likely to work directly with specialists in this stage as client engagements and audit teams increase in size.

In the final stage of specialists' involvement, interviewees described auditors at all levels reviewing specialists' work and performing additional procedures. While managers are most frequently involved with specialists in this stage (24 interviewees, or 85.7 percent), seniors also frequently participate (17 interviewees, or 60.7 percent). Even staff may participate, but the three interviewees who named them emphasized that staff would assist in less judgmental areas such as tying specialists' numbers into the audit work papers or trial balance. Partners are also frequently involved (22 interviewees, or 78.6 percent); however, only one interviewee said partners alone are involved in the final stage of specialist involvement.

5. Problems Related to Valuation Specialists

The final topic that interviewees discussed was the type of problems encountered when working with specialists. The six types of problems described by interviewees have multiple audit quality implications related to auditors' and specialists' judgments, audit efficiency, client service, the likelihood of PCOAB inspection deficiencies, and the auditing profession's ability to attract high-quality professionals over the long term. Interviewees focused on fundamental

problems auditors have when working with specialists. Table 2.9 summarizes these problems, and I discuss them along with their audit quality implications below.

Twenty-two interviewees (78.6 percent) discussed problems related to coordination between audit teams and specialists. This includes sending and receiving work to specialists in a timely manner as well as coordinating who is doing what between the two parties and informing specialists about clients' background and current issues. A partner (P11) explained the challenge in coordination:

> Now you've got four cooks in the kitchen. You've got the client, you've got the audit team, you've got the audit team's internal support [i.e., specialist], you've got a third party valuation expert. You've got four parties involved trying to wrestle an issue down. So it's just inherently inefficient.

Time pressure contributes to coordination issues as specialists work on many audit engagements at year-end, and short reporting windows intensify the pressure so much that one partner (P7) described specialists as "getting murdered" during the weeks preceding SEC reporting deadlines. Auditors struggle to address this issue because, as a manager (M2) explained,

> Trying to do work at interim and ease the time crunch is a big thing, but there's a lot of pressure in terms of what the PCAOB believes is acceptable for roll-forward on valuation. So you sort of have opposing forces there, in terms of being able to do that.

Coordination problems have several possible audit quality implications because they limit the quantity and quality of work that specialists can do. Inappropriate audit judgments may occur if specialists do not have enough time to understand the client—or simply to do their work. If auditors fail to convey all of the relevant information to their specialists, specialists' conclusions will exclude client-specific information, which auditors might later use as a reason to discount or adjust specialists' conclusions to fit their view. Non-compliance with standards results from moving work to interim in response to time pressure and failing to adequately roll that work forward, and client service issues and inefficiencies arise from last-minute "fire drills" (P4). In

addition, a partner (P7) pointed out potential long-term negative consequences for the auditing profession if time pressure and the associated coordination issues continue to worsen:

> How many people are going to want to be in public accounting for any length of time when they're working a hundred hours a week every January and February?

Nineteen interviewees (67.9 percent) identified problems pertaining to information flow from clients and their third-party specialists to audit teams and their specialists. Problems related to information flow occur when clients and/or third parties have different information than audit teams and specialists, and having the same information would lead auditors and specialists to the same conclusions reached by clients. Various circumstances impede information flow. Some clients lack the expertise to get complete or up-to-date information to audit teams and specialists. Some clients do not take responsibility for their third party specialists and consequently fail to "push things along" (P4) when third parties do not provide necessary information to audit teams and specialists. Finally, some third parties do not readily share proprietary models or respond to audit team and specialist requests because, as a manager (M11) said, "[third parties] have the smallest stake out of all the parties involved." A partner (P5) described how inadequate information flow, which he refers to as "visibility" from his client, constrains audit teams and specialists:

> The independent estimates can be really difficult, especially on something like synthetic CDOs where you have individual credit default swaps with sometimes the collateral in a vehicle. Some of the models on those, if you're going to build that from scratch, will literally take 50 to 60 hours per security. This is where the visibility from the registrants really falls down a lot of times.

Thus, one possible audit quality implication pertains to how problems with information flow can reduce the feasibility of developing independent estimates to evaluate some fair values, which may adversely affect the quality of audit judgments (Griffith et al. 2014a) and reduce the likelihood that auditors propose and require adjustments to fair values (Cannon and Bedard

2014). Other implications include inappropriate audit judgments based on outdated, incomplete, or otherwise inadequate information and inefficiencies due to the time spent iterating with clients or third parties to resolve issues when no actual disagreement exists.

Seventeen interviewees (60.7 percent) identified problems pertaining to differences in the perspectives of specialists and audit teams, which develop through each group's educational and work experiences. The lack of a common background makes it difficult for audit teams and specialists to communicate their concerns to one another because, as one manager (M3) said, "They're just not going to speak the same language." Due to their background in finance and experience with valuation for purposes other than auditing (such as for buying a company), specialists have a different understanding of what fair values represent. Another manager (M8) noted,

> The biggest challenge is often getting the valuation people to recognize that the one number we know is not right is the number that's calculated. . . Oftentimes I struggle because I feel valuation specialists think that they can pin down the exact value of something that there is no exact value.

When the two sides do not understand whether or why the issues identified by the other side represent potential audit concerns, inappropriate audit judgments and inefficiencies may result if specialists and auditors focus on the wrong areas from a risk-based perspective. For example, specialists struggle to understand how audit teams use materiality, causing specialists to spend too much time on immaterial issues in the valuation. Moreover, if auditors do not recognize the importance of an issue raised by a specialist they are likely to discount that issue, resulting in the specialist's work again conforming to the audit team's view. Differences in perspectives also lead to problems communicating concerns to and resolving issues with clients and documenting too much or too little audit work. Possible audit quality implications include inappropriate audit judgments due to focusing in the wrong areas or missing the importance of concerns raised by

specialists; non-compliance with auditing standards (i.e., PCAOB inspection deficiencies) due to inadequate documentation; and inefficiencies due to "over-auditing" (P2), misunderstandings with clients, and over-documenting (which may also affect audit firms' litigation risk).

Eleven interviewees (39.3 percent) described problems related to audit teams' uncertainty about what constitutes sufficient evidence from specialists. Interviewees cited increasing PCAOB and firm requirements in response to changing markets and the increasing complexity of fair values and related disclosures as factors in these problems. Compounding these factors, auditors do not get frequent enough exposure to all types of fair values in order to master the increasing requirements, making it hard to know exactly what auditors need from specialists. A partner (P1) described the inherent difficulty in evaluating the sufficiency of evidence:

> When your [audited] estimates [from the prior year] differ from your actual it makes you step back and say, "Okay, what do we need to potentially do different to get a better estimate? Or is there a way to get a better estimate? Or are we in this arena where this market changes so rapidly, and the company's need for cash or to liquidate these items changes so rapidly, that we just have to assume every year that we would expect some difference between estimate and actual and a revised estimate, or actually there would be a different financial estimate upon liquidating those assets?" So that's always a point that sort of makes you pause and go, "Okay, are we doing enough?"

Interviewees also worry that uncertainty about sufficient evidence contributes to an over-allocation of time to documenting work. This may cause inappropriate audit judgments if auditors focused on documenting what they have do not realize that they need more evidence than what their specialists have provided. Non-compliance with standards could also result if auditors cannot keep up with the complex and evolving nature of regulatory and firm requirements. Finally, inefficiencies could result due to the over-emphasis on documentation.

Nine interviewees (32.1 percent) also described problems related to uncertainty about the respective responsibilities of audit teams and specialists. Interviewees focused on intentional avoidance by audit teams and specialists of procedures that each party believes are the other

party's responsibility or are outside of their own areas of expertise. Avoidance can result in issues slipping through the cracks until the last minute, when audit teams have less capacity to address them and it is more likely that the audit team will fit the specialist's work to their predominant view of the fair value. Interviewees discussed reluctance to take ownership on both sides, though they uniformly emphasized that audit teams hold the ultimate responsibility for the entire audit. For example, a manager (M1) commented that:

> It's easy to think, "I've involved a specialist so they have resolved all of these issues," but the truth is that's why the auditor is responsible.

This perception causes problems because, as many interviewees noted, specialists hesitate to make judgment-based conclusions and prefer to base their conclusions solely on data obtained through research or independent sources without considering relevant information from the client (such as plans for future operations). Consequently, audit teams sometimes struggle to convince specialists to agree with their conclusions. Specialists' agreement is important given the interactive and iterative nature of the final stage of specialists' involvement during which audit teams conclude on fair values. Thus, inappropriate audit judgments could occur if audit teams and specialists fail to address certain issues that they each believe exceed the scope of their responsibility, or if audit teams inappropriately convince specialists that issues identified in specialists' work are not material. This is also consistent with the tendency to make specialists' work conform to the audit team's view. Inefficiencies could also result if audit teams must spend excessive time convincing their specialists to accept an appropriate conclusion.

Finally, nine interviewees (32.1 percent) discussed problems caused by the acceptability of multiple points of view in valuation. A partner (P1) explained how this affects interactions between clients and audit teams:

> Generally you have sort of a four way communication that goes on. You've got the client, their specialist, the audit team, and our internal specialist. And there can be some fairly aggressive and robust conversation around the point of view as it relates to methodology that we as a firm might think is appropriate, versus a methodology that a third party might think is appropriate. . . You get two very knowledgeable groups of people that have very strong views about why their point of view and their method is the better method, and generally I've had to play, on a number of occasions, sort of mediator, if you will.

Once audit teams and specialists resolve conflicts with clients and third parties, however, regulators may have in mind yet another point of view. A partner (P13) explained:

> Regulators have a hard time going back and saying whether or not you did a fair value right; that's the exact issue. If you go back historically I think that's why everything was at historical cost, because you could say yes or no, that's right or not right. You get into fair value and there's so many judgments and estimates to be made that you could certainly look at it ten different ways and come up with ten different answers that are probably all equally defensible. So I think it's an interesting issue, and clearly valuation specialists are a key portion of that. But even with those guys, there are still judgments and estimates that can be made.

Audit teams and their specialists must approach valuation from a point of view that is not only appropriate in terms of accounting and auditing standards, but defensible to clients and third parties whose views may differ, *and* to regulators who may hold yet another view. Possible audit quality implications include inefficiencies due to resolving differences about "equally defensible" methods or assumptions or client service issues due to the sometimes contentious nature of discussions among audit teams, specialists, clients, and third parties. Most importantly, inappropriate audit judgments may result if clients exploit the existence of an array of acceptable approaches to convince audit teams to accept a point of view that is less appropriate than audit teams' and specialists' points of view.

The problems discussed above can further be classified into two categories based on the features of the audit environment that foster them. One set of problems arises from the necessary division of labor between auditors and specialists. Therefore, these problems are unlikely to be

present on audits of fair values where specialists are not involved, but they are likely to exist in other (non-fair value) settings where auditors rely on other types of specialists. Problems arising from the division of labor include coordination issues, differences in perspectives, and uncertainty about the respective responsibilities of auditors and specialists—all of which contribute to auditors' tendency to make specialists' work conform to the audit team's view. The other set of problems arises from the inherent uncertainty in fair values and the associated regulatory requirements. Therefore, these problems are likely to be present on audits of complex fair values even if specialists are not involved. Problems arising from the inherent uncertainty in fair values include slow or incomplete information flow from clients and their third parties, uncertainty about sufficient evidence, and the acceptability of multiple points of view in valuation. Thus, the contextual features shared by the problems identified by interviewees suggest that similar problems might occur in other audit areas.

6. Major Themes from a Theoretical Perspective: Trust in Expert Systems

In this section, I discuss three major themes that emerge from the interviews when considered holistically from the perspective of trust in expert systems (Giddens 1990). These themes influence auditors' practices and perspectives related to specialists. Given the lack of relevant guidance to shape the development of practice in this arena, understanding themes related to trust in expert systems provides insight into influences on the development of auditors' practices when using specialists and the problems that have arisen.

Necessity of Trust in Valuation Specialists in an Increasingly Complex World

The first theme to emerge from the interviews is how essential reliance on valuation specialists has become to auditors dealing with fair values. That is, as the complexity in auditing

fair values increases (Martin et al. 2006; Bratten et al. 2013), auditors recognize the necessity of trust in an expert system of valuation specialists. One manager (M4) explained that:

> Given the complexity and the volatility of those types of instruments [i.e., Level 3 fair values] and the assumptions that drive value, we think it's the best practice to have our specialist involved.

Auditors' discussions of how they decide to use specialists, how they use specialists to help with audit testing, and problems they have when using specialists reflect this theme.

First, when deciding to use specialists, the most common factor in the decision pertains to characteristics of the fair value. Auditors use specialists because of how complex and difficult to audit many fair values have become. Auditors also frequently consider their clients' valuation ability when deciding to involve a specialist. Auditors expect clients to have trouble with more complicated fair values, and this leads them to involve specialists. Thus, the increasing complexity of fair values necessitates trust in valuation experts directly by impacting auditors' ability to audit fair values, and indirectly by impacting clients' ability to estimate fair values.

Second, the allocation of certain procedures to specialists indicates the necessity of trust in valuation specialists given the complexity of many fair values. Specialists, rather than auditors, tend to perform the procedures that require greater valuation expertise because specialists have "more complex [and] more specialized knowledge" (M9) and auditors "don't have the requisite expertise" (P1). Interviewees did not seem to think that auditors *should* have as much valuation knowledge as specialists; rather, their comments reflect the necessity of trusting the expert system because auditors simply do not have the valuation knowledge that specialists have.

Finally, the problems identified by interviewees reflect the necessity of trust in valuation specialists due to increased complexity. The three types of problems arising out of the inherent

uncertainty in fair values all support this theme. Problems related to information flow reflect this theme because fair values are so complex that auditors do not always realize what information they need from clients and must rely on specialists to use the information and input from clients to develop independent estimates of fair values. The complexity in fair values—driven by the nature of accounts measured at fair value, changes in valuation techniques (such as new valuation methods, models, and industry norms), and complicated regulatory and audit firm requirements—leaves auditors uncertain about what constitutes sufficient evidence from specialists because auditors must rely on specialists without fully understanding their work. Finally, the complexity in fair values also means that multiple points of view may be acceptable, so auditors must rely on specialists to help them justify the audit team's chosen point of view. Additionally, specialists and auditors develop different perspectives that can lead to challenges because the two groups have different educational and work experiences. This problem highlights the necessity of trusting valuation specialists, because mastery of auditing fair values now requires extensive education and experience in accounting and finance in the absence of trusting a specialist.

Who is the Expert? Tension between Auditors' Dual Roles as Experts and Laypeople

The second theme to emerge from the interviews is the tension between auditors' traditional role as experts in auditing and their increasing dependence on an expert system of valuation specialists within the larger expert system of auditing. As fair values increase in complexity and subjectivity, auditors take on a new role mediating discrepancies over subjective values instead of their traditional role testing and concluding upon verifiable values (Smith-Lacroix et al. 2012). One partner (P4) described his role as follows:

> It's a tricky thing. . . all I try to do is break down where the differences are [by] saying, okay, this is how [the client's] valuation folks are doing it. This is what we think, and here's our data. And then try and negotiate through it.

Experts hold more power than laypeople, and auditors have historically found themselves in a powerful position within the system of auditing (Englund et al. 2011). The new role of auditors relying on an expert system in addition to their traditional role as experts themselves creates tension as power shifts from auditors to specialists. One manager (M11) reflected several interviewees' sentiments by asking, "What part as an audit team are we supposed to be comfortable with. . . how far does our responsibility go?" The resulting tension is evident in all stages of specialists' involvement in audits of fair values and in the problems encountered.

The tension in auditors' dual roles first manifests when auditors decide whether to use specialists. Auditing standards hold auditors responsible for the planning and supervision of audits, even when specialists are involved (PCAOB 2010a, 2010b). However, auditors often involve specialists in making this planning decision because specialists have expertise that helps auditors determine whether and how to use a specialist. This seems to decrease auditors' roles as experts. Yet, some audit firms provide guidelines and decision aids to help auditors decide whether to use a specialist. These prescribed decision criteria may serve to preserve auditors' roles as experts by institutionalizing or standardizing the decision process (Power 1995, 1996).

During audit testing, the division of procedures and conclusions among auditors and specialists further demonstrates the tension between auditors' dual roles. Specialists perform the procedures that require substantial valuation expertise, while auditors perform the procedures that they have historically performed for other (non-fair value) accounts and for which they have relevant audit expertise. This division of labor allows auditors to maintain a sense of security in their level of expertise (i.e., ontological security) because they do not have to remediate their

lack of valuation expertise to perform the procedures requiring valuation expertise. Instead, auditors can remain comfortable that they have sufficient expertise because the other procedures are specialists' responsibility. Similarly, specialists make the intermediate conclusions about individual inputs and assumptions, and even about fair values of given items, but "the audit team always has the responsibility for making overall conclusions, taking into consideration the financial statements taken as a whole. . . [we] never delegate that responsibility to any specialist" (P3). In this way auditors retain control and power over the final outcome of the audit, preserving their role as experts. Auditors also filter information from clients to specialists, which restricts access points between specialists and clients with the result that auditors alone occupy the expert role in the eyes of their clients. Finally, the general knowledge sharing between specialists and auditors and auditors' limitations on specialist discretion over the procedures they perform evidence the tension in auditors' roles. If auditors were willing to give up their role as experts they would not pursue valuation knowledge, because less knowledge makes it easier to trust an expert system (Giddens 1990). Similarly, auditors would allow specialists more discretion over procedures if they believed specialists filled the role of *audit* expert as well as *valuation* expert. Yet, interviewees described how "the specialists work under the direction of the auditors" (M1) and how they have to "manage [the] internal specialist" (P1), indicating that auditors view their role as distinct from their specialists' role.

The tension in auditors' dual roles also appears when auditors use specialists' work to make conclusions. The PCAOB and financial statement users view auditors as ultimately responsible for the audit and therefore as experts in the system of auditing. However, interviewees described auditors' review of specialists' work in vague and uncertain terms, and some auditors rely on specialists' work without extensive review. These practices indicate

auditors' reliance on valuation specialists as a second layer of expertise in the system of auditing (Smith-Lacroix et al. 2012). In addition, auditors edit specialists' memos before they consider the audit complete. A manager (M2) explained that the audit team "translate[s] what [specialists] are saying into something we can understand." By doing this, auditors assert their expertise and ownership of the audit process, which preserves their role as experts. Auditors simultaneously make the specialist's memo "their own" and reaffirm their expert role by using their knowledge of PCAOB requirements and audit firm policies to improve their specialists' documentation. Finally, auditors balance the tension between relying on specialists and bearing final responsibility for the audit by deciding whether to communicate specialists' concerns to clients, rather than allowing specialists unfettered access to clients. Thus, many of auditors' practices during the final stage of specialist involvement convey the tension between auditors' traditional role as experts and new role as adherents to an expert system of valuation specialists.

The tension between auditors' dual roles also emerges from auditors' descriptions of problems arising from specialist involvement. The problems that arise from the division of labor between auditors and specialists support this theme. Coordination issues, differences in perspectives, and uncertainty about respective responsibilities must all be resolved by one party conceding to the other; whichever party concedes likely experiences a loss of power and consequently loses some of its expert standing (Giddens 1991, 1994; Reed 2001). Most indicative of the tension in auditors' roles are problems related to uncertainty about responsibility. Auditors must assume responsibility for the final conclusion, but they sometimes struggle to convince their specialists to agree to the audit team's conclusion. This signifies the tension in auditors' roles because auditors must simultaneously bear the final responsibility for the audit and win the specialist's "expert" approval.

Importance of Access Points for Building Trust

The third theme to emerge from the interviews is the importance of access points at which auditors build trust in their specialists, and by extension in the expert system. As a manager (M10) explained

> That's probably the one important thing, just making sure that everybody's developing those relationships internally within the organization so that you feel that trust.

The new second layer of valuation expertise required of auditors (Smith-Lacroix et al. 2012) leads auditors to value interactions with their specialists throughout all stages of the audit. A manager (M3) notes that what auditors "really like to have is a knowledge sharing at the end of the day. . . since it's our audit." Each interaction is another access point where auditors observe factors that increase or decrease their trust in specialists' expertise.

Specialists' participation in decisions about their involvement creates the first access point at which auditors can build trust in specialists. Auditors consider specialists' characteristics such as industry expertise and experience with the client or audit team when deciding to involve a particular specialist; these characteristics enable auditors to trust specialists. Auditors observe these factors for the first time when specialists join in the planning meeting to determine whether or how to involve a specialist. Auditors also value specialists who have a "broad perspective," suggesting that auditors' trust in specialists develops at access points due to more than just a narrowly defined set of skills and expertise in valuation modeling.

Interviewees emphasized the importance of frequent and meaningful communication with specialists during audit testing and as auditors make their final conclusions about fair values, which one manager (M9) characterized as:

> Just a lot of communication. . . really it's about just being careful with communication, being deliberate and mindful about communicating expectations.

This emphasis on communication creates more access points, allowing auditors more opportunities to build trust in specialists and feel comfortable bearing responsibility for a process that they do not fully understand. During these stages of specialists' involvement, specialists' documentation serves as another form of communication that can create access points. Caveats in specialists' memos constitute access points that can either build or reduce trust. If the audit team determines the caveat is irrelevant or has been included to minimize the specialist's own responsibility, trust in the specialist will likely decrease. Similarly, when auditors review specialists' memos they must search for limitations or problems "buried" within the memo. The discovery of such issues would also decrease trust in the specialist. Therefore, specialists' documentation creates access points throughout much of the process of auditing fair values, even in the absence of face to face interaction, and these access points can increase or decrease trust.

Finally, coordination problems between auditors and specialists reflect the importance of access points. Specialists' busy schedules can hinder coordination and limit access points. Coordination issues manifest as delays in sending and receiving work to specialists and confusion about who is doing what. Clearly delays and confusion do not inspire trust, and the accompanying reduction in access points driven by the inability to coordinate meetings and communicate with specialists would exacerbate any lack of trust.

7. Conclusion

Auditors increasingly use valuation specialists when auditing fair values and other complex estimates (PCAOB 2009), yet researchers and standard setters know little about how auditors use valuation specialists (Cannon and Bedard 2014). The purpose of this study is to understand auditors' use of valuation specialists and the implications of specialists' involvement for audit quality. To do this, I interviewed 28 experienced auditors to learn how auditors decide

to use specialists, how auditors use specialists during audit testing, how auditors use the work of specialists to make conclusions, and what type of problems auditors have when working with specialists. Given the lack of relevant guidance in auditing standards, I considered the interviews from the theoretical perspective of trust in expert systems (Giddens 1990, 1991) to better understand the influences on the development of audit practice in this area.

Interviewees provided insight into each stage of specialists' involvement in auditing fair values and into problems auditors experience when working with specialists. Overall I find that auditors adapt existing guidance on the use of external non-accounting specialists for their use of internal valuation specialists. This guidance does not contemplate the types of accounts that have risen to prominence in recent years; thus, auditors have also developed some practices regarding valuation specialists that do not originate in the existing auditing standards. These include: using valuation specialists to help decide if auditors need to use a specialist and to evaluate clients' expertise and fair value hierarchy classifications (e.g., Level 1, 2, or 3), editing specialists' documentation before including it in the audit file, and filtering information between clients and valuation specialists. Problems arise from the division of labor between auditors and specialists and from the inherent uncertainty and subjectivity in fair values because auditors, though ultimately responsible for audit judgments, must rely to a great extent on work done by their specialists that they cannot fully understand or review in the way they review other audit work papers. Several of these practices and problems collectively convey a tendency among auditors to make specialists' work conform to the prevailing audit team view. Consistent with this tendency, the interviews convey tension in auditors' traditional role as experts in auditing and their new concurrent role as dependent on experts in valuation. Though counter-intuitive, it

is increasingly necessary for auditors to rely on other experts in order to maintain their own role as experts.

This study makes several contributions to research and practice. First, it provides a framework for the role of valuation specialists in auditing fair values that should be useful to researchers and standard setters who hope to address the audit quality implications of specialists' involvement. This study is particularly relevant to standard setters, as the PCAOB plans to consider changes to the auditing standard on using specialists in the near future (PCAOB 2012). As current auditing standards do not provide guidance for auditors using *internal* non-accounting specialists and do not contemplate the types of accounts that have risen to prominence recently, information about auditors' use of internal valuation specialists may be especially important in standard setters' considerations. Second, this study contributes to theoretical views of auditors as experts by examining the causes and consequences of the tension in auditors' dual roles as experts in auditing and adherents to an expert system of valuation specialists. Third, this study extends the literature on auditing fair values and other complex estimates by taking a closer look at a key part of the overall process, providing a starting point for empirical research exploring the consequences of alternative forms of specialist involvement. Finally, this study brings practitioners' concerns about an important and challenging area of practice into the accounting literature, which helps bridge the gap between accounting research and practice.

It is important to consider this study in the context of the limitations imposed by tradeoffs in research design choices. I interviewed a relatively small, non-random sample of very experienced auditors. I limited my sample size to allow for longer interviews, as my goal is to understand the entire cycle of specialists' involvement in auditing fair values and the associated problems. Finally, these participants are not representative of all auditors across all levels at

their firms. However, to the extent that they described what they perceive to be important aspects of specialists' involvement in auditing fair values and important problems that occur when using specialists, the insights gained from this study will be useful to researchers, standard setters, and practitioners interested in understanding and improving the quality of audits of fair values.

Table 2.1
Individual Interview Participant Details

Panel A: Audit Partners

ID	Rank[15]	Years of experience	Primary industry(ies)	Type of estimate discussed	% of engagements in past year that involved valuation specialist	Big 4 firm?
P1	Partner	20	Private companies	Auction rate securities	13%	Yes
P2	Partner	30	Non-profit; Higher education	Alternative investments	10%	Yes
P3	Partner	25	Financial services	Portfolio securities	39%	Yes
P4	Partner*	32	Financial services	Private equity investments	75%	Yes
P5	Partner*	35	Insurance	Portfolio securities	100%	Yes
P6	Partner	20	Non-profit; Health care	Alternative investments	60%	Yes
P7	Partner	18	Financial services	Goodwill	100%	Yes
P8	Partner	22	Real estate	Goodwill; Land impairment	80%	Yes
P9	Partner	22	Insurance	Alternative investments	100%	Yes
P10	Managing director*	17	Benefit plans; Consumer goods	Alternative investments	25%	No
P11	Partner	12	Technology	Customer lists	67%	No
P12	Partner*	30	Non-profit; Consumer goods	Goodwill; Franchise rights	25%	No
P13	Partner*	19	Real estate	Real estate; Impairment	71%	Yes
P14	Partner	15	Consumer goods; Manufacturing	Goodwill	40%	Yes
P15	Partner*	27	Insurance; Financial services	Real estate	80%	No
Means:		*22.9*			*59%*	

[15] Participants whose ranks are marked with an asterisk also have technical consultation responsibilities at the local, regional, or national level.

Panel B: Audit Managers

ID	Rank[16]	Years of experience	Primary industry(ies)	Type of estimate discussed	% of engagements in past year that involved valuation specialist	Big 4 firm?
M1	Manager	5	Consumer goods	Trademark; Goodwill	60%	Yes
M2	Senior manager	13	Insurance	Alternative investments	17%	Yes
M3	Manager	7	Non-profit; Manufacturing	Alternative investments	40%	Yes
M4	Senior manager	12	Real estate	Real estate investments	60%	Yes
M5	Senior manager	12	Technology	Goodwill	83%	Yes
M6	Manager	7	Consumer goods	Goodwill; Land impairment	100%	Yes
M7	Senior manager	10	Consumer goods; Manufacturing	Goodwill	80%	No
M8	Senior manager*	9	Consumer goods	Trademark; Customer lists	80%	No
M9	Manager	6	Technology; Manufacturing	Goodwill	42%	No
M10	Manager	9	Benefit plans	Trademark	24%	No
M11	Manager	7	Non-profit; Technology	Contingent liabilities	90%	No
M12	Senior manager*	14	Consumer goods; Manufacturing	Real estate	50%	Yes
M13	Senior manager	9	Financial services; Consumer goods; Manufacturing; Technology	Real estate; Allowance for loan losses	83%	No
Means:		*9.2*			*62%*	

[16] Participants whose ranks are marked with an asterisk also have technical consultation responsibilities at the local, regional, or national level.

Table 2.2
Interview Participant Demographics[17]

Panel A: Interviewee Characteristics

	Partner	Manager	Combined
Number	15	13	28
Number with technical consultation responsibilities	6	1	7
Average experience (years)	22.9	9.2	16.6
Range of experience (years)	12 – 35	5 – 14	5 – 35
Number of firms represented	6	6	6
Number of cities represented	3	2	4
Number of industries represented[18]	11	7	12
Number discussing Level 2 fair value estimates	7	3	10
Number discussing Level 3 fair value estimates[19]	15	13	28
Average percentage of engagements in past year that involved a valuation specialist	59%	62%	61%
Range of percentage of engagements in past year that involved a valuation specialist	10 – 100%	17 – 100%	10 – 100%

Panel B: Audit Firm Characteristics

	Firm Type	
	Big 4 (n = 18)	**National** (n = 10)
Use only internal valuation specialists	18	4
Use only external valuation specialists	0	2
Use both internal and external valuation specialists	0	4
	18	10

[17] Additional details by participant (years of experience, type of estimate discussed, etc.) appear in Table 2.1.
[18] Based on interviewees' primary client industries. The 12 unique industries identified by interviewees include: benefit plans, consumer products, financial services, health care, higher education, insurance, manufacturing, non-profit organizations, private entities, real estate, technology, and valuation services.
[19] Some interviewees discussed experiences in which both Level 2 and Level 3 fair values were present. Thus, the total of Level 2 and 3 combined is greater than the number of interviewees.

Table 2.3
Factors in the Decision to Use a Specialist

Factor	Number of interviewees	Percentage of interviewees	Number of unique items	Percentage of total unique items
Account or estimate characteristics[20]	28	100.0%	124	37.3%
Client characteristics	28	100.0	63	19.0
Specialist characteristics[20]	19	67.9	35	10.5
Audit team characteristics[20]	19	67.9	24	7.2
Firm policy and decision aids	14	50.0	19	5.7
Specialist input	11	39.3	15	4.5
Budget concerns	4	14.3	4	1.2
Other	1	3.6	1	0.3
			332	100.0

[20] Indicates this item is suggested by guidance on using specialists provided by current U.S. auditing standards.

Table 2.4
Procedures Performed by Audit Team vs. Specialist

Panel A: Evidence-Gathering Procedures

Description	Responsible Party:[21]			Number of interviewees	% of interviewees	Number of unique items	% of total unique items
	Specialist	Audit team	Shared				
Evaluate assumptions:[22]	70.3%	27.3%	2.3%	28	100.0%	189	62.0%
Client's financial projections	*32.7*	*65.3*	*2.0*	*19*	*67.9*	*49*	*25.9*
Discount rate and related items	*97.7*	*2.3*	*0.0*	*18*	*64.3*	*44*	*23.3*
Benchmarks/market comparables	*90.7*	*9.3*	*0.0*	*18*	*64.3*	*43*	*22.8*
Industry-wide assumptions	*100.0*	*0.0*	*0.0*	*4*	*14.3*	*7*	*3.7*
General understanding of why client or third party chose assumptions	*90.0*	*20.0*	*0.0*	*3*	*10.7*	*5*	*2.6*
Assumptions about accounting treatments	*100.0*	*0.0*	*0.0*	*2*	*7.1*	*2*	*1.1*
Unspecified assumptions	*76.9*	*17.9*	*5.1*	*23*	*82.1*	*39*	*20.6*
Evaluate method[22]	92.6	1.9	5.6	24	85.7	54	17.7
Evaluate client or third party expertise	61.1	22.2	11.1	12	42.9	18	5.9
Plan audit approach	0.0	58.8	41.2	11	39.3	17	5.6
Check mathematical accuracy of model	62.5	25.0	12.5	8	28.6	8	2.6
Test objective data	14.3	85.7	0.0	5	17.9	7	2.3
Test controls	20.0	80.0	0.0	4	14.3	5	1.6
Evaluate client's Level 1, 2, or 3 classifications	50.0	25.0	25.0	3	10.7	4	1.3
Other	33.0	33.0	0.0	2	7.1	3	1.0
						305	100.0

[21] Frequencies are based on the responsible party identified for each unique item. Interviewees did not always identify the responsible party(ies) for each evidence-gathering procedure they discussed, so the sum across these three columns may be less than 100 percent.
[22] Indicates this item is suggested by guidance on using specialists provided by current U.S. auditing standards.

Panel B: Other Functions Performed by Specialists[23]

Description	Number of interviewees	% of interviewees	Number of unique items	% of total unique items
Document caveats for audit team	18	64.3%	32	72.7%
Review audit team's work related to fair value	3	10.7	6	13.6
Other	3	10.7	6	13.6
			44	100.0

[23] All of the items described in Panel B are performed exclusively by valuation specialists.

Table 2.5
Conclusions Made by Audit Team vs. Specialist

Description	Responsible Party:[24] Specialist	Audit team	Shared	Number of interviewees	% of interviewees	Number of unique items	% of total unique items
Fair value of a component of a financial statement balance is reasonable	75.0%	15.6%	6.3%	20	71.4%	32	45.1%
Individual inputs or assumptions are within acceptable or reasonable range[25]	88.2	11.8	0.0	13	46.4	17	23.9
Financial statements are/are not materially misstated[25]	0.0	90.0	0.0	9	32.1	10	14.1
Method is acceptable or reasonable	66.7	0.0	33.3	5	17.9	6	8.5
Presence and amount of impairment, and whether temporary or permanent	66.7	33.3	0.0	3	10.7	3	4.2
Client's Level 1, 2, and 3 classifications are reasonable	0.0	50.0	0.0	2	7.1	2	2.8
Specialist's work agrees with audit team's conclusions	100.0	0.0	0.0	1	3.6	1	1.4
						71	100.0

[24] Frequencies are based on the responsible party identified for each unique item. Interviewees did not always identify the responsible party(ies) for each conclusion they discussed, so the sum across these three columns may be less than 100 percent.
[25] Indicates this item is suggested by guidance on using specialists provided by current U.S. auditing standards.

Table 2.6
Interactions and Influence between Audit Team and Specialist

Description	Number of interviewees	% of interviewees	Number of unique items	% of total unique items
Information flow among client, audit team, and specialist	27	96.4%	110	59.1%
Interactions between audit team and specialist	24	85.7	58	31.2
General knowledge sharing by specialist	9	32.1	12	6.5
Limited discretion over procedures allowed to specialist	4	14.3	6	3.2
			186	100.0

Table 2.7
Using the Work of Specialists to Make Audit Conclusions

Panel A: Focus of Audit Team's Review of Specialist's Work

Description	Number of interviewees	% of interviewees	Number of unique items	% of total unique items
General understanding of specialist's work	16	57.1%	24	22.4%
Sufficiency of specialist's work and documentation	14	50.0	23	21.5
Consistency with other audit evidence and external data	11	39.3	21	19.6
Respective responsibilities of audit team and specialist fulfilled[26]	11	39.3	15	14.0
Reliance without extensive review	10	35.7	19	17.8
Other	5	17.9	5	4.7
			107	100.0

Panel B: Additional Procedures Performed by Audit Team

Description	Number of interviewees	% of interviewees	Number of unique items	% of total unique items
Address differences between specialist and client[26]	26	92.9%	76	32.5%
Edit and finalize specialist's documentation	24	85.7	49	20.9
Identify and address limitations and follow-up items[26]	21	75.0	62	26.5
Document overall conclusion	16	57.1	27	11.5
Decide whether specialist's recommendations will be communicated to client	13	46.4	18	7.7
Other	2	7.1	2	0.9
			234	100.0

[26]Indicates this item is suggested by guidance on using specialists provided by current U.S. auditing standards.

Table 2.8
Auditor Involvement with Specialists Across Ranks

	Level of auditor involved[27]			
Stage of audit:	**Staff**	**Senior**	**Manager**	**Partner**
1. Decide to use specialist	3 (10.7%)	9 (32.1%)	15 (53.6%)	16 (57.1%)
2. Perform audit testing	3 (10.7%)	19 (67.9%)	20 (71.4%)	14 (50.0%)
3. Make conclusions based on specialist's work	3 (10.7%)	17 (60.7%)	24 (85.7%)	22 (78.6%)

[27] The table shows the number (percentage) of interviewees who indicated the rank of auditor that was involved in each stage. Sums across each row exceed 100 percent because most interviewees indicated that more than one rank of auditor is involved in each stage.

Table 2.9
Problems Encountered by Auditors Working with Specialists

Problem	Number of interviewees	% of interviewees	Number of unique items	% of total unique items
Coordination between specialist and auditor	22	78.6%	35	24.1%
Information flow and coordination with client and client's third party	19	67.9	33	22.8
Differences in perspective between specialist and auditor	17	60.7	37	25.5
Uncertainty regarding what constitutes sufficient evidence from specialist	11	39.3	16	11.0
Uncertainty regarding respective responsibilities of specialist and auditor	9	32.1	13	9.0
Acceptability of multiple points of view	9	32.1	10	6.9
Other	1	3.6	1	0.7
			145	100.0

CHAPTER 3

AUDITING COMPLEX ESTIMATES: THE INTERACTION OF AUDIT-TEAM SPECIALISTS' CAVEATS AND CLIENT SOURCE CREDIBILITY[28]

[28] Griffith, E. E. To be submitted to *The Accounting Review*.

Abstract

Audit-team specialists (valuation specialists employed by the audit firm) who evaluate a subset of the assumptions integral to a complex estimate often include *caveats* on otherwise-clean results to communicate reservations about certain assumptions to auditors. Although caveats can contain interpretation that may improve auditors' judgments about estimates, auditors do not uniformly view caveats as helpful and the effect of caveats on auditors' judgments has not been explored. In this study, I investigate the conditions under which auditors benefit from audit-team specialists' caveats. Given the inherent subjectivity in estimates and the difficulty in integrating the results of all of the audit procedures to conclude on an estimate overall, I expect auditors to discount audit-team specialists' caveats unless another cue has already increased auditors' concern about an estimate. One important cue in the estimates arena is the perceived credibility of the source of the estimate because audits of estimates often require relying on clients' assertions about future events, for which relatively little objective evidence exists. I experimentally examine how a caveat interacts with auditors' perceptions of their clients' source credibility to affect their judgments about estimates. Drawing on theories of elaboration and persuasion, I predict and find that auditors' evaluation of evidence related to a biased estimate and subsequent judgments benefit from a caveat when auditors perceive the initial preparer of an estimate to have relatively low source credibility; auditors who perceive the initial preparer to have higher source credibility discount the caveat and judge a biased estimate as more reasonable. This initial evidence about the interactive effect of caveats and perceived client source credibility suggests auditors do not always make full use of their specialists' work and suggests avenues for research to improve auditors' use of specialists' work.

1. Introduction

Audit-team specialists (i.e., valuation specialists without auditing backgrounds employed by the audit firm) who evaluate a subset of the assumptions integral to a complex estimate often include *caveats* on otherwise-clean results to communicate reservations about certain assumptions to auditors.[29] Caveats can potentially improve auditors' judgments about estimates by helping auditors, who must integrate all of the audit evidence about individual assumptions to conclude whether an estimate is reasonable overall, to understand the implications of audit-team specialists' results for other assumptions. Regulators and auditors have raised concerns about the quality of audits of estimates, driven in part by the difficulty auditors have integrating all of the evidence related to an estimate (PCAOB 2010e, 2011; Cannon and Bedard 2013; Griffith et al. 2014a). However, research has not examined the effects of caveats on auditors' integration of evidence and subsequent judgments. Audit-team specialists' use of and auditors' views about the usefulness of caveats vary in practice, and auditing standards do not contemplate audit-team specialists' use of or auditors' responses to caveats (Griffith 2014).

In this study, I investigate the conditions under which auditors' integration of evidence and subsequent judgments benefit from audit-team specialists' caveats. Given the inherent subjectivity in estimates, auditors may discount caveats because a caveat on its own does *not* identify a misstatement. Rather, a caveat communicates an audit-team specialist's reservation about an assumption, despite concluding the assumption is reasonable. Thus, auditors may easily dismiss caveats in the absence of heightened concern about an estimate. I expect caveats to help when auditors believe they need to scrutinize a client's estimate more closely, such as when they believe a client is less able to prepare an estimate free of errors and bias, and to discount caveats

[29] Complex estimates involve multiple assumptions and/or computationally difficult models (Griffith et al. 2014a). Examples include level 2 or 3 fair values, goodwill and other impairments, valuation allowances, loss reserves, stock option expenses, and derivatives. Hereafter, I refer to complex estimates simply as "estimates."

otherwise. I expect the perceived source credibility (i.e., expertise and objectivity) of an estimate's initial preparer to be especially influential because auditors must often rely on clients' assertions about future events when auditing estimates, as relatively little objective evidence exists (PCAOB 2009). However, over-reliance on clients' information increases the chance that auditors overlook potential issues in estimates, especially when issues are indicated by patterns or inconsistencies among assumptions that appear reasonable individually (Griffith et al. 2014a).[30] Caveats can help auditors recognize such patterns and inconsistencies by prompting auditors to consider how each assumption relates to the other assumptions—but only when auditors are receptive to caveats because they are already concerned about the estimate.

I test this expectation in an experiment in which I asked auditors to evaluate a biased estimate being used in a client's goodwill impairment analysis. In the case, the client concludes that estimated fair value exceeds book value and thus goodwill is not impaired. However, the assumptions underlying the estimate form a pattern of management bias that implies the fair value is overstated and goodwill is therefore likely to be impaired. Importantly, each assumption appears reasonable individually, so integrating the evidence related to each assumption and considering the assumptions' cumulative impact on the fair value is critical in identifying management bias in the estimate. I manipulated the presence or absence of a caveat by giving half the participants an audit-team specialist's memo that notes that the assumptions tested by the audit-team specialist appear to be aggressive, despite concluding that each assumption falls within a reasonable range. I measured auditors' perceptions of the source credibility of the initial

[30] For example, a client's estimate might rely upon assumptions that future revenue will increase and future expenses will decrease. Each assumption (i.e., increasing revenue, decreasing expenses) may be individually reasonable and supported by management's plans to (1) open new retail stores to increase revenue and (2) cut back on retail sales personnel to decrease expenses. Yet, these two assumptions are inconsistent with each other because the planned increase in stores suggests that management will have to *increase*, not decrease, sales personnel to staff incremental stores. Thus the two assumptions in combination suggest the estimate may be based on unreasonable assumptions even if each assumption appears reasonable on its own.

preparer of the client's estimate. I manipulated the preparer of the client's estimate as an in-house preparer or external third party preparer to induce variability in auditors' perceptions of preparer source credibility and to examine the generalizability of my theory.

I expect the effect of the caveat in the audit-team specialist's memo to depend on auditors' perceptions of the source credibility of the initial preparer of the estimate, because lower perceived source credibility of the originator of a persuasive message increases scrutiny of evidence related to the message from *other* sources (Grewal et al. 1994). An estimate constitutes a persuasive message from a client; an audit-team specialist's caveat constitutes message-related evidence from a source other than the client. People attempt to systematically process and evaluate, or *elaborate* on, evidence related to a message to a greater extent when they are more motivated to do so. Regardless of motivation, successful elaboration cannot occur if task demands make elaboration prohibitively difficult (Petty et al. 1997; Kruglanski et al. 2007). Greater elaboration causes more accurate assessments of the validity of a message based on the underlying evidence. Auditors' difficulties evaluating assumptions (e.g., PCAOB 2010b, Griffith et al. 2014a) suggest that they do not always elaborate sufficiently on evidence or accurately assess the validity of estimates. An audit-team specialist's caveat may reduce the task demands required to elaborate by providing interpretation of audit-team specialists' results that helps auditors understand the implications for and patterns among the *rest* of the assumptions. However, this will only help auditors if another cue such as lower perceived source credibility has already motivated them to elaborate by heightening their concerns about an estimate. Greater elaboration on the evidence related to estimates should improve auditors' judgments about estimates because it fosters integration of the evidence related to each assumption and consideration of the cumulative impact of changes to multiple assumptions.

I predict and find that auditors who both receive a caveat and perceive the initial preparer of an estimate as relatively less credible elaborate more on the evidence, more effectively identify potential issues, judge a biased estimate as less reasonable, and are more likely to recommend adjusting a biased estimate than auditors in other conditions. Mediation analyses reveal that elaboration contributes to auditors' issue identification, and issue identification contributes to auditors' judgments of how likely the estimate is to be reasonable. These analyses support elaboration and issue identification as the mechanisms by which the effects on auditors' identification of issues in and subsequent judgments about estimates occur. Supplemental analyses indicate auditors are more willing to adjust estimates prepared by third parties than those prepared in-house regardless of perceived source credibility, suggesting an additional social factor influencing auditors' adjustment decisions outside of the process of elaboration and issue identification.

This study makes several contributions. First, it provides insight into the conditions under which caveats help auditors. I find that caveats help auditors evaluate estimates when they perceive the initial preparer of an estimate to be less credible, but not when they perceive the preparer to be more credible, suggesting that auditors do not always make full use of their specialists' expertise. Caveats provide interpretation of audit-team specialists' results that can help auditors understand how to relate those results to the results of testing other assumptions and to the estimate overall. However, auditors appear to disregard the interpretation contained in caveats when they perceive higher source credibility. Thus, auditors do not always effectively use available cues about estimate quality, despite audit-team specialists' valuation expertise that might enable them to identify potential issues that auditors would otherwise miss.

Second, this study shows that greater elaboration on the evidence related to estimates can improve these audits when the assumptions collectively suggest an issue but do not appear problematic individually. A crucial, yet difficult, step in auditing estimates is integrating the evidence related to each assumption, particularly when the assumptions appear reasonable individually (PCAOB 2010e, 2011; Griffith et al. 2014a). Recent research has begun to examine how to promote integration of evidence to improve audits of estimates (Griffith et al. 2014b; Rasso 2014; Backof et al. 2014), and research on fraud detection demonstrates that more integrative, critical thinking helps auditors integrate cues to identify problems that are not apparent when cues are considered individually (Hoffman and Zimbelman 2009; Hammersley et al. 2011; Simon 2012). This study shows that the elaboration caused by a caveat aids auditors' integration of evidence. More generally, recognizing problematic patterns among cues (i.e., integrating evidence) is difficult for auditors who lack sufficient task-specific expertise (Hammersley 2006). Caveats may help auditors in this regard by promoting elaboration through reduced task demands.

Third, this study extends auditing research on source credibility. While prior research shows that auditors rely more on evidence from more credible sources (Hirst 1994; Anderson et al. 2004), it does not examine the mechanisim by which this occurs or how the credibility of one source of evidence affects auditors' reliance on evidence from other sources. I show that source credibility works by affecting the extent of elaboration on evidence presented, which affects reliance on that evidence and the perceived reasonableness of a biased estimate. In addition, I provide evidence of auditors' reluctance to challenge estimates prepared by in-house preparers relative to third party preparers, independent of perceived source credibility.

Finally, I contribute to psychology research on the determinants of elaboration in the persuasion paradigm. This research characterizes source credibility as a peripheral cue to be processed once some other determinant causes a person to elaborate more or less on the central arguments supporting a persuasive message (e.g., Petty et al. 1997; Crano and Prislin 2006; Bohner and Dickel 2011). In the audit setting, however, source credibility itself can be a relevant determinant of motivation to elaborate. I provide evidence of this unexplored role of source credibility in persuasion.

The remainder of this study proceeds as follows. The next section describes the challenges unique to and audit-team specialists' role in auditing estimates. The third section develops the theory and hypotheses. The fourth section describes the research design. The fifth section discusses the results, and the final section discusses the implications and future research directions suggested by this study.

2. Background

Identifying Potential Misstatements in Estimates

The inherent subjectivity and uncertainty in estimates require auditors to evaluate the overall reasonableness, rather than verify the accuracy, of estimates by evaluating the reasonableness of the model, inputs, and assumptions used to determine an estimate (PCAOB 2009; Griffith et al. 2014a). Auditors must consider assumptions individually and in combination, because assumptions that appear reasonable individually may be inconsistent with each other (e.g., increasing sales but decreasing cost of sales) or may form a pattern suggestive of management bias (e.g., several assumptions at the estimate-increasing end of the range). Estimates are prone to bias because they rest upon assumptions about future performance, discount rates, and industry conditions that are subjective and difficult for auditors to evaluate,

and consequently could be biased by management (Martin et al. 2006; Lundholm 1999). The PCAOB has expressed concern that management faces increased pressures that may lead to greater bias in estimates (PCAOB 2011), and several studies document the existence of bias in a variety of estimates reported in audited financial statements (for a review see Bratten et al. 2013). Thus, misstatements in estimates may only be evident to auditors when they consider the assumptions in combination (PCAOB 2011, ¶51-55).

The increasing complexity and volume of estimates included in financial statements has led a growing number of clients to use third party valuation preparers (hereafter, *client third parties*) to prepare their estimates (Dichev et al. 2013). Several accounting and non-accounting firms offer client third party services. Management provides or influences the inputs used by client third parties, so estimates prepared by third parties can still contain management bias (Deloitte 2012). Small tweaks to one or more subjective inputs can change an estimate by an amount many times greater than auditors' materiality thresholds, even when the tweaks do not push inputs outside of auditors' reasonable ranges (Christensen et al. 2012). Thus, auditors must evaluate the cumulative effect of seemingly innocuous changes in assumptions on estimates and consider the potential for bias in estimates, even if a client third party prepares an estimate.

Audit-Team Specialist Involvement in Auditing Estimates

The prevalence of estimates has also led the major accounting firms to employ valuation specialists to assist auditors in evaluating the reasonableness of some elements in estimates (Smith-Lacroix et al. 2012; Griffith 2014).[31] These audit-team specialists have finance and valuation backgrounds rather than auditing backgrounds, allowing them to provide valuation expertise that auditors tend to lack (Martin et al. 2006; Griffith et al. 2014a). Audit-team

[31] In a related study, I interviewed 28 audit partners and managers regarding their use of audit-team specialists when auditing fair values. The description of the institutional setting contained in this section is based on those interviews. For further institutional detail, see Griffith (2014).

specialists typically evaluate the method used to develop estimates and evaluate assumptions about discount rates, market benchmarks, and general industry or economic trends. In contrast, auditors typically evaluate assumptions about clients' financial measures such as future revenues and expenses. Auditors are responsible for concluding whether an estimate is materially misstated (PCAOB 2003, ¶12-14), even though they perform only a subset of the procedures to test the estimate. Therefore, auditors review the work prepared by both the audit team and the audit-team specialist to make their overall conclusions about estimates.

Audit-team specialists document their work in a memo that details the work performed, results obtained, and conclusions reached about each item or assumption that they evaluate. Audit-team specialists' memos generally do not contain an overall conclusion about the estimate, unlike other audit work papers (Rich et al. 1997b). Rather, audit-team specialists conclude on each assumption tested, often by stating whether the assumption falls within a reasonable range.

Audit-team specialists' memos often contain *caveats* on the conclusions about individual assumptions.[32] Caveats communicate audit-team specialists' reservations about the assumptions they tested based on their limited view of the estimate. Caveats thus convey uncertainty about assumptions that audit-team specialists have nevertheless concluded are reasonable.

When auditors review audit-team specialists' memos, they must integrate the results of audit-team specialists' work with the rest of the audit team's work to determine whether estimates contain misstatements. Detecting potential misstatements in estimates often requires recognizing a pattern among pieces of evidence that individually appear reasonable, which is difficult for auditors to do (PCAOB 2011; Griffith et al. 2014a). Integrating the evidence related to each assumption is especially important when evaluating management bias in estimates because auditors must evaluate the cumulative effect of several biased assumptions that

[32] Eighteen of 28 auditors interviewed noted that audit-team specialists use caveats (Griffith 2014).

individually appear reasonable (PCAOB 2010c, ¶27, 2011; Griffith et al. 2014a). This includes the assumptions tested by the audit team and by the audit-team specialist. Yet, some auditors seem to scan audit-team specialists' memos for conclusions without carefully considering the implications of the audit-team specialist's work on the assumptions tested by the audit team or the estimate overall (Griffith 2014).[33]

3. Theory and Hypotheses Development

Caveats in Audit-Team Specialists' Memos

Caveats communicate audit-team specialists' reservations by alerting auditors to items that may need additional follow-up by the audit team, even though the audit-team specialist has concluded that the item or assumption tested is reasonable (Griffith 2014).[34] Caveats can recommend changes to a client's process, point out open items that the audit team has yet to complete, or warn auditors of potential issues based on the audit-team specialist's interpretation of the results of the (limited) testing s/he performed. The use of caveats varies in practice, and auditing standards do not contemplate the existence of caveats or auditors' responses to them.[35]

Auditors view audit-team specialists' caveats as either helpful or superfluous. Caveats may identify immaterial issues because audit-team specialists tend to lack the audit background necessary to distinguish significant issues from quantitatively and/or qualitatively immaterial issues. While some auditors rely on caveats to understand how to follow up on audit-team specialists' work, others ignore or discount caveats because they believe that audit-team

[33] For example, when the audit-team specialist's memo concludes that an assumption is reasonable, auditors may simply accept and rely on that conclusion without carefully evaluating all of the information documented to support that conclusion. In an effort to curb this behavior, one audit partner tells his audit teams, "Don't just get those [memos] and stick them in the workpapers. Make sure you read them and know what's in them" (Griffith 2014, 32).
[34] The interviews with auditors form the basis for the discussion of caveats in audit-team specialists' memos in this section. For further detail, see Griffith (2014).
[35] Current U.S. standards consider audit-team specialists to be members of the audit team (see AU Section 336, "Using the Work of a Specialist" (PCAOB 2003, ¶5)). Consequently, audit-team specialists' work and auditors' review of their work is governed by Auditing Standard No. 10, "Supervision of the Audit Engagement," which does not provide guidance on caveats in audit-team specialists' memos (PCAOB 2010a).

specialists include caveats to limit responsibility for further work or that caveats identify insignificant issues. A caveat is most likely to be helpful when it provides interpretation of the audit-team specialist's results that helps auditors understand the implications of those results for the rest of the assumptions and the estimate overall. For example, such a caveat might note that one or more assumptions, while falling within the range(s) deemed reasonable by the audit-team specialist, appear aggressive (i.e., fall at the estimate-increasing end of the range). This could help auditors recognize greater potential for management bias in all of the assumptions—not just those tested by the audit-team specialist—that may mean the estimate is materially biased.

Thus, a caveat might help auditors *elaborate* on the evidence related to an estimate, which persuasion theories suggest will improve auditors' assessment of the validity of the message (i.e., estimate) supported by the evidence (Bohner and Dickel 2011; Crano and Prislin 2006; Petty et al. 1997). Elaboration involves attending to a message and related evidence, accessing relevant knowledge from memory, scrutinizing and elaborating on evidence in light of the knowledge accessed, and making inferences about the validity of evidence and its relation to the message (Crano and Prislin 2006; Petty and Cacioppo 1986; Petty et al. 1997). When people do not elaborate, they rely on simple, easily accessible heuristic cues to judge a message's validity rather than evaluating the evidence related to the message (Petty et al. 1997; Chaiken 1980; Petty and Cacioppo 1984).

Greater elaboration on the evidence yields more accurate assessments of message validity, but elaboration requires that task demands are not prohibitively high (Harkins and Petty 1981; Moore and Reardon 1987; Petty et al. 1997; Kruglanski et al. 2007). Integrating the audit team's and audit-team specialist's results to form an overall conclusion on an estimate has high task demands—auditors must use their knowledge of the client, industry and economic

conditions, and valuation models to combine and make inferences about the audit evidence related to an estimate. Auditors often lack valuation knowledge and as a result struggle to evaluate the evidence related to estimates (Martin et al. 2006; Griffith et al. 2014a). A caveat can reduce the task demands required to elaborate on the evidence by providing interpretation of the results of audit-team specialists' testing that helps auditors understand the implications for and patterns among the rest of the assumptions. For example, a caveat noting the client's discount rate is aggressive because it is below the industry average can help an auditor understand the directional relation between the discount rate and the fair value generated by a discounted cash flow model. The same caveat can also prompt an auditor to evaluate whether other assumptions (not tested by the audit-team specialist) are aggressive, and ultimately to consider whether several aggressive assumptions form a pattern indicative of management bias. This type of elaboration is likely to help auditors integrate the results of testing individual assumptions to assess the validity of the estimate overall.

However, auditors' views about the usefulness of caveats are mixed, so caveats' effects likely depend on other contextual features. Auditors view caveats after completing most of the testing of the assumptions that are the audit team's responsibility. Auditors form an initial impression about an estimate based on their testing, and this impression influences how they respond to a caveat. If the initial impression is one of concern about an estimate, auditors are likely to be more motivated to carefully consider a caveat than if the initial impression is one of confidence. A caveat constitutes a piece of evidence related to an estimate to be processed and elaborated upon, so it is more likely to help when auditors are sufficiently motivated to elaborate on the evidence to accurately assess the validity of a message (Crano and Prislin 2006; Bohner and Dickel 2011). In the absence of such motivation, auditors are likely to discount a caveat

because the audit-team specialist has concluded that the individual assumptions tested are reasonable, despite the caveat.

Source Credibility

The perceived source credibility (hereafter, source credibility) of the initial preparer of a client's estimate is an especially important contextual factor in auditing estimates because auditors rely to a greater extent on clients' assertions about future events, as little objective evidence exists for estimates relative to historical cost-based accounts (PCAOB 2009). Moreover, the source credibility of the originator of a persuasive message influences how people process evidence related to that message from *other* sources as well as evidence from the originator (Petty and Cacioppo 1984; Grewal et al. 1994; Chaiken and Maheswaran 1994). An estimate is one of many types of persuasive messages from a client (e.g., Goodwin 1999; Kadous et al. 2005; Kaplan et al. 2008) because the client must persuade the auditor that an inherently uncertain and subjective estimate is appropriate.[36] Thus, the source credibility of the preparer of an estimate can influence how auditors process an audit-team specialist's caveat as well as the evidence provided by the client.

Source credibility refers to the degree to which a person believes a source has provided accurate and unbiased information, and it increases with expertise and objectivity (Pornpitakpan 2004; Birnbaum and Stegner 1979). Thus, auditors' perceptions of the source credibility of the preparer of an estimate depend on the preparer's perceived expertise and objectivity. Factors affecting perceived competence determine expertise; factors affecting perceived opportunity,

[36] Audit work papers also constitute persuasive attempts by subordinate auditors to convince reviewing auditors that enough work has been done to justify the documented conclusion (Rich et al. 1997a, b). By extension audit-team specialists' memos might be viewed as attempts by audit-team specialists to persuade auditors, but this persuasion dynamic is less relevant in the auditor-specialist setting because the auditor is not a reviewer in the traditional, hierarchical sense and is not the focus of this study. Rather, I focus on how the *client's* persuasive message affects auditors' processing of evidence related to that message.

desire, and incentives to bias a message determine objectivity (Pornpitakpan 2004). In auditing, clients' integrity relative to other clients (Peecher 1996; Goodwin 1999); clients' incentives to manage earnings (Anderson et al. 2004); the competence of the source (Bamber 1983); and whether the source is a member of the audit firm, client management, or an external organization (Hirst 1994; Joyce and Biddle 1981; Goodwin and Trotman 1996) affect source credibility. Auditors rely more heavily on information from more credible sources (Hirst 1994; Anderson et al. 2004), and increases in the perceived objectivity and expertise of a source both cause greater acceptance of a message from that source (Pornpitakpan 2004).

I expect source credibility to influence auditors' motivation to elaborate on the evidence related to estimates. Motivation to elaborate refers to the extent to which a person attempts to elaborate on evidence related to a message (Petty and Cacioppo 1986; Petty et al. 1997). Higher motivation increases elaboration, provided that task demands do not make elaboration prohibitively difficult (Petty et al. 1997; Petty and Cacioppo 1986). The risks and benefits associated with accurately assessing message validity influence motivation to elaborate (Petty et al. 1997). The chance that a misstatement exists in an estimate is greater when the estimate comes from a less credible source, so lower source credibility increases the risk to auditors of inaccurately assessing the validity of an estimate. Thus, lower source credibility should increase auditors' motivation to elaborate on evidence related to estimates.

Interaction of Caveat and Source Credibility

To elaborate on evidence related to a message, a person must have sufficient motivation to meet task demands (Petty and Cacioppo 1986; Kruglanski et al. 2007). In a demanding task such as integrating the evidence related to an estimate, auditors with high motivation may require help in the form of reduced task demands to elaborate on the evidence. Thus, I expect the

reduced task demands resulting from a caveat to combine with increased motivation resulting from low source credibility to cause higher elaboration. Even if auditors are motivated to elaborate because they perceive the initial preparer to be less credible, without a caveat they will be less likely to engage in high elaboration because high task demands preclude them from elaborating as extensively on the evidence.

In contrast, when auditors perceive the initial preparer of a client's estimate to be more credible, I expect auditors to be less motivated to elaborate because the initial preparer's source credibility does not prompt the auditor to doubt the reliability of the estimate or evidence related to it. This will result in less elaboration on the evidence related to an estimate, and greater reliance on the peripheral cue of the initial preparer's source credibility when judging an overall estimate. The source credibility of one cue can influence processing and weighting of other cues in judgments (Petty and Cacioppo 1984; Chaiken and Maheswaran 1994; Grewal et al. 1994), so I expect higher source credibility to decrease auditors' consideration of a caveat. Moreover, auditors will be less likely to relate the interpretation provided by a caveat to other evidence or to benefit from the reduced task demands resulting from a caveat because they lack the motivation to elaborate when source credibility is higher. Therefore, during auditors' review of the evidence related to an estimate, I expect a caveat to interact with the source credibility of the initial preparer of a client's estimate to affect auditors' elaboration on the evidence. I formally state this hypothesis below and illustrate all hypotheses in Figure 3.1.

> **H1:** Auditors who both receive a caveat and perceive that an initial preparer is less credible will elaborate more than auditors who do not receive a caveat or auditors who perceive that an initial preparer is more credible.

I expect the increased elaboration caused by the interaction of a caveat and low source credibility to help auditors identify potential issues in an estimate. Auditors struggle to

recognize when individually-biased assumptions cumulatively have a material impact on an estimate (PCAOB 2011; Griffith et al. 2014a), because individual pieces of evidence may not appear to be problematic on their own and only suggest a misstatement when considered together (Brown and Solomon 1990, 1991; Bedard and Biggs 1991; Hammersley 2006). Recognizing problematic patterns among evidence, such as bias in several assumptions or inconsistencies among assumptions, is crucial to identifying a potential misstatement in an estimate when no single cue definitively signals a problem. Greater elaboration should increase auditors' consideration of how different pieces of evidence relate to one another and impact an estimate. I therefore predict the interaction of a caveat and source credibility will affect auditors' identification of valid potential issues in an estimate, as stated below.

> **H2:** Auditors who both receive a caveat and perceive that an initial preparer is less credible will identify more valid potential issues than auditors who do not receive a caveat or auditors who perceive that an initial preparer is more credible.

Finally, I expect auditors' judgments and decisions about an estimate overall to benefit from the interaction of a caveat and low source credibility. Greater elaboration on the evidence underlying a persuasive message increases the accuracy of evaluations of evidence quality and leads to high (low) quality evidence causing more (less) acceptance of the message (Harkins and Petty 1981; Moore and Reardon 1987). Identification of specific problems contributes to improved auditor judgments and actions (e.g., Hoffman and Zimbelman 2009; Hammersley 2011; Hammersley et al. 2011; Griffith et al. 2014b). Therefore, I expect the interactive effect of a caveat and low source credibility to flow through to auditors' judgments about the reasonableness of an estimate and their decisions to adjust a biased estimate. That is, I expect that elaboration on the evidence (caused by the interaction of a caveat and low source credibility) will increase identification of potential issues in the estimate, which in turn will influence

judgments about the estimate. I state these hypotheses below; Figure 3.2 illustrates the theoretical model described by the mediation predictions.

> **H3a:** Auditors who both receive a caveat and perceive that an initial preparer is less credible will judge a biased estimate as less reasonable than auditors who do not receive a caveat or auditors who perceive that an initial preparer is more credible.
>
> **H3b:** Auditors who both receive a caveat and perceive that an initial preparer is less credible will be more likely to adjust a biased estimate than auditors who do not receive a caveat or auditors who perceive that an initial preparer is more credible.
>
> **H4a (mediation):** Auditors' elaboration on evidence related to an estimate mediates the effect of the interaction of the presence or absence of a caveat and the initial preparer's source credibility on auditors' identification of valid potential issues in the estimate.
>
> **H4b (mediation):** Auditors' identification of valid potential issues in the estimate mediates the effect of the interaction of the presence or absence of a caveat and the initial preparer's source credibility on auditors' judgments and decisions about the estimate.

4. Method

To test my hypotheses, I conduct an experiment in which I manipulate the presence or absence of a caveat in the audit-team specialist's memo and the preparer of the client's estimate as an in-house or third party preparer, and I measure auditors' perceptions of the source credibility of the initial preparer of the client's estimate. I obtained 78 usable responses from experienced senior auditors from three Big 4 firms who participated while attending firm-sponsored training.[37] These participants are appropriate because in practice senior auditors evaluate assumptions related to estimates and use audit-team specialists' work to do so (Griffith

[37] The 78 usable responses come from participants who passed all manipulation checks and substantially completed the case, even if they left certain items in the case blank. Thus, the number of participants included in analyses of each dependent variable ranges from 75 to 77 due to missing responses to individual dependent measures. I describe the manipulation checks in the Results section.

et al. 2014a; Griffith 2014).[38] On average, participants have 3.7 years of experience and have worked on 1.8 audits where they used discounted cash flow models.

Task

Participants evaluate audit evidence related to an electronics manufacturer's annual goodwill impairment test. The client uses a discounted cash flow model to estimate the fair value that is compared to book value in the impairment test. The model contains five key assumptions that are reasonable individually, but collectively indicate a pattern of management bias. Participants receive a summary of the three assumptions tested by the audit team and the two assumptions tested by the audit-team specialist. The case instructs participants to review the work done by the audit team and the audit-team specialist and to draft a recommended conclusion about the client's estimate overall.

I adapted the case from a firm's training materials. The case includes client background information, the client's Step 1 goodwill impairment test and discounted cash flow model supporting the fair value used in the test, a planning memo that identifies the five key assumptions who tested each one (i.e., audit team or audit-team specialist), the audit team's work papers, and the audit-team specialist's memo. The client's Step 1 goodwill impairment test shows a fair value of $670 million and book value of $590 million; fair value exceeds book value so goodwill is not impaired. The audit team's work papers contain the results of testing three assumptions: projected revenue, operating expenses, and capital expenditures. All three assumptions fall within ranges considered reasonable by the audit team, but projected revenue and operating expenses fall toward the aggressive (i.e., estimate-increasing) ends of the ranges.

[38] Griffith et al. (2014a) document that auditors identify seniors as the most frequent primary preparers of the audit work testing assumptions related to estimates and the second-most frequent primary preparers of evaluating the overall reasonableness of estimates by considering all audit evidence. Griffith (2014) documents that 61 percent of auditors interviewed identify seniors as involved in making conclusions about estimates based on audit-team specialists' work.

The audit-team specialist's memo contains the results of testing two assumptions: discount rate and long-term growth rate. Both assumptions fall within ranges considered reasonable by the audit-team specialist, but toward the aggressive ends. Thus, four out of five assumptions used by the client are aggressive; this pattern strongly suggests misstatement in the estimate because a higher estimate increases the client's ability to pass Step 1 of the annual goodwill impairment test and avoid an impairment charge.[39]

Importantly, the testing related to each assumption includes a sensitivity analysis showing the impact of adjusting the assumption to a less aggressive position. Table 3.1 shows that the impact of adjusting any assumption individually does not change the outcome of the Step 1 test. However, if both of the aggressive assumptions tested by the audit team (projected revenue and operating expenses) *and* one of the aggressive assumptions tested by the audit-team specialist (discount rate or long-term growth rate) are adjusted, the resulting change in the fair value causes the client to fail the Step 1 test. Thus, the cumulative impact on the estimate of using less aggressive assumptions reduces the estimate to an amount less than book value that results in failing Step 1 of the goodwill impairment test. Evaluating the impact of adjusting each assumption individually, in contrast, does not reduce the estimate by an amount sufficient to change the outcome of the Step 1 test.

After reading the case, participants assessed the reasonableness of the estimate, decided whether they would recommend to their manager that the client adjust the estimate, listed any concerns they had about the estimate and the procedures they would do to address them, and assessed the extent of management bias in the estimate. Next, they put away the case and completed a post-experimental questionnaire that contained a surprise free recall of the

[39] An audit partner and a senior manager from two firms and with extensive experience auditing goodwill impairments reviewed the case and identified this pattern as highly indicative of a potential misstatement in the estimate due to management bias.

information that was important in their decisions about the estimate, the source credibility measure, additional questions about the case, and demographic questions.

Manipulations and Independent Variables

Caveat

For the first independent variable, I manipulate the presence or absence of a caveat in the audit-team specialist's memo. In both the *caveat* and *no caveat* conditions, the audit-team specialist's memo documents testing of the discount rate followed by the conclusion, "Based on the procedures performed, we conclude that Black Bear's discount rate appears reasonable," and then documents testing of the long-term growth rate followed by a similar conclusion that Black Bear's long-term growth rate appears reasonable. In the *caveat* condition, the audit-team specialist's memo also includes the following caveat at the end of the memo: "We note that the discount rate and long-term growth rate used by Black Bear both fall at the aggressive (i.e., fair value-increasing) ends of our reasonable ranges" (emphasis in original). The memo in the *no caveat* condition excludes this caveat; however, the case contains the information necessary for participants to conclude that the discount rate and long-term growth rate are aggressive without the caveat.

Preparer

I manipulate the preparer of the client's estimate as either an in-house or client third party preparer to ensure variability in participants' perceived source credibility. The case states:

> Black Bear used an *in-house [third party]* preparer to determine its fair value of equity. . . during planning the audit team and the audit team's internal valuation specialist determined that the *in-house [third party]* preparer is well-qualified and signed off on Black Bear's plan to use the *in-house [third party]* preparer to prepare the valuation.

This manipulation also increases the generalizability of the case because auditors commonly encounter both types of preparers (Griffith et al. 2014a; Griffith 2014).

Preliminary discussions with auditors suggested that auditors believe third party preparers have more expertise and objectivity than in-house preparers (the two dimensions of source credibility; Birnbaum and Stegner 1979), and prior research indicates that auditors perceive external sources of evidence as more credible than sources internal to the client (Hirst 1994; Joyce and Biddle 1981; Goodwin and Trotman 1996). However, there is no consensus about whether an in-house or third party preparer of an estimate is more credible (Griffith 2014). Auditing standards state that information from a third party can be more credible while also stating that information generated under the client's direct internal control can be more credible (PCAOB 2010d). Moreover, auditors' beliefs about in-house and third party preparers are based on their idiosyncratic experiences. Clients typically hire third parties because they lack the expertise to prepare estimates themselves (Dichev et al. 2013), so some auditors feel more comfortable when clients use third parties (Griffith et al. 2014a; Griffith 2014). Yet, other auditors perceive in-house preparers as highly credible because in their experience only very sophisticated clients prepare their own estimates (Griffith 2014).

Source Credibility

My hypotheses relate source credibility to auditors' cognition, judgments, and decisions, so I use source credibility rather than preparer as the second independent variable in my analyses. Participants assess the expertise and objectivity of the preparer of the client's estimate; I sum these two scores for the source credibility measure because these are the two dimensions of source credibility that subsume finer dimensions of the construct (Pornpitakpan 2004; McCroskey and Young 1981).[40]

[40] After completing the case and putting away the case materials, participants responded on 11-point Likert scales to the questions "How much technical expertise does the preparer of the client's valuation have?" and "How objective is the preparer of the client's valuation?" anchored by 0 (very low expertise; not at all objective) and 10 (very high expertise; extremely objective).

Dependent Variables

Hypothesis 1: Measure of Elaboration

The first hypothesis tests auditors' elaboration on the evidence related to the estimate. After completing the case and putting it away, participants completed a surprise free recall in which they listed the information from the case that was important to their decisions about the client's estimate. Each item listed is assumed to result from scrutiny of an issue, so the content of an item provides evidence of the extent and nature of that scrutiny (Petty and Cacioppo 1986); this is a common measure of elaboration in psychology and accounting research (e.g., Chaiken and Maheswaran 1994; Rich 2004). A doctoral student with auditing experience and I independently coded each item listed as (1) recalling information given in the case, (2) combining given information with other knowledge to make an inference, or (3) other (e.g., factually incorrect items). We coded all of the data for this study while blind to experimental condition, and the non-author coder was blind to hypotheses. Coders met to resolve differences and I report those data here. Inter-rater agreement was 91 percent and Cohen's kappa was 0.87 ($p < 0.001$). The total number of items coded into the second category forms the measure of elaboration on the evidence, because elaboration involves relating evidence underlying a message to relevant knowledge and making inferences about the evidence and the message based on that scrutiny (Petty and Cacioppo 1986); items in this category go beyond simply recalling statements from the case.

Hypothesis 2: Measures of Identification of Valid Concerns

The second hypothesis tests auditors' identification of potential issues in the biased estimate. After reading the case but before putting it away, participants listed their concerns about the estimate, if any, and the procedures they would perform to address them before

concluding on the estimate. A doctoral student with auditing experience and I coded each item, comprised of a concern and the related procedures, as concerned about (1) management bias, (2) insufficient support for the client's assumptions, or (3) other (e.g., the mathematical accuracy of the client's discounted cash flow model). Inter-rater agreement was 84 percent and Cohen's kappa was 0.56 ($p < 0.001$). Items in the first category explicitly mention bias in the assumptions and/or suggest performing combined sensitivity analyses to evaluate the impact on the estimate of changing multiple assumptions to less aggressive positions simultaneously. Items in the second category indicate concern that the nature of the evidence obtained does not adequately support the estimate as stated, and that further evidence is necessary to conclude whether the estimate is reasonable or unreasonable. Examples include wanting external evidence to support the client's projected increase in revenue based on a planned new product launch, better documentation of how the audit team or audit-team specialist determined reasonable ranges for the assumptions, and evaluation of management's forecasting ability in light of historical inaccuracy. Following up on concerns in the first two categories can lead to identifying and quantifying possible misstatements in the estimate indicated by inconsistencies or patterns among assumptions, while following up on concerns in the third category would not. The total number of items coded into the first two categories measures participants' identification of valid concerns about the estimate.

I also collect participants' ratings of the extent of management bias in the estimate for a secondary test of H2. Participants rated the extent of management bias in the estimate on an 11-point Likert scale anchored by 0, "not at all biased," and 10, "extremely biased."

Hypothesis 3: Measures of Auditor Judgments and Decisions

The third hypothesis tests auditors' judgments and decisions about the estimate overall. To test H3a, I measure auditors' assessments of the reasonableness of the estimate. Participants responded to the question, "How likely is it that Black Bear's fair value is fairly stated?" on an 11-point Likert scale anchored by 0, "not likely at all," and 10, "extremely likely."

To test H3b, I measure participants' recommendations that the client adjust the estimate. Participants responded yes or no to the question, "Would you recommend to your manager that Black Bear adjust its fair value?" after assessing the reasonableness of the estimate.

5. Results

Preliminary Analyses

I evaluate potential effects of firm and experimental session by examining the correlations between participants' firm and each dependent variable, and between experimental session and each dependent variable. The only dependent variable correlated with either factor is rated extent of bias. However, when I include firm and experimental session as covariates (as main effects and all possible interaction combinations) in a model testing extent of bias, neither factor loaded as a significant covariate, alone or interactively with other variables. Therefore, I do not control for firm or experimental session in subsequent analyses.

For each dependent variable, I also evaluated whether task-specific experience and knowledge measures that are significantly correlated with the dependent variable are significant in the model testing the hypothesis. I include these measures as covariates when they are significant in the models testing the hypotheses (see hypotheses tests below).

Manipulation Checks

Caveat

Two questions comprise the caveat manipulation check. The first asks participants what the audit-team specialist's memo said about the discount rate, and the second asks what the memo said about the long-term growth rate. Participants chose all that apply from the following five responses for each question: the rate was reasonable; the rate was unreasonable; the rate was at the conservative end of the range; the rate was at the aggressive end of the range; and I don't remember. Ninety-three participants (89 percent) provide at least partial evidence of attention to the caveat manipulation (e.g., by choosing reasonable at least once in the no caveat condition, and by choosing aggressive at least once in the caveat condition), indicating that participants attended to the audit-team specialist's memo and the caveat, if present. I exclude the 12 participants who failed the caveat manipulation check from the remaining analyses; two of these participants also failed the preparer manipulation check.

Preparer

The second manipulation check asks participants who prepared the client's estimate. Participants chose one of three options: an in-house preparer, an external third party, or I don't remember. Eighty-eight participants (84 percent) correctly identified the client's preparer as in-house or external third party, indicating that participants attended to the manipulation. The construct of source credibility is unlikely to be activated in those participants who did not attend enough to the case to answer the question about the preparer correctly, so excluding these participants allows a stronger test of my theory. I exclude the 17 participants who failed the preparer manipulation check from the remaining analyses.[41]

[41] Statistical inferences do not change if I include those participants who failed one or both manipulation checks in the analyses.

Preparer Source Credibility

Source credibility exhibits substantial variation within and across preparer conditions. Within the in-house condition, the average (median) credibility rating is 10.58 (11) and the standard deviation (range) is 2.74 (5 to 15). Within the third party condition, the average (median) credibility rating is 12.09 (12.5) and the standard deviation (range) is 3.62 (4 to 18). An ANOVA for credibility ratings reveals that average credibility rating is marginally significantly lower in the in-house condition than in the third party condition ($F_{1, 73} = 3.734$, two-tailed $p = 0.057$). The presence or absence of a caveat and the interaction of preparer and caveat do not influence credibility ratings ($F_{1, 73} = 0.236$; 1.641, two-tailed $p = 0.629$; 0.204, respectively).

I use a median split on credibility ratings in the analyses, though results are similar when using the continuous credibility ratings. Mean (median) source credibility across all participants is 11.4 (12). The mean (standard deviation) of 8.6 (1.96) in the *low* condition is significantly lower than the mean (standard deviation) of 14.1 (1.75) in the *high* condition ($t_{75} = 12.94$, one-tailed $p < 0.001$). I report tests of my hypothesized ordinal interaction between source credibility and caveat aggregated across preparer conditions while controlling for any significant effects of preparer type, and I perform additional analyses of the effect of preparer following the main hypothesis tests.[42, 43]

[42] Small cell sizes preclude meaningful analyses when I partition the data on preparer type, so I do not present separate analyses of the interaction between source credibility and caveat within the in-house and third party preparer conditions.

[43] Using a measured independent variable raises two possible concerns. First, a correlated omitted variable such as effort or experience could drive the source credibility ratings. However, effort is not correlated with source credibility ratings (two-tailed $p = 0.458$). Further, none of the experience or knowledge measures (general experience; experience with goodwill impairment tests, discounted cash flow models, third party preparers, or audit-team specialists; knowledge about discounted cash flow models; and comfort working with discounted cash flow models, goodwill impairment tests, and audit-team specialists' memos) are correlated with source credibility ratings (all two-tailed $p > 0.35$). These results are inconsistent with a correlated omitted variable. Second, task performance could drive the source credibility ratings because participants rate source credibility after completing

Tests of Hypotheses about the Effects of Caveats and Preparer Source Credibility

Hypothesis 1: Elaboration

H1 predicts that low source credibility and a caveat will interact to increase auditors' elaboration on the evidence related to an estimate relative to auditors in other conditions. Table 3.2 reports a generalized linear model with caveat and source credibility as independent variables, and elaboration as the dependent variable.[44] Across all conditions, participants recalled from 0 to 6 items that included elaboration, with a mean (standard deviation) of 0.96 (1.31). Given this distribution, I use a Poisson regression to test H1.[45] Note that total items recalled (not limited to, but including, those coded as elaboration) ranged from 0 to 10, with an overall mean (median) of 4.01 (4) items; cell means for total items (ranging from 3.41 to 4.25) do not differ significantly.

The planned contrast in Panel C shows that, as predicted, auditors in the caveat/low credibility condition elaborate more than auditors in other conditions (one-tailed $p < 0.001$).[46] A test of the residual between-cells variation (not tabulated) indicates the hypothesized contrast

---

the case. This implies that participants in the low credibility condition may have self-selected there based on caveat condition, which would result in unequal cell sizes. However, the distribution of participants across cells does not differ from the expected distribution if participants had been randomly assigned ($\chi^2_1 = 1.04$, two-tailed $p = 0.307$), inconsistent with self-selection. If task performance were driving source credibility ratings, this also implies that source credibility ratings in the caveat condition would be significantly lower than in the no caveat condition. Mean source credibility ratings across the caveat (11.14) and no caveat (11.63) conditions do not significantly differ ($t_{75} = 0.65$, two-tailed $p = 0.517$). In total, these analyses are inconsistent with alternative explanations for the source credibility ratings and suggest that diversity of opinion about in-house and third party preparers causes the variance in source credibility ratings.

[44] Preparer type is significant in interaction with source credibility in this model. The results reported here and in Table 3.2 do not change when I include the interaction of preparer and source credibility. I analyze the effect of preparer type on elaboration in the additional analysis section following the main hypotheses tests.

[45] The independent variables are significant predictors of the dependent variable ($\chi^2_3 = 11.60$, $p = 0.009$); however, model fit statistics indicate the data are over-dispersed ($\chi^2_{71} = 116.04$, $p < 0.01$; deviance = 1.65) relative to the expected Poisson distribution. I re-estimated the model using a negative binomial distribution; while model fit improves ($\chi^2_{71} = 60.13$, $p > 0.10$; deviance = 0.95), statistical inferences are not affected, so I retain the analysis based on the Poisson distribution.

[46] I report one-tailed p-values for predicted directional contrasts and two-tailed p-values for other tests.

explains the data well ($F_{2, 71} = 0.001$, two-tailed p = 0.999).[47] The mean of 1.65 items in the caveat/low credibility condition is significantly higher than the 0.88 items in the no caveat/low credibility (one-tailed p = 0.012), 0.73 items in the no caveat/high credibility (one-tailed p = 0.003), and 0.63 items in the caveat/high credibility conditions (one-tailed p = 0.002). These results support H1. Auditors who both receive a caveat and perceive the initial preparer to be less credible elaborate significantly more on the evidence than auditors in other conditions.

Hypothesis 2: Identification of Valid Concerns

H2 predicts that low source credibility and a caveat will interact to increase auditors' identification of valid concerns about the estimate relative to auditors in other conditions. Table 3.3 reports a generalized linear model with caveat and source credibility as independent variables, auditors' self-reported comfort auditing Step 1 of a goodwill impairment test as a covariate, and identification of valid concerns as the dependent variable. Across all conditions, participants listed from 0 to 9 valid concerns, with a mean (standard deviation) of 2.56 (1.80). Given this distribution, I use a Poisson regression to test H2.[48] Note that total concerns listed (including, but not limited to, those coded as valid concerns) ranged from 1 to 9, with an overall mean (median) of 2.86 (3) concerns. Participants in the lower credibility condition gave a significantly greater number of total concerns (m = 3.21) than participants in the higher credibility condition (m = 2.50; $F_{1, 72} = 4.026$, two-tailed p = 0.049). There are no significant effects of caveat on total concerns as a main effect or in interaction with credibility.

[47] The semi-omnibus F statistic tests the significance of the variation caused by the independent variables that is not explained by the hypothesized contrast; a p-value greater than 0.05 indicates that the remaining variation is insignificant (Keppel and Wickens 2004). I compute the semi-omnibus F test using the sums of squares from an ANOVA model (not reported) testing the dependent variable. Statistical inferences for the planned contrasts do not change based on the ANOVA model, but I report the results of the generalized linear model for the primary test of the hypothesis because it is a more precise and therefore more powerful model given the Poisson distribution of the dependent variable.

[48] The independent variables are significant predictors of the dependent variable ($\chi^2_4 = 16.39$, p = 0.003), and model fit is good ($\chi^2_{72} = 82.30$, p > 0.10; deviance = 1.15).

The planned contrast in Panel C shows that, as predicted, auditors in the caveat/low credibility condition identify more valid concerns than auditors in other conditions (one-tailed p = 0.007). A test of the residual between-cells variation (not tabulated) indicates the hypothesized contrast explains the data well ($F_{2, 72}$ = 2.488, two-tailed p = 0.090).[49] The mean of 3.28 valid concerns in the caveat/low credibility condition is significantly greater than the means of 2.40 in the no caveat/high credibility and 1.62 in the caveat/high credibility conditions (one-tailed p = 0.042 and < 0.001, respectively), but not the mean of 2.86 in the no caveat/low credibility condition (one-tailed p = 0.211). This evidence partially supports H2, but the result is driven by the source credibility condition.

As a secondary test of H2, I examine auditors' ratings of the extent of management bias in the estimate. Table 3.4 reports an ANCOVA with caveat and source credibility as independent variables, the number of discounted cash flow models that participants have audited as a covariate, and auditors' bias ratings as the dependent variable. The planned contrast in Panel C is not significant (one-tailed p = 0.276), and none of the partial contrasts between the caveat/low credibility and other conditions are significant (all one-tailed p > 0.26). Interestingly, auditors in the caveat/low credibility condition do not perceive significantly more bias in the estimate than auditors in the other conditions, although all auditors were aware of bias in the estimate given the relatively high ratings in all conditions. Mean bias ratings range from 5.62 to 6.09 across cells (on a 0-10 scale where higher ratings indicate more bias). Overall, this suggests that recognition of bias may be necessary, but is not sufficient, for identification of valid concerns when assumptions appear reasonable individually but a pattern among them indicates a potential issue. Overall, these results partially support H2 with respect to identification of valid concerns about the estimate.

[49] See footnote 47.

Hypothesis 3: Judgments and Decisions

H3 predicts that the effect of a caveat and source credibility will flow through to auditors' judgments about the reasonableness of the estimate and decisions about recommending that the client adjust it. Table 3.5 reports an ANOVA with caveat and source credibility as independent variables, and auditors' ratings of how likely the estimate is to be reasonably stated as a dependent variable. The planned contrast in Panel C shows that, as predicted, auditors rate the estimate as less likely to be reasonably stated in the caveat/low credibility condition than in other conditions (one-tailed $p < 0.001$). A test of the residual between-cells variation (not tabulated) indicates the hypothesized contrast explains the data well ($F_{2, 73} = 2.864$, two-tailed $p = 0.064$) (Keppel and Wickens 2004). The mean rating of reasonableness of 4.55 in the caveat/low credibility condition is significantly lower than the means of 5.53 in the no caveat/low credibility (one-tailed $p = 0.051$), 6.12 in the no caveat/high credibility (one-tailed $p = 0.003$), and 7.00 in the caveat/high credibility conditions (one-tailed $p < 0.001$). Thus, auditors' ratings of reasonableness support H3.

Table 3.6 reports a logistic model with caveat and source credibility as independent variables, and auditors' adjustment recommendation as a binary dependent variable. The planned contrast in Panel C shows that, as predicted, auditors are more likely to recommend adjusting the estimate in the caveat/low credibility condition than in other conditions (one-tailed $p = 0.006$). A test of the residual between-cells variation (not tabulated) indicates the hypothesized contrast explains the data well ($F_{2, 72} = 1.365$, two-tailed $p = 0.262$).[50] The proportion of 55 percent of auditors recommending adjustment in the caveat/low credibility

[50] I compute the semi-omnibus F test using the sums of squares from an ANOVA model (not reported) testing the dependent variable. Statistical inferences for the planned contrasts do not change based on the ANOVA model, but I report the results of the logistic model for the primary test of the hypothesis because it is a more precise and therefore more powerful model given the binary dependent variable.

condition is significantly greater than the 22 percent in the no caveat/high credibility (one-tailed p = 0.014) and 13 percent in the caveat/high credibility conditions (one-tailed p = 0.005), but not the 39 percent in the no caveat/low credibility condition (one-tailed p = 0.161). Thus, auditors' adjustment recommendations partially support H3, but the result is driven by the source credibility condition. Overall, these results support H3, indicating that auditors' judgments and decisions about the estimate reflect more concern when they receive a caveat and perceive clients as less credible than in other conditions.

Mediation Analyses

H4a predicts that elaboration mediates the relationship from caveat and source credibility to identification of valid concerns.[51] H4b predicts that identification of valid concerns mediates the relationship from caveat and source credibility to rating of reasonableness and adjustment recommendation. The preceding tests of H1, H2, and H3 show that the independent variables affect the expected mediators, and that the independent variables affect the dependent variables, satisfying the first and second mediation requirements for H4a and H4b. For H4a, the expected mediator, elaboration, is significantly correlated with identification of valid concerns (two-tailed p = 0.072). For H4b, the expected mediating variable, identification of valid concerns, is significantly correlated with rating of reasonableness (two-tailed p = 0.010) but not with adjustment recommendation (two-tailed p = 0.141). Therefore, the third mediation requirement is satisfied for identification of valid concerns in H4a and for rating of reasonableness in H4b.

[51] As evidence of mediation, four conditions must be met (Baron and Kenny 1986). First, the dependent variable of interest must be related to the independent variable of interest. Second, the expected mediator must be related to the independent variable. Third, the expected mediator must be correlated with the dependent variable. Fourth, when the mediator is included with the original independent variable in a model testing the dependent variable, the significance of the original independent variable must decrease as compared to the results of the model excluding the mediator.

I next compare the results of testing the dependent variable (i.e., identification of valid concerns for H4a, and rating of reasonableness for H4b) from the model including the mediator to the results from the model excluding the mediator. When the model testing identification of valid concerns as a dependent variable includes elaboration as a mediator (H4a), the significance of the planned contrast decreases (one-tailed $p = 0.028$ with mediator, versus $p = 0.007$ without mediator), indicating elaboration partially mediates identification of valid concerns. When the model testing rating of reasonableness as a dependent variable includes identification of valid concerns as a mediator (H4b), the significance of the planned contrast decreases (one-tailed $p = 0.002$ with mediator, versus $p < 0.001$ without mediator), indicating identification of valid concerns partially mediates rating of reasonableness.

In sum, the mediation analyses suggest that elaboration influences identification of valid concerns, and identification of valid concerns influences auditors' ratings of how likely an estimate is to be reasonably stated, supporting my theory. Thus, H4 is supported with respect to the mediating role of elaboration in auditors' identification of valid concerns and identification of valid concerns in auditors' ratings of how likely the estimate is to be reasonably stated.

Additional Analyses: Effects of Preparer Type

To examine the generalizability of the results reported above to situations where auditors interact with in-house and third party preparers, I further examine the effect of manipulated preparer type. When I control for preparer in each of the above hypothesis tests, I find no significant effects of preparer (as a main effect or in interaction with caveat or source credibility) on issue identification, bias rating, reasonableness rating, or adjustment recommendation. I do, however, find a significant effect of the interaction of preparer and source credibility on elaboration. Table 3.7 reports the cell means for elaboration separately for the in-house and third

party preparer conditions and the results of an ANCOVA model testing the hypothesized contrasts including the significant preparer × source credibility interaction term. Panel A shows that the patterns of means for the in-house and third party conditions are both consistent with the hypothesized contrast, but the pattern is more pronounced for auditors dealing with in-house preparers. Panel C shows that the hypothesized contrast remains significant when I include the interaction of preparer and source credibility. However, the effect of the interaction of caveat and source credibility appears to be stronger for auditors dealing with in-house preparers than those dealing with third parties.

Next, I substitute manipulated preparer type for the measured source credibility variable in the hypotheses tests (i.e., in-house condition for lower credibility and third party condition for higher credibility). The predicted interaction, in which the in-house/caveat condition differs significantly from all other conditions, is supported for elaboration ($\chi^2_1 = 3.72$, one-tailed p = 0.027) and issue identification ($\chi^2_1 = 5.09$, p = 0.012), but not for ratings of bias or reasonableness, or for adjustment recommendation. These analyses provide further support for H1 and H2, but not for H3a and H3b.

Interestingly, the only other significant effect of preparer when it is substituted for measured credibility is a marginally significant main effect on adjustment recommendation. Controlling for source credibility, auditors are more likely to recommend adjustment when a third party prepares the fair value rather than an in-house preparer ($\chi^2_1 = 3.43$, two-tailed p = 0.064). As shown in Table 3.8, after controlling for source credibility, 43 percent of auditors recommend adjusting the fair value prepared by a third party, whereas 22 percent recommend adjusting the fair value from an in-house preparer. Importantly, there is no analogous main effect of preparer on auditors' ratings of reasonableness of the fair value ($F_{1, 72} = 0.531$, two-

tailed p = 0.469), and experience does not moderate the effect of preparer on adjustment recommendation (i.e., experience is not correlated with adjustment recommendation, r = 0.119, two-tailed p = 0.304). Together these results suggest that auditors are more willing to ask their clients to adjust estimates when the client uses a third party instead of generating the estimate in-house, even though auditors do not view estimates prepared by third parties as less reasonable than those prepared by in-house personnel. One possible explanation for this unexpected result is that auditors may believe proposing an adjustment will be less damaging to the client relationship when auditors can attribute the issue to an external third party rather than a member of the client's in-house staff. Auditors' reluctance to challenge clients' estimates directly relative to challenging them via a third party preparer represents an interesting avenue for future research exploring how social factors impact auditors' judgments and decisions by influencing auditors' propensity to engage in (or avoid) uncomfortable client interactions (e.g., Bennett and Hatfield 2013).

6. Discussion and Conclusion

Auditors struggle to integrate the results of testing the assumptions underlying estimates, which can lead to lower quality audits of estimates. In this study, I experimentally examine the joint effect of audit-team specialists' caveats and auditors' perceptions of source credibility on auditors' evaluation of estimates. Auditors reviewed the evidence obtained by the audit team and the audit-team specialist to test the key assumptions in a client's estimate and made judgments about its reasonableness and whether they would recommend adjusting it.

I predict and find that auditors who both receive a caveat and perceive lower source credibility elaborate more on the evidence, identify more valid concerns about the estimate, judge a biased estimate as less reasonable, and are more likely to recommend adjusting a biased

estimate than auditors who do not receive a caveat or who perceive higher source credibility. Importantly, auditors benefit more from audit-team specialists' caveats when they perceive lower source credibility; those who perceive higher source credibility discount the caveat. Auditors' elaboration on the evidence partially mediates the effect of a caveat and source credibility on auditors' identification of valid concerns. Auditors' identification of valid concerns partially mediates the effect of caveat and source credibility on auditors' judgments about the reasonableness of the estimate. These results suggest that the combination of a caveat and low perceived source credibility causes auditors to elaborate on the evidence related to an estimate in a way that improves their judgments.

I also find two unexpected results with interesting implications. First, auditors' bias ratings do not differ across conditions. However, auditors who do not receive a caveat or perceive higher source credibility are less likely to respond to the extent of bias that they perceive, as evidenced by significantly lower identification of valid concerns, higher assessed reasonableness of the estimate, and fewer adjustment recommendations. This suggests that recognition of bias may be necessary, but is not sufficient for identifying and acting on issues in estimates indicated by patterns among assumptions that appear reasonable individually. Second, auditors appear to be more reluctant to challenge estimates prepared by in-house personnel than estimates prepared by third parties, regardless of the perceived credibility of the preparer. One potential explanation is that auditors view this as a way to protect their relationship with the client; future research can examine this insight and its implications for audits of estimates.

This study makes several contributions. First, this study helps researchers, standard setters, and practitioners understand the conditions under which auditors benefit from caveats. I find that a caveat helps auditors evaluate estimates when they perceive the initial preparer of an

estimate to be less credible, but not when they perceive the preparer to be more credible. The caveat provides interpretation of the audit-team specialist's results that helps auditors understand how to relate those results to the results of testing other assumptions and to the estimate overall. Yet, when auditors perceive higher source credibility the caveat does not increase auditors' elaboration on the evidence or improve auditors' performance in terms of identifying valid concerns, judging the estimate as less reasonable, or increasing the chance that auditors recommend adjusting the estimate. Thus, caveats appear to be more beneficial in combination with another cue that increases auditors' concern about an estimate. Future research can explore what type of cue to combine with a caveat for greater benefit and whether it is more beneficial for audit-team specialists or auditors themselves to combine a caveat with another cue.

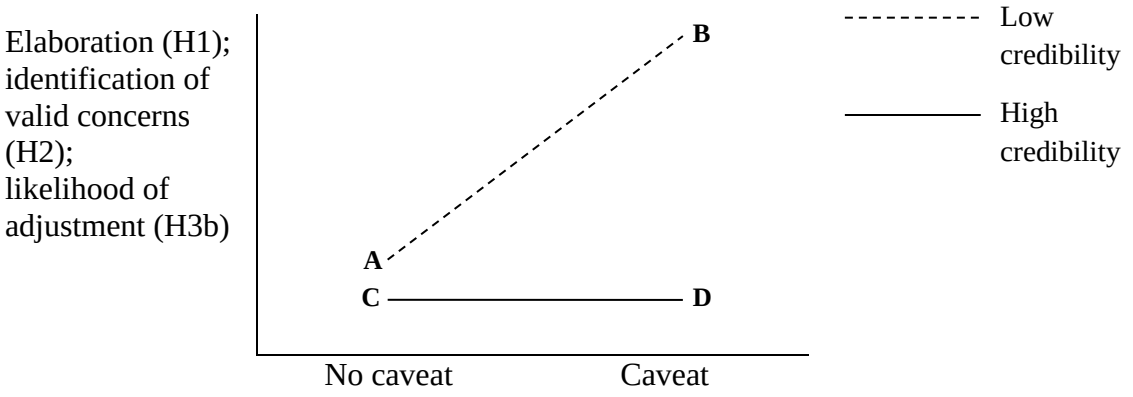
Second, this study shows that increasing auditors' elaboration on the evidence related to estimates can improve audits of estimates when the assumptions collectively suggest an issue but do not appear problematic individually. This study suggests that caveats are one tool that can help auditors elaborate; future research can explore other factors and interventions that increase auditors' elaboration on the evidence related to estimates.

Third, this study contributes theoretically to research on source credibility. Prior auditing research documents that auditors rely more heavily on evidence from more credible sources but does not examine the process by which higher source credibility causes greater reliance (Hirst 1994; Anderson et al. 2004). This study suggests that low elaboration is the mechanism through which auditors' greater reliance occurs and this is prompted by higher source credibility. This refines our understanding of *how* higher source credibility leads to greater reliance on information from more credible sources. The unexpected finding that auditors are more willing to adjust estimates prepared by third parties also suggests that factors beyond perceived source

credibility, such as the dynamics of the auditor-client relationship, play an important role in auditors' decisions about estimates.

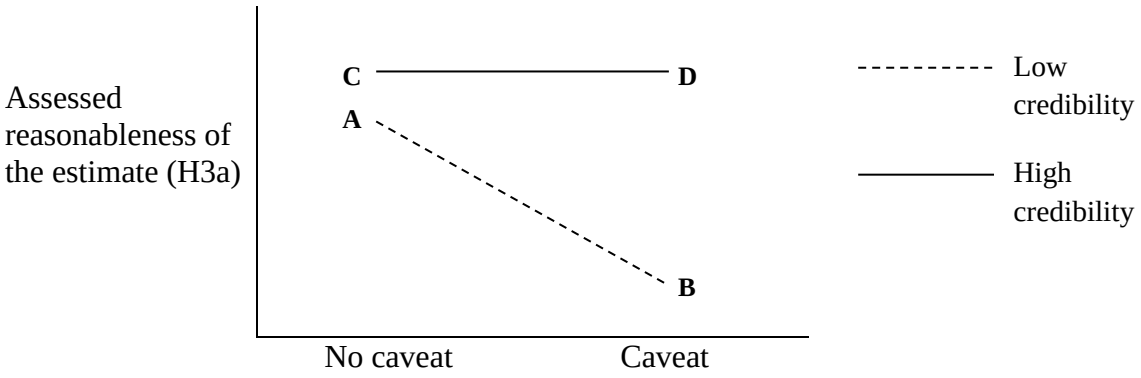
Finally, psychology research on the determinants of elaboration characterizes source credibility as a peripheral cue to be processed once some other factor determines the extent of elaboration. This study suggests that source credibility can also be an important determinant of elaboration. This study also identifies client source credibility as a heuristic that auditors rely on in place of critically evaluating information (i.e., the evidence related to the assumptions) that can identify specific issues when performing a difficult, subjective task like evaluating the assumptions underlying an estimate. In conclusion, this study provides initial evidence about caveats, a potentially useful tool to improve audits of estimates, and how they interact with perceived client source credibility, an important contextual feature in auditing estimates, that future research can build on to ultimately improve audits of estimates.

Panel A: H1, H2, H3b



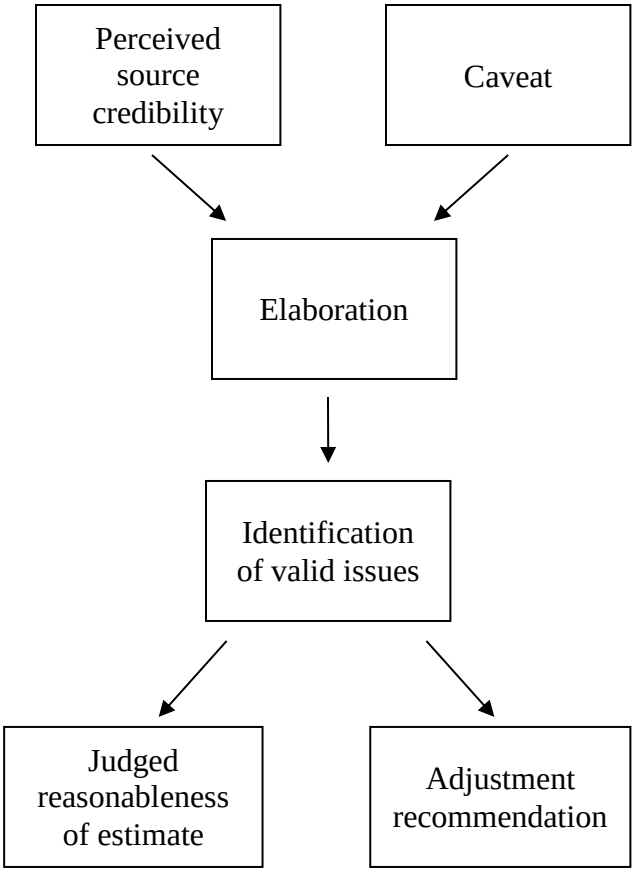
Note on Panel A:
The figure above illustrates the prediction for H1, H2, and H3b: B > (A + C + D) / 3.

Panel B: H3a



Note on Panel B:
The figure above illustrates the prediction for H3a: B < (A + C + D) / 3.

Figure 3.1
Illustration of Hypotheses



This figure shows the theoretical mechanism posited by the mediation hypotheses (H4a and H4b).

Perceived source credibility refers to auditors' perception of the expertise and objectivity of the preparer of a client's estimate.
Caveat refers to a reservation communicated by an audit-team specialist about the otherwise-clean results documented in the audit-team specialist's memo.
Elaboration refers to accessing relevant knowledge, evaluating evidence in light of that knowledge, and making inferences about how each piece of evidence relates to the other evidence and to the overall estimate.
Identification of valid issues refers to auditors' identification of potential issues in the estimate that could lead to misstatement.
Judged reasonableness of estimate refers to auditors' judgment about the extent to which the estimate is fairly stated.
Adjustment recommendation refers to auditors' decision whether to adjust the client's estimate.

Figure 3.2
Predicted Mediation Model

Table 3.1
Quantitative Impact of Adjusting Assumptions

Assumption	Reduction in fair value indicated by sensitivity analysis	Tested by
Projected revenue	39.1 million	Audit team
Projected operating expenses	36.4 million	Audit team
Projected capital expenditures	8.9 million	Audit team
Discount rate	10.7 million	Audit-team specialist
Long-term growth rate	6.7 million	Audit-team specialist

The client's fair value of $670 million exceeds book value by $80 million. Thus, a reduction of the fair value of $80 million or more will cause the client to fail Step 1 of the goodwill impairment analysis, which leads to an income-reducing goodwill impairment charge.

Table 3.2
Auditors' Elaboration on Evidence[52]

Panel A: Generalized Linear Model (Log Link, Poisson Distribution)

Source of Variation	df	Wald Chi-square	2-tailed p-value
Caveat	1	0.86	0.354
Source credibility	1	5.39	0.020
Caveat * Source credibility	1	2.40	0.121

Panel B: Cell means for Elaboration Mean (SE) [N] Cell

	No caveat	Caveat	
Low credibility	0.88 (.256) [17] A	1.65 (.379) [20] B	1.30 (.242) [37]
High credibility	0.73 (.273) [22] C	0.63 (.202) [16] D	0.68 (.177) [38]
	0.79 (.188) [39]	1.19 (.241) [36]	

Panel C: Test of H1

Planned Contrast	Chi-square	1-tailed p-value
B > (A + C + D) / 3	11.10	< 0.001

[52] Caveat is manipulated at two levels: no caveat and caveat. Source Credibility is measured as the sum of responses on two 11-point Likert scales that ask participants to rate two dimensions of the source credibility of the preparer of the client's estimate: the expertise and objectivity of the preparer. Each scale is anchored by 0, very low, and 10, very high, so a higher sum indicates higher perceived source credibility. Participants are split on the median into two levels of source credibility: low and high. Elaboration is the number of items listed in a surprise free recall after participants put away the case materials that were coded as elaborating on the case information by combining the given information with other relevant knowledge.

Table 3.3
Auditors' Identification of Valid Concerns in the Estimate[53]

Panel A: Generalized Linear Model (Log Link, Poisson Distribution)

Source of Variation	df	Wald Chi-square	2-tailed p-value
Caveat	1	0.58	0.447
Source credibility	1	8.57	0.003
Caveat * Source credibility	1	3.04	0.081
Comfort auditing Step 1 of a goodwill impairment test	1	5.96	0.015

Panel B: Cell means for Valid Concerns Adjusted Mean (SE) [N] Cell

	No caveat	Caveat	
Low credibility	2.86 (.402) [18] A	3.28 (.380) [20] B	3.07 (.276) [38]
High credibility	2.40 (.356) [23] C	1.62 (.426) [16] D	2.01 (.276) [39]
	2.63 (.267) [41]	2.45 (.285) [36]	

Panel C: Test of H2

Planned Contrast	Chi-square	1-tailed p-value
B > (A + C + D) / 3	6.08	0.007

[53] See definitions of Caveat and Source Credibility in Table 3.2. Comfort Auditing Step 1 of a Goodwill Impairment Test is the response to the prompt, "How comfortable are you auditing Step 1 of a client's goodwill impairment test?" on an 11-point Likert scale anchored by 0, not at all comfortable, and 10, extremely comfortable. Valid Concerns is the number of items coded as identifying valid concerns about bias or insufficient support for the client's assumptions that were listed when asked what concerns participants had, if any, about the estimate.

Table 3.4
Auditors' Ratings of the Extent of Management Bias in the Estimate[54]

Panel A: Two-Way ANCOVA

Source of Variation	df	MS	F	2-tailed p-value
Caveat	1	0.04	0.01	0.927
Source credibility	1	2.14	0.44	0.509
Caveat * Source credibility	1	0.33	0.07	0.797
Number of audits of discounted cash flow models	1	23.19	4.77	0.032
Error	71	4.86		

Panel B: Cell Means for Extent of Management Bias Adjusted Mean (SE) [N] Cell

	No caveat	Caveat	
Low credibility	5.91 (.520) [18] A	6.09 (.494) [20] B	6.00 (.359) [38]
High credibility	5.71 (.471) [22] C	5.62 (.551) [16] D	5.66 (.363) [38]
	5.81 (.351) [40]	5.86 (.370) [36]	

Panel C: Test of H2

Planned Contrast	$F_{1, 71}$	1-tailed p-value
B > (A + C + D) / 3	0.36	0.276

[54] See definitions of Caveat and Source Credibility in Table 3.2. Number of Audits of Discounted Cash Flow Models is the self-reported number of audits on which each participant has used a discounted cash flow model. Extent of Management Bias is the response to the prompt, "Rate the extent of management bias in the client's fair value," on an 11-point Likert scale anchored by 0, not at all biased, and 10, extremely biased.

Table 3.5
Auditors' Ratings of Likelihood of Reasonableness[55]

Panel A: Two-Way ANOVA

Source of Variation	df	MS	F	2-tailed p-value
Caveat	1	0.05	0.02	0.901
Source credibility	1	43.64	13.08	0.001
Caveat * Source credibility	1	16.38	4.91	0.030
Error	73	3.34		

Panel B: Cell Means for Likelihood of Reasonableness Mean (SE) [N] Cell

	No caveat	Caveat	
Low credibility	5.53 (.463) [18] A	4.55 (.394) [20] B	5.02 (.308) [38]
High credibility	6.12 (.405) [23] C	7.00 (.387) [16] D	6.48 (.292) [39]
	5.86 (.305) [41]	5.64 (.343) [36]	

Panel C: Test of H3

Planned Contrast	$F_{1, 73}$	1-tailed p-value
B < (A + C + D) / 3	12.28	< 0.001

[55] See definitions of Caveat and Source Credibility in Table 3.2. Likelihood of Reasonableness is the response to the question, "How likely is it that the client's fair value is fairly stated?" on 11-point Likert scale anchored by 0, not at all likely, and 10, extremely likely.

Table 3.6
Auditors' Adjustment Recommendations[56]

Panel A: Generalized Linear Model (Logit Link, Binomial Distribution)

Source of Variation	df	Wald Chi-square	2-tailed p-value
Caveat	1	0.00	0.956
Source credibility	1	6.64	0.010
Caveat * Source credibility	1	1.22	0.270

Panel B: Cell Means for Adjustment Recommendation Mean (SE) [N] Cell

	No caveat	Caveat	
Low credibility	.39 (.502) [18] A	.55 (.510) [20] B	.47 (.506) [38]
High credibility	.22 (.422) [23] C	.13 (.352) [15] D	.18 (.393) [38]
	.29 (.461) [41]	.37 (.490) [35]	

Panel C: Test of H3

Planned Contrast	Chi-square	1-tailed p-value
B > (A + C + D) / 3	6.30	0.006

[56] See definitions of Caveat and Source Credibility in Table 3.2. Adjustment Recommendation is the proportion of auditors who responded "yes" to the question, "Would you recommend to your manager that the client adjust its fair value?"

Table 3.7
Effect of Preparer Type on Auditors' Elaboration[57]

Panel A: Cell Means for Elaboration Across Preparer Types

	Preparer:						**Collapsed across Preparer and Caveat**
	In-House		**Third Party**		**Collapsed across Preparer**		
	No Caveat	*Caveat*	*No Caveat*	*Caveat*	*No Caveat*	*Caveat*	
Low Credibility	0.78 (.364) [9]	2.20 (.611) [10]	1.00 (.378) [8]	1.10 (.407) [10]	0.88 (0.256) [17]	1.65 (0.379) [20]	1.30 (.242) [37]
High Credibility	0.29 (.184) [7]	0.14 (.143) [7]	0.93 (.384) [15]	1.00 (.289) [9]	0.73 (0.273) [22]	0.63 (0.202) [16]	0.68 (.177) [38]
Collapsed across Credibility	0.56 (.223) [16]	1.35 (.437) [17]	0.96 (.277) [23]	1.05 (.247) [19]	0.79 (.188) [39]	1.19 (.241) [36]	

Panel B: Generalized Linear Model (Log Link, Poisson Distribution)

Source of Variation	**df**	**Wald Chi-square**	**2-tailed p-value**
Caveat	1	1.44	0.230
Source credibility	1	9.60	0.002
Caveat * Source credibility	1	1.70	0.192
Preparer * Source credibility	2	10.14	0.006

Panel C: Test of H1, controlling for Preparer * Source credibility

Planned Contrast	**Chi-square**	**1-tailed p-value**
B > (A + C + D) / 3	15.37	< 0.001

[57] See definitions of Caveat, Source Credibility, and Elaboration in Table 3.2. Preparer is manipulated at two levels: in-house or third party.

Table 3.8
Effect of Preparer Type on Auditors' Adjustment Recommendations[58]

Panel A: Generalized Linear Model (Logit Link, Binomial Distribution)

Source of Variation	df	Wald Chi-square	2-tailed p-value
Caveat	1	0.293	0.588
Preparer	1	3.427	0.064
Caveat * Preparer	1	0.275	0.600
Source credibility rating	1	8.461	0.004

Panel B: Adjusted Cell Means for Adjustment Recommendation Mean (SE) [N] Cell

	No caveat	Caveat	
In-house preparer	.17 (.107) [19] A	.27 (.109) [17] B	.22 (.077) [36]
Third party preparer	.42 (.096) [23] C	.43 (.105) [18] D	.43 (.071) [41]
	.29 (.070) [42]	.35 (.076) [35]	

[58] See definition of Caveat in Table 3.2, definition of Adjustment Recommendation in Table 3.6, and definition of Preparer in Table 3.7. Source Credibility Rating is the continuous value of the Source Credibility measure described in Table 3.2.

CHAPTER 4

CONCLUSION

This dissertation provides descriptive and empirical evidence about how auditors use valuation specialists. The descriptive evidence collected in the first study develops a framework describing when, why, and how auditors use valuation specialists when auditing complex estimates, and how valuation specialists can affect audit quality. The empirical evidence collected in the second study builds on this framework by demonstrating the variation that can occur in auditors' use of valuation specialists' work when making judgments about estimates due to their perceptions about their clients' source credibility.

The first study makes contributions relevant to researchers and standard setters. The descriptive evidence obtained through interviews with practicing auditors increases researchers' institutional knowledge about auditors' use of valuation specialists and provides a framework for future research on auditors' use of valuation specialists in auditing estimates. This is an area of growing importance, as increasing complexity in finance and accounting as well as in regulation warrants increasing involvement of valuation specialists. Moreover, auditing standards currently provide unclear guidance to auditors for their use of all types of non-accounting specialists and the PCAOB aims to improve these standards in the near future (PCAOB 2009, 2012). Standard setters contemplating changes to the standards governing how auditors *should* use specialists may benefit from better understanding how auditors *do* use specialists. The first study also provides insight into the potential implications for audit quality of the involvement of valuation specialists in auditing complex estimates. Despite the proliferation of complex estimates that

require the involvement of valuation specialists, researchers have not considered their role in auditing these highly complex, risky, and significant accounts—or more generally, their role in audit quality.

The second study makes contributions relevant to researchers, standard setters, and practitioners. This study contributes to the literature on auditing complex estimates by demonstrating that factors such as perceived client source credibility influence how auditors use valuation specialists' work. Of particular note is the conclusion that auditors only benefit from their valuation specialists' caveats when they perceive low client source credibility, indicating that auditors do not always use valuation specialists effectively. Auditors' differential use of the work of valuation specialists under different client conditions also suggests practical implications for standard setters and practitioners. For example, audit firms may tailor their requirements for specialists' documentation based on client conditions, or auditing standards may require auditors to perform additional procedures under certain client conditions when specialists are used.

The conclusions and contributions of this dissertation leave a number of important questions unanswered. The studies herein do not consider issues related to audit quality from the perspective of valuation specialists. Future research might address what factors influence the work and recommendations of valuation and other non-accounting specialists, and how their status as relative outsiders to the audit team and to the client affects both the quality and objectivity of their work. The second study only considers how auditors use what they receive from valuation specialists; a related issue is how auditors influence what they receive from valuation specialists through the selection, timing, and framing of information given to valuation specialists. Both the descriptive framework developed in the first study and the empirical results documented in the second study inform these and other future research questions on how

auditors work with valuation specialists when auditing complex estimates and the resulting implications for audit quality.

REFERENCES

Anderson, U., K. Kadous, and L. Koonce. 2004. The role of incentives to manage earnings and quantification in auditors' evaluations of management-provided information. *Auditing: A Journal of Practice & Theory* 23 (1): 11-27.

Asare, S. K., and A. W. Wright. 2004. The effectiveness of alternative risk assessment and program planning tools in a fraud setting. *Contemporary Accounting Research* 21 (2): 325-352.

Backof, A. S., J. Thayer, and T. D. Carpenter. 2014. Auditing fair value estimates: The effect of management's supporting evidence on auditors' assessments of aggressive assumptions. Working paper, University of Virginia.

Bamber, E. M. 1983. Expert judgment in the audit team: A source reliability approach. *Journal of Accounting Research 21*(2): 396-412.

Baron, R. M., and D. A. Kenny. 1986. The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of personality and social psychology* 51 (6): 1173-1182.

Barrett, M., and Y. Gendron. 2006. WebTrust and the "commercialistic auditor": The unrealized vision of developing auditor trustworthiness in cyberspace. *Accounting, Auditing & Accountability Journal* 19 (5): 631-662.

Bedard, J. C., and S. F. Biggs. 1991. Pattern recognition, hypotheses generation, and auditor performance in an analytical task. *The Accounting Review* 66 (3): 622-642.

Bennett, G. B., and R. C. Hatfield. 2013. The effect of the social mismatch between staff auditors and client management on the collection of audit evidence. *The Accounting Review* 88 (1): 31-50.

Birnbaum, M. H., and S. E. Stegner. 1979. Source credibility in social judgment: Bias, expertise, and the judge's point of view. *Journal of Personality and Social Psychology* 37 (1): 48-74.

Bohner, G., and N. Dickel. 2011. Attitudes and attitude change. *Annual Review of Psychology* 62: 391-417.

Bratten, B., L. M. Gaynor, L. McDaniel, N. Montague, and G. E. Sierra. 2013. The audit of fair values and other estimates: The effects of underlying environmental, task, and auditor-specific factors. *Auditing: A Journal of Practice & Theory* 32 (Supplement 1): 7-44.

Brown, C. E, and I. Solomon. 1990. Auditor configural information processing in control risk assessment. *Auditing: A Journal of Practice & Theory* 9 (3): 17-38.

Brown, C. E., and I. Solomon. 1991. Configural information processing in auditing: The role of domain-specific knowledge. *The Accounting Review* 66 (1): 100-119.

Busco, C., A. Riccaboni, and R. W. Scapens. 2006. Trust for accounting and accounting for trust. *Management Accounting Research* 17 (1): 11-41.

Cannon, N. H., and J. C. Bedard. 2014. Auditing challenging fair value measurements: Evidence from the field. Working paper, Texas State University.

Chaiken, S. 1980. Heuristic versus systematic information processing and the use of source versus message cues in persuasion. *Journal of Personality and Social Psychology* 39 (5): 752-766.

Chaiken, S., and D. Maheswaran. 1994. Heuristic processing can bias systematic processing: Effects of source credibility, argument ambiguity, and task importance on attitude judgment. *Journal of Personality and Social Psychology* 66 (3): 460-473.

Christensen, B. E., S. M. Glover, and D. A. Wood. 2012. Extreme estimation uncertainty in fair value estimates: Implications for audit assurance. *Auditing: A Journal of Practice & Theory* 31 (1): 127-146.

Christensen, B. E., S. M. Glover, T. C. Omer, and M. K. Shelley. 2013. Understanding audit quality: Insights from audit partners and investors. Working paper, Texas A&M University.

Crano, W. D., and R. Prislin. 2006. Attitudes and persuasion. *Annual Review of Psychology* 57: 345-374.

Danos, P., J. W. Eichenseher, and D. L. Holt. 1989. Specialized knowledge and its communication in auditing. *Contemporary Accounting Research* 6 (1): 91-109.

Deloitte. 2012. Fair Value Pricing Survey, Tenth Edition: Looking Back and Looking Forward: Perspectives on Fair Value – Past, Present, and Future. Deloitte Development LLC. Available at: http://www.deloitte.com/assets/Dcom-UnitedStates/ Local%20Assets/Documents/FSI/US_FSI_FairValuePricingSurvey%20.pdf.

Dichev, I. D., J. R. Graham, C. R. Harvey, and S. Rajgopal. 2013. Earnings quality: Evidence from the field. *Journal of Accounting and Economics* 56 (2-3, Supplement 1): 1-33.

Englund, H., J. Gerdin, and J. Burns. 2011. 25 years of Giddens in accounting research: Achievements, limitations and the future. *Accounting, Organizations and Society* 36 (8): 494-513.

Gendron, Y., and J. Bédard. 2006. On the constitution of audit committee effectiveness. *Accounting, Organizations and Society* 31 (3): 211-239.

Giddens, A. 1990. The Consequences of Modernity. Stanford, CA: Stanford University Press.

Giddens, A. 1991. Modernity and Self-Identity. Stanford, CA: Stanford University Press.

Giddens, A. 1994. Living in a post-traditional society. In *Reflexive Modernization: Politics, Tradition and Aesthetics in the Modern Social Order*, edited by U. Beck, A. Giddens, and S. Lash, 56-109. Stanford, CA: Stanford University Press.

Gold, A., W. R. Knechel, and P. Wallage. 2012. The effect of the strictness of consultation requirements on fraud consultation. *The Accounting Review* 87 (3): 925-949.

Goodwin, J. 1999. The effects of source integrity and consistency of evidence on auditors' judgments. *Auditing: A Journal of Practice & Theory* 18 (2): 1-16.

Goodwin, J., and K. T. Trotman. 1996. Factors affecting the audit of revalued non-current assets: Initial public offerings and source reliability. *Accounting & Finance* 36 (2): 151-170.

Grewal, D., J. Gotlieb, and H. Marmorstein. 1994. The moderating effects of message framing and source credibility on the price-perceived risk relationship. *Journal of Consumer Research* 21 (1): 145-153.

Griffith, E. E. 2014. How do auditors use valuation specialists when auditing fair values? Working paper, University of Georgia.

Griffith, E. E., J. S. Hammersley, and K. Kadous. 2014a. Audits of complex estimates as verification of management numbers: How institutional pressures shape practice. *Contemporary Accounting Research* (forthcoming).

Griffith, E. E., J. S. Hammersley, K. Kadous, and D. Young. 2014b. Auditor mindsets and audits of complex estimates. Working paper, University of Georgia.

Hackenbrack, K., and M. W. Nelson. 1996. Auditors' incentives and their application of financial accounting standards. *The Accounting Review* 71 (1): 43-59.

Hammersley, J. S. 2006. Pattern identification and industry-specialist auditors. *The Accounting Review* 81 (2): 309-336.

Hammersley, J. S. 2011 A review and model of auditor judgments in fraud-related planning tasks. *Auditing: A Journal of Practice & Theory* 30 (4): 101-128.

Hammersley, J. S., K. M. Johnstone, and K. Kadous. 2011. How do audit seniors respond to heightened fraud risk? *Auditing: A Journal of Practice & Theory* 30 (3): 81-101.

Harkins, S. G., and R. E. Petty. 1981. Effects of source magnification of cognitive effort on attitudes: An information-processing view. *Journal of Personality and Social Psychology* 40 (3): 401-413.

Hirst, D. E. 1994. Auditors' sensitivity to source reliability. *Journal of Accounting Research* 32 (1): 113-126.

Hoffman, V. B., and M. F. Zimbelman. 2009. Do strategic reasoning and brainstorming help auditors change their standard audit procedures in response to fraud risk? *The Accounting Review* 84 (3): 811-837.

International Federation of Accountants (IFAC). 2009. International Standard on Auditing 620: Using the Work of an Auditor's Expert. New York, NY: IFAC.

Jones, T. C., and D. Dugdale. 2001. The concept of an accounting regime. *Critical Perspectives on Accounting* 12 (1): 35-63.

Joyce, E. J., and G. C. Biddle. 1981. Are auditors' judgments sufficiently regressive? *Journal of Accounting Research* 19 (2): 323-349.

Lundholm, R. J. 1999. Reporting on the past: A new approach to improving accounting today. *Accounting Horizons* 13 (4): 315-322.

Kadous, K. 2000. The effects of audit quality and consequence severity on juror evaluations of auditor responsibility for plaintiff losses. *The Accounting Review* 75 (3): 327-341.

Kadous, K., S. J. Kennedy, and M. E. Peecher. 2003. The effect of quality assessment and directional goal commitment on auditors' acceptance of client-preferred accounting methods. *The Accounting Review* 78 (3): 759-778.

Kadous, K., L. Koonce, and K. L. Towry. 2005. Quantification and persuasion in managerial judgment. *Contemporary Accounting Research* 22 (3): 643-686.

Kadous, K., J. Leiby, and M. E. Peecher. 2013. How do auditors weight informal contrary advice? The joint influence of advisor social bond and advice justifiability. *The Accounting Review* 88 (6): 2061-2087.

Kaplan, R. S. 2011. Accounting scholarship that advances professional knowledge and practice. *The Accounting Review* 86 (2): 367-383.

Kaplan, S. E., E. F. O'Donnell, and B. M. Arel. 2008. The influence of auditor experience on the persuasiveness of information provided by management. *Auditing: A Journal of Practice & Theory* 27 (1): 67-83.

Kennedy, S. J., D. N. Kleinmuntz, and M. E. Peecher. 1997. Determinants of the justifiability of performance in ill-structured audit tasks. *Journal of Accounting Research* 35 (Supplement): 105-123.

Keppel, G., and T. D. Wickens. 2004. *Design and Analysis: A Researcher's Handbook (4th Edition).* Englewood Cliffs, NJ: Prentice Hall.

Knechel, W. R., G. V. Krishnan, M. Pevzner, L. B. Shefchik, and U. K. Velury. 2013. Audit quality: Insights from the academic literature. *Auditing: A Journal of Practice & Theory* 32 (Supplement 1): 385-421.

Knights, D., F. Noble, T. Vurdubakis, and H. Willmott. 2001. Chasing shadows: Control, virtuality and the production of trust. *Organization Studies* 22 (2): 311-336.

Kruglanski, A. W., A. Pierro, L. Mannetti, H. Erb, and W. Y. Chun. 2007. On the parameters of human judgment. *Advances in Experimental Social Psychology* 39: 255-303.

Kunda, Z. 1990. The case for motivated reasoning. *Psychological Bulletin* 108 (3): 480-498.

Lincoln, Y. S. and E. G. Guba. 1985. Naturalistic Inquiry. Newbury Park, CA: SAGE Publications, Inc.

Martin, R. D., J. S. Rich, and T. J. Wilks. 2006. Auditing fair value measurements: A synthesis of relevant research. *Accounting Horizons* 20 (3): 287-303.

McCroskey, J. C., and T. J. Young. 1981. Ethos and credibility: The construct and its measurement after three decades. *Communication Studies* 32 (1): 24-34.

Merchant, K. A., and W. A. Van der Stede. 2006. Field-based research in accounting: Accomplishments and prospects. *Behavioral Research in Accounting* 18 (1): 117-134.

Miles, M. B., and A. M. Huberman. 1994. *Qualitative Data Analysis: An Expanded Sourcebook*. Thousand Oaks, CA: SAGE Publications, Inc.

Moore, D. J., and R. Reardon. 1987. Source magnification: The role of multiple sources in the processing of advertising appeals. *Journal of Marketing Research* 24 (4): 412-417.

Morse, J. M. 1995. The significance of saturation. *Qualitative Health Research* 5 (2): 147-149.

Morse, J. M. 2000. Determining sample size. *Qualitative Health Research* 10 (1): 3-5.

Ng, T. B., and P. G. Shankar. 2010. Effects of technical department's advice, quality assessment standards, and client justifications on auditors' propensity to accept client-preferred accounting methods. *The Accounting Review* 85 (5): 1743-1761.

Peecher, M. E. 1996. The influence of auditors' justification processes on their decisions: A cognitive model and experimental evidence. *Journal of Accounting Research* 34 (1): 125-140.

Petty, R. E., and J. T. Cacioppo. 1984. Source factors and the elaboration likelihood model of persuasion. *Advances in Consumer Research* 11 (1): 668-672.

Petty, R. E., and J. T. Cacioppo. 1986. The elaboration likelihood model of persuasion. *Advances in Experimental Social Psychology* 19: 123-205.

Petty, R. E., D. T. Wegener, and L. R. Fabrigar. 1997. Attitudes and attitude change. *Annual Review of Psychology* 48: 609-647.

Pornpitakpan, C. 2004. The persuasiveness of source credibility: A critical review of five decades' evidence. *Journal of Applied Psychology* 34 (2): 243-281.

Power, M. 1995. Auditing, expertise and the sociology of technique. *Critical Perspectives on Accounting* 6 (4): 317-339.

Power, M. 1996. Making things auditable. *Accounting, Organizations and Society* 21 (2/3): 289-315.

Power, M. 2010. Fair value accounting, financial economics and the transformation of reliability. *Accounting and Business Research* 4 (3): 197-210.

Public Company Accounting Oversight Board (PCAOB). 2003. *Using the Work of a Specialist.* PCAOB Interim Auditing Standards AU Section 336. Washington, D.C.: PCAOB.

PCAOB. 2009. *Auditing Fair Value Measurements and Using the Work of a Specialist.* Standing Advisory Group Meeting. October 14-15. Washington, D.C.: PCAOB.

PCAOB. 2010a. *PCAOB Release No. 2010-004. Audit Planning.* Auditing Standard No. 9. Washington, D.C.: PCAOB.

PCAOB. 2010b. *PCAOB Release No. 2010-004. Supervision of the Audit Engagement.* Auditing Standard No. 10. Washington, D.C.: PCAOB.

PCAOB. 2010c. *PCAOB Release No. 2010-004. Evaluating Audit Results.* Auditing Standard No. 14. Washington, D.C.: PCAOB.

PCAOB. 2010d. *PCAOB Release No. 2010-004. Audit Evidence.* Auditing Standard No. 15. Washington, D.C.: PCAOB.

PCAOB. 2010e. *PCAOB Release No. 2010-006. Report on Observations of PCAOB Inspectors Related to Audit Risk Areas Affected by the Economic Crisis*. Washington, D.C.: PCAOB.

PCAOB. 2011. *Assessing and Responding to Risk in the Current Economic Environment*. Staff Audit Practice Alert No. 9, December 6. Washington, D.C.: PCAOB.

PCAOB. 2012. *Office of the Chief Auditor: Standard-Setting Agenda.* March 2012, Washington, D.C.: PCAOB.

Rasso, J. T. 2014. The influence of mindsets on professional skepticism in auditors. Working paper, Georgia State University.

Reed, M. I. 2001. Organization, trust and control: A realist analysis. *Organization Studies* 22 (2): 201-228.

Rich, J. S. 2004. Reviewers' responses to expectations about the client and the preparer. *The Accounting Review* 79 (2): 497-517.

Rich, J. S., I. Solomon, and K. T. Trotman. 1997a. The audit review process: A characterization from the persuasion perspective. *Accounting, Organizations and Society* 22 (5): 481-505).

Rich, J. S., I. Solomon, and K. T. Trotman. 1997b. Multi-auditor judgment/decision making research: A decade later. *Journal of Accounting Literature* 16: 86-126.

Salterio, S. 1996. The effects of precedents and client position on auditors' financial accounting policy judgment. *Accounting, Organizations, and Society* 21 (5): 467-486.

Salterio, S., and R. Denham. 1997. Accounting consultation units: An organizational memory analysis. *Contemporary Accounting Research* 14 (4): 669-691.

Salterio, S., and L. Koonce. 1997. The persuasiveness of audit evidence: The case of accounting policy decisions. *Accounting, Organizations, and Society* 22 (6): 573-587.

Simon, C. A. 2012. Individual auditors' identification of relevant fraud schemes. *Auditing: A Journal of Practice & Theory* 31 (1): 1-16.

Smith-Lacroix, J., S. Durocher, and Y. Gendron. 2012. The erosion of jurisdiction: Auditing in a market value accounting regime. *Critical Perspectives on Accounting* 23 (1): 36-53.

Stzompka, P. 1999. Trust: A Sociological Theory. Cambridge, England: Cambridge University Press.

APPENDIX A

CONSENT FORM FOR INTERVIEWS

Informed Consent to Participate in an Experimental Study
Title: Using Specialists in Auditing

Investigators

Jacqueline S. Hammersley
J.M. Tull School of Accounting
238 Brooks Hall
The University of Georgia
(706) 542-3500
jhammers@uga.edu

Emily Griffith
J.M. Tull School of Accounting
G-17A Brooks Hall
The University of Georgia
(706) 542-2022
eegriff@uga.edu

Purpose

You have been invited to participate in a research study about how auditors work with specialists. The purpose of the study is to increase understanding of the circumstances under which auditors consult with specialists and the factors that make these consultations more or less successful with regard to improving audit quality. Provision of any information is completely voluntary. We anticipate up to 100 participants taking part in this study. All participants must be 18 years of age or older.

Discomforts, Stresses, Risks, and Benefits

No discomforts or stresses are expected if you choose to participate in this study. The main risk in this study is the loss of confidentiality. To guard against this risk, we will not record your name or employer on any interview documents or in any of our files. If you wish, you may skip any questions that you do not want to answer. Taking part in the study is not expected to benefit you personally, but researchers will learn new things about using specialists in auditing.

Procedures

This study involves an interview. If you choose to participate, you will be asked a series of questions about working with specialists on audit engagements. It should take about 45 minutes to complete the study. With your permission, we will tape record the interview to ensure that we have an accurate record of the interview, but you may choose not to be recorded if you prefer. There are no costs associated with helping me with the study.

Confidentiality

Your name will not be associated with any of the responses you give today. If you agree to be tape recorded, we will destroy the audio file immediately after transcribing it and your name will not be associated with the audio file or transcription. The results of this study will be aggregated, and may be shared with your employer and published; however, your name will not be used or your identity associated with the results in any reports or publications. The name of your employer, position at your firm, and other potentially identifying information will only be used in aggregate and will not be associated with your individual responses. Direct quotes from your interview may be used in reports, but will be attributed to a pseudonym.

Right to Refuse Participation or Withdraw

You do not have to take part in this study. If you start the study and decide that you do not want to finish, you may do so at any time. Refusing to participate or withdrawing at any time will not

result in penalty or loss of benefits to which you are otherwise entitled, nor will it affect your standing at work.

Further Questions
The researchers will answer any further questions about the research, now or during the course of the project, and can be reached via the contact information above. Additional questions or problems regarding your rights as a research participant should be addressed to The Chairperson, Institutional Review Board, University of Georgia, 629 Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-3199; E-Mail Address IRB@uga.edu.

Statement of Consent
By participating in this study, you indicate that you understand the above information, you have had an opportunity to ask questions, and all of your questions have been answered to your satisfaction. Please keep this copy of this document for your records.

APPENDIX B

CONSENT FORM FOR EXPERIMENT

Informed Consent to Participate in an Experimental Study
Title: Auditing Complex Estimates

Investigators

Jacqueline S. Hammersley
J.M. Tull School of Accounting
238 Brooks Hall
The University of Georgia
(706) 542-3500

Emily Griffith
J.M. Tull School of Accounting
G-17A Brooks Hall
The University of Georgia
(706) 542-2022

Purpose

You have been invited to participate in a research study of judgment and decision making. The purpose of the study is to increase understanding of how auditors make judgments about complex accounting estimates. Provision of any information is completely voluntary. All participants must be 18 years of age or older.

Discomforts, Stresses, Risks, and Benefits

No psychological, social, legal, economic, or physical risks are expected if you choose to participate in this study. The main risk is loss of confidentiality, which we will minimize by collecting all experimental data anonymously. Taking part in the study is not expected to benefit you personally, but researchers will learn new things about decision making in accounting.

Procedures

This study involves a case study about auditing a complex accounting estimate. If you choose to participate, you will be asked to complete the case, which should take about one hour. There are no costs associated with helping us with the study.

Confidentiality

Your name will not be associated with any of the responses you give today. The results of this study will be aggregated and may be published; however, your name will not be used or your identity associated with the results in any reports or publications.

Right to Refuse Participation or Withdraw

You do not have to take part in this study. If you start the study and decide that you do not want to finish, you may do so at any time. Refusing to participate or withdrawing at any time will not result in penalty or loss of benefits to which you are otherwise entitled, nor will it affect your standing at work. You can ask to have information that can be identified as yours returned to you, removed from the research records, or destroyed.

Further Questions

The researchers will answer any further questions about the research, now or during the course of the project, and can be reached via the contact information above. Additional questions or problems regarding your rights as a research participant should be addressed to The Chairperson, Institutional Review Board, University of Georgia, 629 Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-3199; E-Mail Address IRB@uga.edu.

Statement of Consent

By participating in this study, you indicate that you understand the above information, you have had an opportunity to ask questions, and all of your questions have been answered to your satisfaction. Please keep this document for your records.

APPENDIX C

INTERVIEW SCRIPT

Interview Script

1. Think about the **most recent time** you worked with a valuation specialist on a Level 2 or Level 3 fair value estimate. Describe the account/estimate.
    a. Type of account
    b. Level 2 or 3
    c. Risk level
    d. Client industry
    e. How client developed estimate, i.e., in-house or third party

2. Now, describe your experience working with the valuation specialist. I'm interested in learning about the entire process: how each step was done, when and in what order they were done, what information and documents were exchanged between the audit team and the specialist, and what level auditors were involved.
    a. Decide to use specialist or not and extent to which they will be used
        i. How/why
        ii. Information flow between auditor and specialist
        iii. Documents
        iv. When
        v. Who
    b. Auditor/specialist interaction
        i. How/why
        ii. Information flow between auditor and specialist
        iii. Documents
        iv. When
        v. Who
    c. Work received from specialist
        i. How/why
        ii. Information flow between auditor and specialist
        iii. Documents
        iv. When
        v. Who
    d. Evaluating the work of specialist
        i. How/why
        ii. Information flow between auditor and specialist
        iii. Documents
        iv. When
        v. Who
    e. Using work of specialist to make conclusions
        i. How/why
        ii. Information flow between auditor and specialist

iii. Documents
iv. When
v. Who

f. What happens when there are differences?
    i. Why happened
    ii. How resolved
g. Specialist's recommendations
    i. Why followed (or not)

3. Did you notice your audit team having trouble anywhere throughout this process?
    a. Where did they seem to have trouble and what sort of problems were they having?
        i. Cause
        ii. Who
    b. What are some other common problems you've noticed on other engagements where you've used a valuation specialist for Level 2 or 3 fair values?
        i. Cause
        ii. Who

4. In the past year, how many different client engagements have you worked on?

5. How many of those engagements involved valuation specialist for issues related to Level 2 or 3 fair values?

6. How many of the valuation specialists were in-house vs. from an external firm?

7. For those that were in-house, were they at local, regional, or national office level?

8. Demographic information:
    a. Position and title (including special groups, etc.)
    b. Years of experience
    c. Primary client industry
    d. Firm
    e. Office location
    f. Date of interview
    g. Duration of interview

9. Final thoughts – any last impressions that we didn't cover?

APPENDIX D

INTERVIEW CODING SCHEME

Interview Coding Scheme

Each interviewee described three steps in the process of using valuation specialists to audit fair values, and then described any problems s/he has had using valuation specialists. There is a unique coding scheme for responses pertaining to each step and to problems. Codes common to all steps are noted preceding the unique coding schemes. An asterisk (*) beside a code indicates that this item is suggested by auditing standards on using specialists (i.e., AU 336). Arabic letters and numbers denote codes to be assigned to items; bullet points denote examples of items to be coded in the particular category.

Codes common to all steps:

O. Other – item does not fit into any category for the given step
WHO – item describes what level auditor performs the step
WHEN – item describes when in the audit process the step occurs

Step 1: How do auditors decide (1) to use a valuation specialist and (2) how extensively the valuation specialist will be involved when auditing a Level 2 or 3 fair value (and when, and who from audit team is involved)?

Any interview content that describes how auditors decide that they need to involve a specialist is coded here. Also, descriptions of how auditors decide between specialists serving a limited vs. extensive role in the audit are coded here.

Step 1 Codes:

A. Account/estimate characteristics* – inherent to the specific fair value being audited
    - Materiality
    - Account-specific risk
    - Complexity of a model or estimate
    - Specific type of account
    - Level in FV hierarchy (i.e., Level 2 or 3)
    - Can't be priced by national pricing service or pricing service gets price that differs from client (i.e., outside "tolerable range")

B. Client characteristics – specific to the client but not necessarily to the specific fair value being audited (i.e., that would likely affect all accounts/estimates on that client's financial statements, not just the one in question)
    - Whether client uses 3rd party (i.e., "management's specialist," trustee, custodian, asset manager)
    - Client sophistication and expertise
    - Client history with estimates (i.e., track record of accurate/inaccurate or unbiased/biased estimates)
    - Business risk of the client

C. Audit team characteristics* – specific to members of the current engagement team that may be specific to the client or that may be relevant across many different client engagements
    - Client-specific knowledge (i.e., knowledge of client's plans or intentions)
    - Technical auditing experience or expertise (i.e., lots of experience with a complex *accounting* matter)
    - Valuation experience or expertise (i.e., background in finance, lots of experience with discounted cash flow models)
    - Note: this is *not* for instances where auditor uses knowledge of how it was done last year to do it the same way again this year (see G below)

D. Specialist characteristics and availability – specific to the particular specialist to be used that may be specific to the type of fair value being audited (i.e., and would be relevant across many client engagements with that type of fair value), or to the particular client (i.e., would not be relevant on different engagements), or to the particular auditor (i.e., would be relevant to a specific auditor across many different engagements)
    - Expertise in specific industry or valuation area
    - Prior experience working with the client
    - Prior experience working with the auditor
    - Available when needed by team

E. Budget concerns – reflect consideration of the incremental expense incurred when using a specialist

F. Firm policy and decision aids – dictated by firm guidelines or standard procedures; may or may not be guided by a formal decision aid
    - Materiality thresholds
    - Specific accounts or types of fair values that automatically trigger use of specialist
    - Specialized audit programs that direct auditors to use specialists

G. Prior year approach – default to approach used previously

H. Specialist has input into decision about whether they are needed or what type of approach should be taken (how much work should be done, what specific procedures should be done, etc.)

Step 2: What do valuation specialists do: procedures performed, conclusions made, documentation given to auditor (and when, and who from audit team is involved)?

Any interview content that describes the role of specialists in obtaining and evaluating audit evidence (i.e., A-D, I-H) or describes auditors' influence on specialists (i.e., E-F) as they perform procedures and make conclusions is coded here.

Step 2 Codes:

A. Specific scope and procedures done by specialist – which specific procedures are done by the specialist, and which are left to the auditor. Specify specialist (SP) or auditor (AU) for all items coded here. If ambiguous between procedures and conclusions, default to procedures.
    1. Evaluate client's method*
        - Specialist considers consistency with industry knowledge or experience
        - Weighting of models when more than one is used
        - Shadow calculations/independent models to corroborate output of client's model
    2. Evaluate client's assumptions (also called inputs, benchmarks, etc. – anything other than historical and/or objective data that is used to calculate value)*
        - Sensitivity analysis
        - Market research or comparables
        - Independent expectations
        - Subsequent events review
    3. Evaluate client/third party expertise and ability to do the valuation
    4. Control testing
    5. Planning assessments: risk of material misstatement, fraud risk, or materiality (usually done by auditor)
        - Planned approach/specific testing that will be done
    6. Evaluate client's Level 1, 2, and 3 classifications
    7. Test objective data that goes into valuation
    8. Check mathematical accuracy of model

B. Specific conclusions made by specialist* – which judgments does the specialist make, and which are left to the auditor. Specify specialist (SP) or auditor (AU) for all items coded here. If ambiguous between procedures and conclusions, default to procedures. B is also more focused on documentation of the conclusions than A.
    1. Method is acceptable or reasonable
    2. Individual inputs/assumptions are within an acceptable or reasonable range
    3. Fair value of the given item is reasonable (i.e., FV of specific investments, of goodwill balance, etc.)
    4. Client's valuation supports financial statement assertions (i.e., line items on f/s are not materially misstated)
    5. Presence and amount of impairment and/or whether impairment is temporary or permanent
    6. Agreement between specialist's work and auditor's conclusions
    7. Client's "level" classifications (i.e., treat as Level 2 vs. 3) are reasonable

C. Follow-up items for auditors – items documented/flagged by specialist that will be left for the auditor to do in addition to the specialist's work before concluding on the fair value
    - Limitations
    - Explicit issues/items flagged for audit team

- Recommendations for client improvements

D. Specialist as reviewer of audit approach and sufficiency of audit evidence – descriptions that convey the specialist's role as a reviewer of auditor's work, rather than the other way around (the assumption implicit in AU 336 is that the auditor reviews the specialist's work)

E. Interactions between auditor and specialist – how auditor and specialist communicate and interact with each other; note that this *excludes* auditor-client and specialist-client interactions; focus is on how much the specialist is a part of the team vs. working in isolation from the audit team. E is more likely to occur as part of planning than F.
   - Extent of audit team reliance on specialist during planning and fieldwork
   - How engaged the auditor is in the specialist's process
   - Coordination of who's doing what
   - Keeping track of specialist's progress

F. Information flow – how specialist gets information from auditor and from client, and how auditor gets information from specialist; note the focus here is on *information transfer* to and from specialist, rather than on the level of auditor involvement/engagement with specialist as in E above
   - Specialist as liaison with client's third party (or other way around)
   - Form and content of documents received from client or auditor (e.g., client's valuation report) and given back to auditor
   - Descriptions of documentation received from specialist, e.g. conclusion memo, (that do not fit into A or B), including timing

G. Valuation specialist discretion – extent to which valuation specialist decides what to do once in the field
   1. Valuation specialist has significant discretion over procedures performed
   2. Valuation specialist follows plan established by auditor without much deviation

H. General knowledge sharing by valuation specialist – valuation specialist provides information to audit team outside of performing a specific procedure
   - Information shared but not with explicit purpose of evaluating method or assumptions
   - Auditors learning about specialist's procedures/how to do more of these procedures themselves

Step 3: What do auditors do with the valuation specialist's work (and when, and who from the audit team is involved)?

Any interview content that describes how auditors review specialists' work, incorporate the work into the audit file, and use the work to make audit judgments/conclusions is coded here (i.e., A-H), or describes how specialists influence or help auditors in using their work (i.e., I) is coded here.

Step 3 Codes:

A. Ensure that respective responsibilities of specialist and auditor are fulfilled* – did each side perform and document all of the procedures that they agreed to do?
    - Refer to planning documentation or checklist to mark off who did what

B. Review specialist's work for consistency with audit and external/market data – are the specialist's results consistent with other audit evidence and other data?
    - Does specialist's work raise any questions in other audit areas?
    - Does specialist's work tie into trial balance, audited numbers, etc.?
    - Is specialist's work consistent with auditor's knowledge of *other* audit engagements (i.e., consistent across that auditor's experience)?

C. Edit/finalize specialist's documentation and incorporate it into the audit file – adding or deleting from specialist's work to get to the point where auditor can support their conclusion; focus is on changes auditors make to specialist's documentation
    - Remove inconsistencies and suggestions
    - Add/document audit conclusions

D. Evaluate whether overall level and quality of work is sufficient (i.e., for inspection purposes) – this is an evaluation of the thoroughness of the specialist's work, rather than an evaluation of the completion of all steps as in A. D is more likely to result in *specialist* following up, while C is more likely to result in *auditor* following up.
    - Did specialist do enough work to complete a given objective/procedure?
    - Does the audit team have a comprehensive and final set of specialist's workpapers?

E. Identify and address explicit and implicit limitations or follow-up items* – focus on finding open items and doing whatever needs to be done (as opposed to adjusting documentation as in C); things auditor does to get comfortable with a number/conclusion such as obtaining more/sufficient evidence, etc.).
    - "Filling in gaps" or completing additional procedures that need to be done based on specialist's findings (ex: range used in specialist's sensitivity analysis exceeds materiality)
    - Make sure all questions (posed by auditor to specialist, and posed by auditor/specialist to client) are answered
    - Decide no follow-up is necessary because item is not material, already have sufficient support, etc.

F. Address differences between specialist's results and client's numbers* – once auditor is comfortable with the number/conclusion (i.e., has gotten through E above), what auditor does if there is a difference between specialist and client; will usually involve going back to the client
    - Iteration with client/third party
    - Consider materiality and qualitative factors to determine if a difference is significant

G. Communicate (or decide not to communicate) specialist's recommendations for changes to client's method, process, etc.

H. Rely on specialist's work without extensive review or re-performance – descriptions that convey auditors rely on specialist's understanding of and judgments about assumptions, methods, etc. in order to make their audit conclusions
    - Auditors lack expertise to re-perform specialist's work
    - Specialist's work has already been reviewed within the specialist team before auditor receives it
    - Can't evaluate specialist's work too precisely due to the wide range around many estimates
    - Accept specialist's conclusions without "tweaking"
    - *Not* necessary to assess (internal) specialist's expertise/qualifications in order to rely on their work
    - Firm audit programs/other decision aids or guidance ensure specialist is "assigned" proper procedures and all of this is done upfront

I. Interactions and iteration between auditor and specialist as auditor makes final conclusions – how specialist influences the way auditor uses their work and the judgments auditor makes based on their work

J. Make overall conclusion
    - Anything about taking responsibility for the overall conclusion/audit

K. Get understanding of what specialist did (by carefully reading their memo, etc.)
    - Does everything make sense?

Problems

Any interview content that describes challenges or problems that auditors have encountered when working with valuation specialists is coded here.

Problems Codes:

A. Coordination between specialists and audit team
    - Poor timing/specialists too busy
    - Communication/coordination between auditor and specialist: avoiding last-minute "fire drills," auditors staying involved and being proactive (i.e., information flow from auditor to specialist)
    - Getting specialist up to speed on client issues, expected challenges, etc. (and resulting budget issues)
    - Other time/budget pressures

B. Respective responsibilities of specialists and audit team – focus is on *intentional* avoidance of doing something because you think it is not your job or outside your expertise

- Reluctance to take ownership (on both sides)
- Specialists reluctant to make judgment-based conclusions; want to base judgments solely on external data (i.e., don't want to consider client-specific or otherwise "soft" information)
- Hard to get specialists on board with audit conclusions

C. Differences in perspectives, training, etc. between specialists and auditors – focus here is more on things falling through the cracks *unintentionally* (vs. B above) because you don't understand an issue raised by the other side
   - Lack of common background/"different languages" for auditors and specialists
   - Concept of materiality (and resulting budget issues)
   - Specialists' "bedside manner" with clients

D. More than one point of view may be acceptable → difficulty finding "common ground" between specialist and client/third party – when both sides have the same information and still come to *different*, but equally legitimate/reasonable conclusions
   - There is no single right answer

E. Information flow/coordination with client and/or client's third party – when both sides have different information but having the same information would lead them to the *same* conclusion
   - Difficult to get complete and/or up-to-date information from client or client's third party
   - Client won't take responsibility for their third party
   - Third party not objective
   - Third party has the least "skin in the game"

F. Difficult to know when you have enough evidence from specialist
   - Increasing firm and PCAOB requirements in response to changing markets and increasing complexity
   - Auditors don't get frequent enough experience with these items to keep up
   - Difficult to successfully/sufficiently roll forward work from interim

APPENDIX E

EXPERIMENTAL CASE

Description:

This appendix contains the experimental instrument completed by all participants. Each participant received a packet with the informed consent form (see Appendix B) and two envelopes with the case information and questions. The first envelope contained the case instructions and information, and questions about the case. The second envelope contained additional case questions and demographic questions. Participants reviewed the case information and completed the questions contained in the first envelope, and put all of the contents of the first envelope away before opening and completing the questions in the second envelope.

Case Instructions and Background

Black Bear Electronics, Inc. is an electronics manufacturer that sells electronic products to third-party retailers in the U.S. You are auditing Black Bear's fair value of equity as of April 30, 2013 for the annual goodwill impairment analysis. **Your task is to complete the remaining audit procedures to test Black Bear's fair value of equity.** Black Bear's key figures for the year (unaudited) are shown below.

Black Bear Electronics, Inc. 4/30/13	
Fair value of equity	$670 million
Book value of equity	$590 million
Goodwill	$280 million
Total Assets	$2.4 billion
Revenue	$1.2 billion
Net Income	$17 million

Materiality is set at $24 million (1.0 percent of total assets). Goodwill is a material account balance because it is quantitatively significant and qualitatively significant due to its susceptibility to misstatement arising primarily from recent market declines. Goodwill was recorded in 2008 when Black Bear acquired a competitor with a strong brand name and reputation for developing high quality products targeting luxury consumers.

Black Bear used an ***in-house [third party] preparer*** to determine its fair value of equity as of April 30, 2013. Black Bear's in-house [third party] preparer has prepared Black Bear's valuation since the acquisition in 2008, is a member of the National Association of Certified Valuators and Appraisers (NACVA), holds an Accredited Valuation Analyst (AVA) certification from NACVA, and currently serves on the AICPA's Business Valuation Committee. Thus, during planning the audit team and the team's internal valuation specialist determined that the in-house [third party] preparer is well-qualified and signed off on Black Bear's plan to use the in-house [third party] preparer to prepare the valuation.

This envelope contains the goodwill impairment test and valuation prepared by Black Bear's in-house [third party] preparer, a scoping memo outlining the responsibilities of the audit team and the audit team's internal valuation specialist, a summary of the audit procedures performed by the audit team, and a summary of the audit team's internal specialist's conclusion memo. As documented in the scoping memo, the audit team and the audit team's internal specialist have already completed most of the procedures. Thus, **you are to complete the three remaining procedures in the scoping memo:**

1. Review the audit team's work papers.
2. Review the audit team's internal valuation specialist's memo.
3. Draft the recommended final conclusion for Black Bear's fair value of equity as of April 30, 2013.

Please review the documents provided and complete the remaining procedures outlined in the scoping memo. Document your work as instructed in the final packet in this envelope.

Black Bear Electronics, Inc.
Goodwill Impairment Test
April 30, 2013

Based on qualitative factors, management has decided to perform the first step of the two-step goodwill impairment test. Management prepared the goodwill impairment analysis using the fair value of equity determined by the in-house [third party] preparer. The step one analysis indicates that the fair value of equity exceeds its carrying value and no step two analysis is required or was prepared. The discounted cash flow analysis prepared by the in-house [third party] preparer, which supports the fair value of equity, is on the next page.

Step 1 of Goodwill Impairment Test
April 30, 2013
(in thousands)
Prepared by Client

	Fair Value of Equity	**Book Value of Equity**	**Step 1 passed?**
Total	$670,000	$590,000	YES

Note 1: As fair value exceeds book value, no Step 2 analysis is required.

Note 2: Fair value of equity is based on the discounted cash flow model prepared by the in-house [third party] preparer that appears on the following page.

Black Bear Electronics, Inc.
Discounted Cash Flow Analysis
April 30, 2013
(in thousands)

Note: The audit team has verified the mathematical accuracy of this schedule, agreed all prior year numbers to prior year workpapers, tied out current year numbers to the trial balance, and agreed corporate income tax rate to the tax workpapers.

	Audited	Audited	Unaudited	Projections					Terminal
	4/30/2011	4/30/2012	4/30/2013	4/30/2014	4/30/2015	4/30/2016	4/30/2017	4/30/2018	Value
Revenue	1,140,000	1,160,000	1,190,000	1,249,500	1,293,000	1,344,700	1,401,100	1,461,300	
Revenue growth		*1.8%*	*2.6%*	*5.0%*	*3.5%*	*4.0%*	*4.2%*	*4.3%*	
Operating expenses	1,100,000	1,080,000	1,100,000	1,119,500	1,155,900	1,203,500	1,247,000	1,289,000	
Operating income	40,000	80,000	90,000	130,000	137,100	141,200	154,100	172,300	
Operating income growth		*100.0%*	*12.5%*	*44.4%*	*5.5%*	*3.0%*	*9.1%*	*11.8%*	
Operating margin	*3.5%*	*6.9%*	*7.6%*	*10.4%*	*10.6%*	*10.5%*	*11.0%*	*11.8%*	
Less: Depreciation	28,500	29,000	32,250	33,500	34,500	36,250	37,875	39,550	
Earning before interest and taxes	11,500	51,000	57,750	96,500	102,600	104,950	116,225	132,750	
Provision for income taxes	3,300	15,300	20,200	33,775	35,910	36,733	40,679	46,463	
Debt-free net income	8,200	35,700	37,550	62,725	66,690	68,218	75,546	86,288	
Add/(Deduct) Cash Flow Adjustments:									
Depreciation	28,500	29,000	32,250	33,500	34,500	36,250	37,875	39,550	
Capital expenditure	(30,000)	(25,000)	(25,000)	(20,000)	(20,000)	(25,000)	(27,000)	(29,000)	
Incremental working capital	(5,000)	(5,000)	(5,000)	-	-	-	-	-	
Free cash flow to the firm	1,700	34,700	39,800	76,225	81,190	79,468	86,421	96,838	96,838
Present value factor				*0.9407*	*0.8325*	*0.7367*	*0.6520*	*0.5770*	
Present value of discrete cash flows				71,706	67,590	58,545	56,344	55,872	

Total present value of discrete cash flows	310,058	Capitalization multiple	9.09
Present value of terminal value	507,923	Terminal value	880,341
Business enterprise value	817,981		
Less: Interest-bearing debt	150,000		
Equity value	667,981		
Equity value (rounded)	**670,000**		

Assumptions:	
Discount rate	13.00%
Depreciation rate	2.50%
Incremental working capital rate	0.00%
Long-term growth rate	2.00%
Corporate income tax rate	35.00%

Black Bear Electronics, Inc.
Scoping Memo
For April 30, 2013 Audit

Purpose

This memo documents the agreement between the audit team and the audit team's internal valuation specialist about responsibility for the audit procedures to be performed in connection with the audit of the fair value of equity of Black Bear Electronics as of April 30, 2013.

Allocation of Procedures

During the planning meeting for the April 30, 2013 audit of Black Bear Electronics, the audit team and the team's internal valuation specialist identified five key assumptions underlying Black Bear's fair value of equity. The audit team and the team's internal valuation specialist agreed upon the following allocation of procedures between the two parties to evaluate these assumptions.

		Internal Specialist	*Audit Team*	*Done by and date*
1.	Evaluate management's projected revenue for the years ended 4/30/14 through 4/30/18.		X	EES 5/23/13
2.	Evaluate management's projected operating expenses for the years ended 4/30/14 through 4/30/18.		X	EES 5/28/13
3.	Evaluate management's projected capital expenditures for the years ended 4/30/14 through 4/30/18.		X	EES 5/26/13
4.	Evaluate discount rate used in management's valuation analysis.	X		AEA 6/3/13
5.	Evaluate long-term growth rate used to determine terminal value used in management's valuation analysis.	X		AEA 6/3/13
6.	Review work papers prepared by Audit Team.		X	
7.	Review work papers prepared by Specialist.		X	
8.	Document overall conclusion on fair value of equity as of 4/30/13.		X	

Deliverables

The specialist will communicate the results of the above procedures allocated to the specialist in an Internal Specialist's Conclusion Memo.

Agreement

2013 Scoping Memo reviewed and approved by:

Bob Smith	10/10/12	Tim Jones	10/10/12
Audit partner in charge	Date	Lead valuation personnel	Date

Black Bear Electronics, Inc.
Summary of Procedures Performed by Audit Team
For April 30, 2013 Audit

<table>
<tr><th>Procedure</th><th>Summary of Results and Conclusion</th><th>Done by and date</th></tr>
<tr><td>Evaluate projected revenue for the years ended 4/30/14 through 4/30/18.</td><td><u>Results:</u>
The audit team evaluated Black Bear's historical accuracy at forecasting future revenue and notes that while Black Bear has over-estimated revenue growth in the past three years, the magnitude of over-estimation has decreased over the past three years.

Upon inquiry with management, the CFO explained that current revenue projections are appropriate given the introduction of a new product in 2014. The audit team reviewed minutes from the Board of Directors' meetings during 2012-2013 to corroborate the expected increase in revenue due to the introduction of the new product. Board minutes indicate that Black Bear plans to introduce the new product in 2014, consistent with the CFO's explanation.

To corroborate this explanation, the audit team obtained a market research report on Black Bear's new product and competing new products from an external market research firm. This report details the expected future revenue streams of the new product and competing products, and supports management's assumptions about the growth due to the new product.

The audit team used the past revenue trend and expectations about new revenue from the new product to develop a reasonable range for expected revenue (in millions) for the following five years:

<table><tr><th></th><th>Audit Team's Range</th><th>Black Bear Projection</th></tr><tr><td>FYE 4/30/14</td><td>$1,214 – 1,261</td><td>$1,250</td></tr><tr><td>FYE 4/30/15</td><td>$1,256 – 1,307</td><td>$1,293</td></tr><tr><td>FYE 4/30/16</td><td>$1,305 – 1,357</td><td>$1,345</td></tr><tr><td>FYE 4/30/17</td><td>$1,358 – 1,412</td><td>$1,401</td></tr><tr><td>FYE 4/30/18</td><td>$1,418 – 1,474</td><td>$1,461</td></tr></table></td><td>EES 5/23/13</td></tr>
</table>

	The audit team performed a sensitivity analysis to show the effect on fair value of a 0.5% decrease in the revenue projected in each of the following five years: |	Assuming a 0.5% decrease in each year's projected revenue:	As projected: | |---|---|---| | Equity value (in thousands) | $628,774 | $667,891 | <u>Conclusion:</u> Based on the procedures performed, projected revenue for the years ended 4/30/14 through 4/30/18 appears reasonable.	
Evaluate management's projected operating expenses for the years ended 4/30/14 through 4/30/18.	<u>Results:</u> The audit team compared Black Bear's historical operating expenses as a percentage of revenue with forward projections. As a percentage of revenue, operating expenses range from 92.4-96.5% historically (for the years ended 4/30/11 through 4/30/13), and forward projections range from 88.2-89.6% (for the years ended 4/30/14 through 4/30/18). The audit team inquired with management to determine the reason for the expected decrease in operating expenses as a percentage of sales. Management cited expected cost savings from the elimination of an under-performing product that required separate production facilities from those that produce Black Bear's other products. The new product to be introduced in 2014 will be produced in the same facilities as Black Bear's other products, and the separate facility will be closed. The audit team corroborated this explanation with a review of Board of Directors' meeting minutes from 2012-2013. The audit team evaluated Black Bear's historical accuracy at forecasting future operating expenses and notes that estimates made in the past three years have been within 3% of actual operating expenses (+2.6% in FY11, -2.4% in FY12, and +2.8% in FY13). Finally, the audit team compared the expected trend in operating income margin to the trend expected by comparable public companies in the same industry. Based on this peer analysis, operating margins between 8-12% over the next five years are expected across the industry.	EES 5/28/13

	Based on the above analyses, the audit team developed a reasonable range for expected operating expenses (in millions) for the following five years: 		Audit Team's Range	Black Bear Projection
FYE 4/30/14	$1,105 – 1,160	$1,120
FYE 4/30/15	$1,140 – 1,200	$1,156
FYE 4/30/16	$1,185 – 1,245	$1,204
FYE 4/30/17	$1,230 – 1,290	$1,247
FYE 4/30/18	$1,260 – 1,325	$1,289 | The audit team performed a sensitivity analysis to show the effect on fair value of a 0.5% increase in the operating expenses projected in each of the following five years: |	Assuming a 0.5% increase in each year's projected operating expenses:	As projected:
Equity value (in thousands)	$631,517	$667,891	 <u>Conclusion:</u> Based on the procedures performed, projected operating expenses for the years ended 4/30/14 through 4/30/18 appear reasonable.	
Evaluate management's projected capital expenditures for the years ended 4/30/14 through 4/30/18.	<u>Results:</u> The audit team compared Black Bear's historical capital expenditures as a percentage of revenue with forward projections. As a percentage of revenue, capital expenditures range from 2-3% historically (for the years ended 4/30/11 through 4/30/13), and forward projections range from 1-2% (for the years ended 4/30/14 through 4/30/18). The audit team also reviewed internal documents including capital budgets detailing Black Bear's significant planned capital projects. No significant projects related to production or office facilities are slated until 2016. Management does not expect significant incremental capital expenditures going forward to produce the new product. The required investment was made in the underlying business that was acquired several years ago. Finally, the audit team compared Black Bear's projected capital expenditures to industry norms. A U.S. electronics	EES 5/26/13

industry report obtained from an external market research firm indicates that capital expenditures as a percentage of revenue in the electronics industry reached a low in 2008. Capital expenditure levels in the industry began to rebound in 2011, and by 2016 industry analysts expect capital expenditure levels to surpass the all-time high levels reported before the recession.

Based on the above analyses, the audit team developed a reasonable range for expected capital expenditures (in millions) for the following five years:

	Audit Team's Range	Black Bear Projection
FYE 4/30/14	$18 – 21	$20
FYE 4/30/15	$19 – 22	$20
FYE 4/30/16	$23 – 27	$25
FYE 4/30/17	$25 – 29	$27
FYE 4/30/18	$27 – 31	$29

The audit team performed a sensitivity analysis to show the effect on fair value of a $1 million increase in the capital expenditures projected in each of the following five years:

	Assuming a $1M increase in each year's projected capital expenditures:	As projected:
Equity value (in thousands)	$658,997	$667,891

Conclusion:
Based on the procedures performed, projected capital expenditures for the years ended 4/30/14 through 4/30/18 appear reasonable.

Black Bear Electronics, Inc.
Internal Specialist's Conclusion Memo
For April 30, 2013 Audit

Purpose

The purpose of this memo is to summarize the results of procedures performed by the audit team's internal specialist as outlined in the Scoping Memo for the audit of Black Bear Electronics for the year ended April 30, 2013. This Conclusion Memo describes the procedures performed, results obtained, and conclusions made based on those results. We have assessed the reasonableness of the following assumptions: discount rate and long-term growth rate.

Findings

Discount Rate

The discount rate applied to the free cash flow projections reflects the return required by providers of debt and equity capital. This discount rate represents Black Bear's weighted average cost of capital ("WACC"). Black Bear used a WACC of 13.0% in discounting its projected future cash flows to present value.

We performed an independent WACC calculation to estimate a reasonable range of discount rates for Black Bear's cash flows as of April 30, 2013. Based on our independent WACC calculation, we estimate a reasonable range of discount rates to be between 12.6 and 14.6%.

We compared Black Bear's discount rate to the discount rates used by industry peers:

	Discount Rate
Black Bear Electronics, Inc.	13.00%
Joe's Electronics Store, Inc.	12.95%
Hellen Electronics Co.	13.10%
Valley Digital	13.17%
GOL Stores	13.20%
Dane Electronics, Inc.	13.35%
Peer average	13.15%

We performed a sensitivity analysis to show the effect on fair value of equity of using the peer average discount rate:

	Black Bear	Peer Average
Discount rate	13.00%	13.15%
Equity value (in thousands)	$667,981	$657,196

Based on the procedures performed, we conclude that Black Bear's discount rate appears reasonable.

Long-Term Growth Rate
Black Bear used a long-term growth rate of 2.0% in its determination of terminal value in its discounted cash flow analysis. In general, long-term growth rates approximate the long-term inflation rate, which the Federal Reserve forecasts to be between 1.6 and 2.1%. In some cases it may be appropriate to adjust the long-term inflation rate for industry-specific factors. Industry research (industry report "Electronics: U.S. Market Outlook" obtained from the audit firm's industry research group) notes that the electronics industry in the U.S. is a mature industry, with stagnant growth and high barriers to entry to new players. However, key players in the industry do enjoy stable profits. Based on this report, we do not consider any adjustments to the long-term inflation rate necessary and estimate a reasonable range of long-term growth to be between 1.6 and 2.1%.

We performed a sensitivity analysis to show the effect on fair value of equity using the midpoint of the range forecast by the Federal Reserve:

	Black Bear	Midpoint
Long-term growth rate	2.0%	1.85%
Equity value (in thousands)	$667,981	$661,148

Based on the procedures performed, we conclude that Black Bear's long-term growth rate appears reasonable.

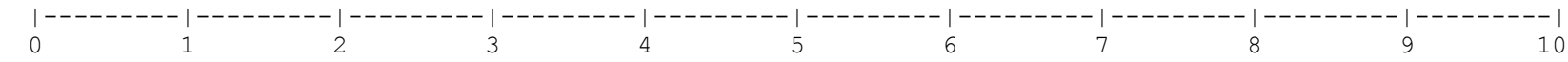
Additional Observations Made by Specialist:
We note that the discount rate and long-term growth rate used by Black Bear <u>both</u> fall at the aggressive (i.e., fair value-increasing) ends of our reasonable ranges.

<u>Sign-off</u>
2013 Specialist's Conclusion Memo reviewed and approved by:

Tim Jones _____ 6/9/13 _____
Lead valuation personnel Date

Based on the information provided, please answer the following questions about the case.

1. How likely is it that Black Bear's fair value of equity of $670 million is **fairly stated** as of April 30, 2013?



Not likely at all — Extremely likely

2. Would you recommend to your manager that Black Bear adjust its fair value of equity?

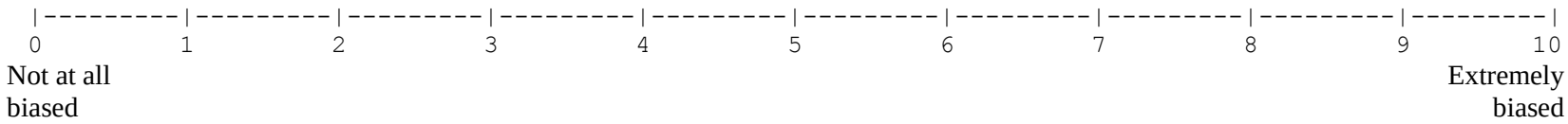
_____ Yes _____ No

3. In the space below, describe the concerns you have, if any, about Black Bear's fair value of equity, the procedures necessary to follow up on those concerns, and who would perform them (i.e., the audit team or the audit team's internal specialist). Please be as specific as possible.

	Concerns	Procedures	Audit Team or Specialist?
1.			

Now, please move on to page 3!

4. Rate the extent of **management bias** in Black Bear's fair value of equity as of April 30, 2013.



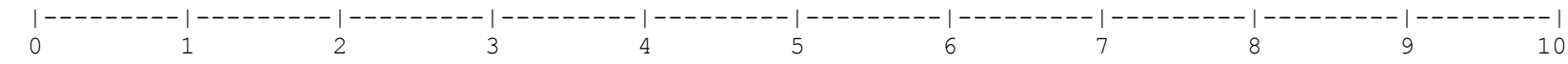
When you have completed the questions above, please return this packet to Envelope 1 and proceed to Envelope 2.

You're almost done!

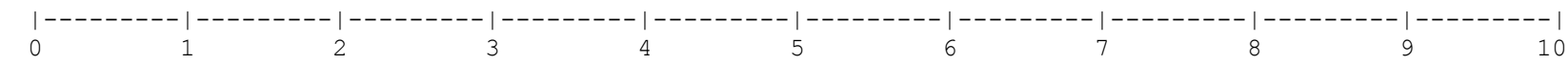
Please answer the following additional questions about the Black Bear case as accurately and honestly as possible. Your answers will help me explain differences between your responses and those of others.

1. Explain what information about Black Bear was important to your decision about its fair value of equity.

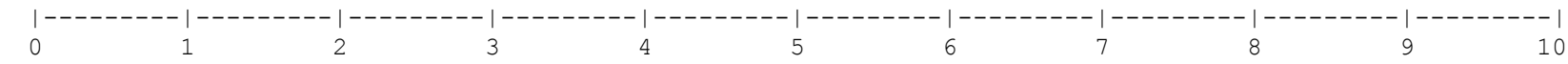
2. How much **technical expertise** does the preparer of Black Bear's valuation have?



3. How **objective** is the preparer of Black Bear's valuation?



4. How **sophisticated** is Black Bear as an audit client?



5. Who prepared Black Bear's valuation?
    a. An in-house preparer
    b. An external third party hired by Black Bear
    c. I don't remember

6. What did the Internal Specialist's Conclusion Memo say about the **discount rate** used by Black Bear?
   Check all that apply:

   ___ The discount rate was reasonable.

   ___ The discount rate was unreasonable.

   ___ The discount rate was at the conservative end of the range.

   ___ The discount rate was at the aggressive end of the range.

   ___ I don't remember.

7. What did the Internal Specialist's Conclusion Memo say about the **long-term growth rate** used by Black Bear?
   Check all that apply:

   ___ The long-term growth rate was reasonable.

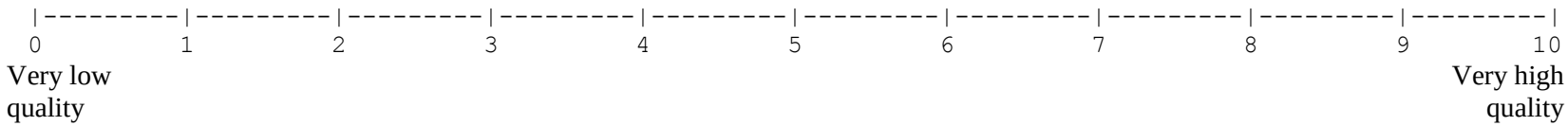
   ___ The long-term growth rate was unreasonable.

   ___ The long-term growth rate was at the conservative end of the range.

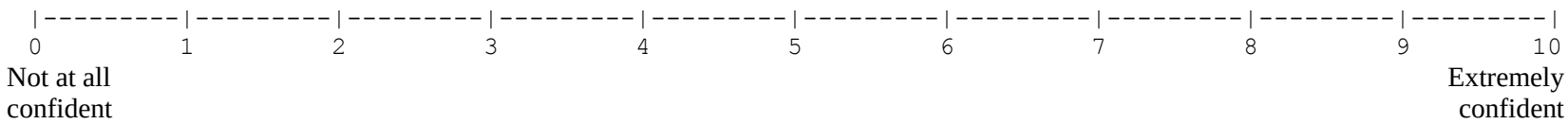
   ___ The long-term growth rate was at the aggressive end of the range.

   ___ I don't remember.

8. Evaluate the quality of the audit team's internal specialist's memo (the "Internal Specialist's Conclusion Memo").



9. How confident are you in the audit team's internal specialist's results?



10. How would you characterize Black Bear's **revenue projection** for the years ended 4/30/14 through 4/30/18?
    a. It was within a reasonable range, at the conservative (fair value-decreasing) end.
    b. It was within a reasonable range, at the middle of the range.
    c. It was within a reasonable range, at the aggressive (fair value-increasing) end.
    d. It was outside a reasonable range, at the conservative (fair value-decreasing) end.
    e. It was outside a reasonable range, at the aggressive (fair value-increasing) end.
    f. I don't remember.

11. How would you characterize Black Bear's **operating expenses projection** for the years ended 4/30/14 through 4/30/18?
    a. It was within a reasonable range, at the conservative (fair value-decreasing) end.
    b. It was within a reasonable range, at the middle of the range.
    c. It was within a reasonable range, at the aggressive (fair value-increasing) end.
    d. It was outside a reasonable range, at the conservative (fair value-decreasing) end.
    e. It was outside a reasonable range, at the aggressive (fair value-increasing) end.
    f. I don't remember.

12. How would you characterize Black Bear's **capital expenditures projection** for the years ended 4/30/14 through 4/30/18?
    a. It was within a reasonable range, at the conservative (fair value-decreasing) end.
    b. It was within a reasonable range, at the middle of the range.
    c. It was within a reasonable range, at the aggressive (fair value-increasing) end.
    d. It was outside a reasonable range, at the conservative (fair value-decreasing) end.
    e. It was outside a reasonable range, at the aggressive (fair value-increasing) end.
    f. I don't remember.

13. How would you characterize Black Bear's **discount rate**?
    a. It was within a reasonable range, at the conservative (fair value-decreasing) end.
    b. It was within a reasonable range, at the middle of the range.
    c. It was within a reasonable range, at the aggressive (fair value-increasing) end.
    d. It was outside a reasonable range, at the conservative (fair value-decreasing) end.
    e. It was outside a reasonable range, at the aggressive (fair value-increasing) end.
    f. I don't remember.

14. How would you characterize Black Bear's **long-term growth rate**?
    a. It was within a reasonable range, at the conservative (fair value-decreasing) end.
    b. It was within a reasonable range, at the middle of the range.
    c. It was within a reasonable range, at the aggressive (fair value-increasing) end.
    d. It was outside a reasonable range, at the conservative (fair value-decreasing) end.
    e. It was outside a reasonable range, at the aggressive (fair value-increasing) end.
    f. I don't remember.

Finally, please answer the following questions about yourself.

1. What is your current position or rank in the firm? _____

2. How much auditing experience do you have? _____ years and _____ months

3. Are you a CPA? _____ No _____Yes

4. Do you have any other professional certifications? _____ No _____Yes (specify: _____)

5. What is your primary industry or practice area? _____

6. On how many audits have you audited the valuation model underlying the goodwill impairment analysis? _____ audits

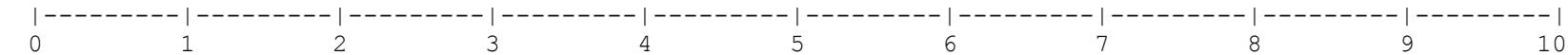
7. On how many audits have you used a discounted cash flow model? _____ audits

8. Out of those audits in which you have used a discounted cash flow model (i.e., your answer to #7 above), on how many has the client used a third party to prepare the discounted cash flow model? _____ audits

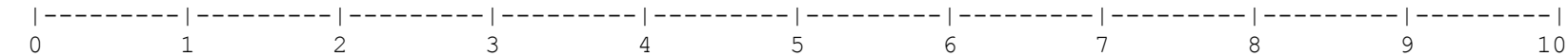
9. On how many audits have you worked with an internal valuation specialist at your firm to help the audit team audit a fair value? _____ audits

10. How would an increase in the discount rate used in the discounted cash flow model affect Black Bear's fair value of equity of $670 million?
    a. Increasing the discount rate would increase the equity value.
    b. Increasing the discount rate would decrease the equity value.
    c. Increasing the discount rate would have no effect on the equity value.
    d. I don't know how increasing the discount rate would affect the equity value.

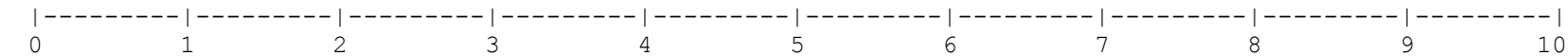
11. How comfortable are you working on a discounted cash flow model?



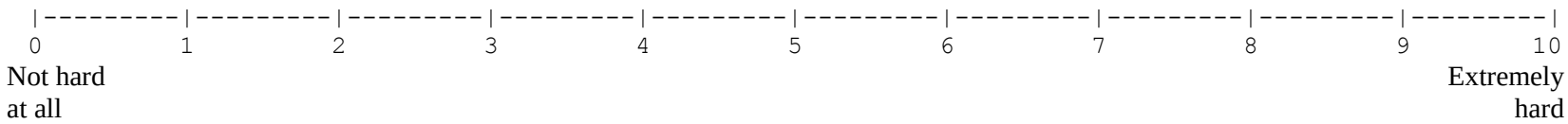
12. How comfortable are you auditing Step 1 of a client's goodwill impairment test?



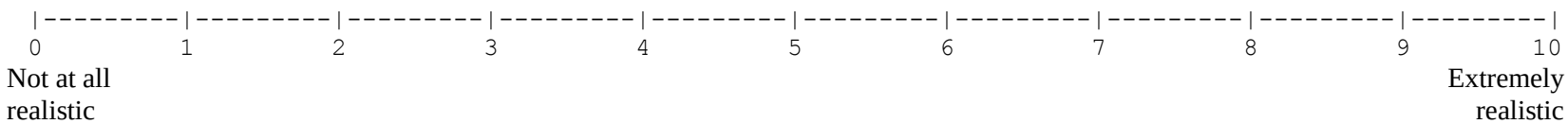
13. How comfortable are you reviewing an internal valuation specialist's conclusion memo?



14. How hard did you work on the Black Bear case?



15. How realistic was the Black Bear case?



You are done! Please return this packet to Envelope 2. Thank you for participating in this study. Your time and effort are greatly appreciated!

APPENDIX F

SUPPLEMENTARY CASE QUESTIONS

Description:

I administered the supplementary questions contained in the following appendix to 37 participants from one firm. These questions further explore auditors' attitudes toward their clients' use of third party preparers relative to in-house preparers. I compared the demographic characteristics of this group of participants to the participants who did not receive the supplementary questions. The table below reports the demographic measures that differ significantly between the 37 participants who received the supplementary questions and the 67 participants who did not (all two-tailed p-values < 0.05). Based on this analysis, the 37 participants who answered the supplementary questions are not representative of the entire sample. Therefore, I do not include or analyze the supplementary questions data because any results and inferences are not generalizable to the entire sample or to the broader population of auditors.

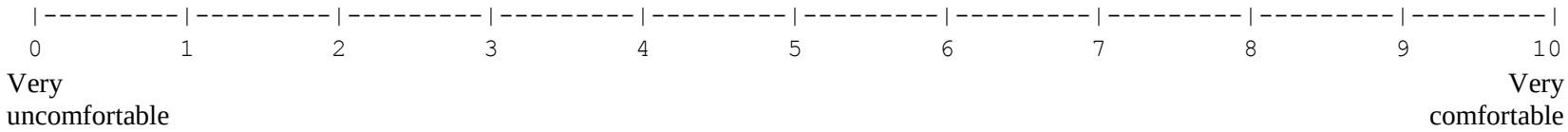
Summary of Demographic Differences

Variable	**Non-Supplementary Group** mean (SE) n = 68	**Supplementary Group** mean (SE) n = 37
Firm[59]	Firm A, Firm B	Firm C
Months of audit experience	33.9 (1.04)	60.6 (0.97)
Number of audits of discounted cash flow models	1.4 (0.19)	2.2 (0.34)
Comfort reviewing an audit-team specialist's memo (0 – 10 scale; lower values indicate less comfort)	5.5 (0.27)	6.4 (0.29)

[59] This nominal categorical (qualitative) variable provides descriptive information; mean and SE are not relevant.

Supplementary Case Questions:

16. How comfortable would you be recommending an adjustment to Black Bear's fair value?



17. Which type of preparer would you expect to produce a higher quality fair value?
    a. An in-house preparer
    b. An external third party hired by my client

18. For each of the following statements, choose the option that best completes it. Choose only one option for each statement.

Statement	*Options*
I would expect my client to use a third party instead of an in-house preparer to determine a fair value when:	___ the fair value is **more** complex. ___ the fair value is **less** complex.
I would expect my client to use a third party instead of an in-house preparer to determine a fair value when:	___ the client is **more** sophisticated. ___ the client is **less** sophisticated.
I would expect my client to use a third party instead of an in-house preparer to determine a fair value when:	___ the client has **higher** incentives to bias the fair value. ___ the client has **lower** incentives to bias the fair value.
I would expect my client to use a third party instead of an in-house preparer to determine a fair value when:	___ the client has **more** competent in-house staff. ___ the client has **less** competent in-house staff.
I would expect a fair value prepared by a third party (relative to an in-house preparer) to:	___ be based on **higher quality** information. ___ be based on **lower quality** information.
I would expect a fair value prepared by a third party (relative to an in-house preparer) to:	___ contain **more** errors. ___ contain **fewer** errors.
I would expect a fair value prepared by a third party (relative to an in-house preparer) to:	___ be **more** biased. ___ be **less** biased.
Relative to an in-house preparer, I would expect a third party to have:	___ **higher** expertise. ___ **lower** expertise.

APPENDIX G

EXPERIMENTAL RESPONSE CODING SCHEME

Coding Schemes for Experimental Responses

The experimental case contains two free response questions that must be coded. The first asks participants to list their concerns about the client's fair value and the procedures they would want to do to address those concerns. The second asks participants to list the information that was important in their decision about the client's fair value. There is a unique coding scheme below for each free response question.

1. Concerns and Procedures to Address Concerns

After assessing the likelihood that the fair value is fairly stated and deciding if they would recommend adjustment, participants responded to the following question: "Describe the concerns you have, if any, about Black Bear's fair value of equity, the procedures necessary to follow up on those concerns, and who would perform them (i.e., the audit team or the audit team's internal specialist). Please be as specific as possible." After writing down their concerns and procedures, participants assessed the extent of bias in the fair value before moving on to the second part of the experiment, which began with the free recall of important case information. Therefore participants had access to all of the case materials and information when responding to this question.

An independent research assistant with audit experience who was blind to hypotheses and I coded the responses to this question along three dimensions. Both coders were blind to experimental conditions. The three dimensions are:

1. Evidence of pattern recognition (each *participant* is coded on this dimension, so n = 105)
2. Source of concern (each *item* is coded on this dimension, so n > 105)
3. Nature of concern (each *item* is coded on this dimension, so n > 105)

The first dimension, evidence of pattern recognition, captures whether each participant recognized how items from different sources suggest bias *in combination*. It is coded as a 1 if the participant's response in total demonstrates recognition that items from the specialist's memo *and* the audit work papers in combination cause concern for management bias, because all of the assumptions are biased and collectively this amounts to a material amount. It is coded as a 0 if there is no explicit recognition of the pattern of bias among assumptions tested by the specialist *and* the audit team. It is critical that participants provide evidence that they combined the audit team's *and* specialist's assumptions, because my study is motivated by the concern that auditors do not attend to the specialist's work (e.g., one interviewee mentioned that auditors need to actually read the memo, rather than just sticking it in the binder as they are wont to do). Therefore, only participants who clearly identify some combination of audit team and specialist assumptions are coded as 1.

The second dimension, source of concern, captures which information participants focused on as their primary concerns regarding the fair value. Each item listed by a participant is coded separately in this category, because participants may have focused in different areas. Therefore, the coding will capture the extent to which participants focused on the specialist's memo vs. the audit work papers vs. the other case information (such as company background, client's discounted cash flow analysis, etc.). Categories for source of concern include the audit team's

work papers (i.e., information about testing the revenue projections, expense projections, and capital expenditure projections), the internal specialist's memo (i.e., information about the discount rate and long-term growth rate), and other (i.e., information about the preparer's qualifications from the background materials or about the preparer's independence, information about the internal specialist's qualifications, etc.).

The third dimension, nature of concern, captures *why* the participant was concerned about each item listed in their response. Each item listed is coded separately, because participants may have had different types of concerns about different items. Categories for nature of concern include bias in an assumption (or a group of assumptions if listed all as one item; this also includes concerns that management ignored contradictory or conflicting information about an assumption), sufficiency of evidence (to support assumptions or other parts of the audit, such as documentation of preparer or specialist qualifications, control testing, etc.), and other (i.e., information about the preparer's qualifications from the background materials or about the preparer's independence, information about the internal specialist's qualifications, etc.).

Pattern Recognition (dimension 1; code each participant)

0-No evidence of pattern recognition

Definition: When evaluating the entire response to the question, there is not clear evidence that the participant recognized that the bias in the assumptions tested by the specialist and the audit team are problematic *in combination*. Note that if participant only mentions the two assumptions tested by specialist, or only mentions two to three assumptions tested by the audit team, this does not constitute pattern recognition because the pattern is formed by (1) the bias in the assumptions tested by the specialist *and* (2) the bias in the assumptions tested by the audit team. Note that the case labels the audit team's assumptions as "projections" and the specialist's assumptions as "rates." This can help discern which assumptions participants are referring to if it is vague.

Examples:

a. Per the specialist's memo, both long-term growth rate and discount rate were aggressive
b. Revenue and expense projections were aggressive/biased/optimistic
c. Separately list that the revenue projection, expense projection, discount rate, etc. seemed biased/aggressive/too high, but do not explicitly link these separate, biased assumptions together

1-Pattern recognition

Definition: When evaluating the entire response to the question, it is clear that the participant recognizes the (likely material) impact of the bias in the assumptions tested by the specialist and the audit team *in combination.* Therefore, it must be clear that the participant was referring to both the audit team's and specialist's assumptions. If the participant only mentions audit team assumptions, it is possible that s/he did not consider the assumptions tested by the specialist. The purpose of this study is to identify factors that encourage auditors to "put together" the evidence from the audit team with the evidence from the specialist, as auditors tend to view the specialist's work as separate from the audit work (Griffith 2013). Thus, when participants suggest that they want to

run a sensitivity analysis changing several inputs at once, this constitutes evidence of "putting together" the various pieces of evidence. Note that the case labels the audit team's assumptions as "projections" and the specialist's assumptions as "rates." This can help discern which assumptions participants are referring to if it is vague.
Examples:

a. All of management's assumptions were biased/aggressive (note: must include assumptions tested by audit team and by specialist to count as pattern recognition)
b. I would do a sensitivity analysis changing several or all of the inputs at once (i.e., revenue projection, expense projection, discount rate, etc.)

Source of Concern (dimension 2; code each item)

1-Audit team's work papers

Definition: The item relates to one of the three assumptions tested by the audit team and documented in the audit team's work papers. These include: revenue projections, expense projections, and capital expenditure projections. Code items here if the item includes information directly from the "Summary of Procedures Performed by Audit Team" *or* if item pertains to the assumptions tested by the audit team and points out that some information is missing from the audit team's work papers. Note the case labels the audit team's assumptions as "projections."
Examples:

a. Revenue projection seems too high (relates to revenue projection)
b. New product information (relates to revenue projection)
c. How did the audit team develop the reasonable range for revenue? (relates to revenue projection; note this is an example of missing info that *should* be included in audit work papers but isn't)
d. Historically management has been off on expense projections by greater percentage than percentage used in sensitivity analysis (relates to operating expense projection)
e. Capital expenditures projected by management are not consistent with industry outlook (relates to capital expenditures projection)

2-Internal specialist's memo

Definition: The item relates to one of the two assumptions tested by the specialist and documented in the specialist's memo. These include: discount rate and long-term growth rate. Note that information about inflation and economic growth projected by the Fed is included in the specialist's memo related to the testing of the long-term growth rate, so the source is the specialist's memo. Note the case labels the specialist's assumptions as "rates."
Examples:

a. How did specialist come up with WACC? (relates to discount rate)
b. Use of peer average for sensitivity analysis (relates to discount rate)
c. Use of midpoint of range for sensitivity analysis (relates to long-term growth rate)
d. Specialist noted that *both* discount rate and long-term growth rate are aggressive (relates to both assumptions tested by specialist)

3-Both audit work papers and internal specialist's memo

Definition: The item includes assumptions tested by the audit team and by the specialist, or the item clearly relates to assumptions but the assumptions are unspecified (i.e., it's clear that the item pertains to *either* the audit team's work or specialist's work, but unclear which specific source it pertains to). Note that if they just wrote "assumptions" in a vague way, and it is unclear if they are referring the audit work papers, specialist's memo, or the background info/client DCF/scoping memo, that should be coded as 4-Other. However, if it is clear that they are referring to the audit team's and the specialist's work but simply did not specify individual assumptions, code that here.

Examples:

a. Specialist's memo noted discount rate and long-term growth rate were both aggressive, and the audit team's sensitivity analysis showed projections at high ends of ranges (P6.1)

4-Other

Definition: The item does not relate to the three assumptions tested by the audit team or the two assumptions tested by the specialist. The item comes from the client background information, the client's discounted cash flow analysis, the scoping memo, or is not included in the case (e.g., statement that controls should be tested, because control testing is not included in the case). Also code here if wrote very vague concern about unspecified "inputs" or "assumptions" and you cannot tell if they are referring to audit evidence (i.e., audit work papers or specialist's memo) or to background info, client's DCF, or scoping memo; or if simply too vague to tell what they're referring to.

Examples:

a. Preparer's independence
b. Preparer's or specialist's qualifications
c. Basis for materiality (total assets vs. revenue)
d. Control testing
e. Terminal value , capitalization multiple (only appear in discounted cash flow model)
f. Focus on operating margins – these are explicitly laid out in the DCF, so if focused primarily there and not on the related audit info, code here rather than in 1

Nature of Concern (dimension 3; code each item)

1-Bias

Definition: The item is of concern because it indicates potential management bias in an individual assumption (or in multiple assumptions, if listed together as one item). Note that if the *concern* listed in the first column sounds like Bias but the *procedure* listed alongside it in the second column sounds like Sufficiency, code as Bias. Also, if the participant conveys that the client is ignoring disconfirming evidence in order to make an optimistic projection, code that here.

Examples:

a. The projection seemed biased/aggressive/at the high end/optimistic
b. Revenue is projected to increase despite historical trend otherwise and discontinuation of a product

c. Perform sensitivity analysis at conservative/low/fair value-decreasing end of range to assess impact
d. Vary multiple inputs in sensitivity analysis at once to determine overall impact

2-Sufficiency of evidence

Definition: The item is of concern because it does not contain sufficient evidence, or sufficient documentation of evidence. Anything that would bear on the testing of the fair value of equity or the goodwill impairment belongs here.

Examples:

a. Is the amount used to calculate alternative outcomes in sensitivity analysis reasonable/big enough? Use of 0.5% for revenue and expense projections; use of $1 million for capital expenditures; use of peer average of 13.15% for discount rate; use of midpoint of 1.85% for long-term growth rate
b. Other suggested changes to how sensitivity analyses were performed (e.g., include adjustments for known changes)
c. Preparer's independence is not documented
d. Preparer's or specialist's qualifications are not documented
e. Other potential impairment triggers (such as the termination of a business division or closure of production facility) have not been sufficiently evaluated
f. Documentation does not explain how the audit team or specialist developed a projection or range
g. Test data or inputs into the model
h. Perform Step 0 of goodwill impairment test

3-Other

Definition: Anything that does not fall into 1 or 2 above. This includes items that are too vague to tell what the participant is really concerned about. Anything that constitutes a test of a different account (not fair value of equity or goodwill impairment) goes here.

Examples:

a. Potential errors in work, such as mathematical accuracy, using discounted cash flows rather than undiscounted cash flows, basing on post-tax rather than pre-tax numbers
b. Use of materiality to justify management's assumption (e.g., the difference per the sensitivity analysis was not material so the assumption seems reasonable)
c. Specialist needs to test reasonableness; need to test models (too vague – reasonableness of what? What models – there is only one model in the case)
d. Test tax rate – here because the case (DCF) states the audit team has already done this

2. Information Important in Judgments

The coding scheme below is used for the surprise free recall question. The desired dependent variable is "attention paid to available audit evidence" or "extent of consideration of available audit evidence." I parse each participant's response into independent ideas/thoughts, and I code each idea unit along two dimensions: its **content** and its **structure**. The content dimension captures *which* information from the case participants paid attention to and recalled. The structure dimension captures *how extensively or carefully* participants considered that information (i.e., depth of processing).

Content (dimension 1)

1-Information related to assumptions tested by audit team

Definition: The focus is on one or more specified audit assumptions: revenue projection, operating expense projection, or capital expenditures (capex) projection. "Operating margin" projection/assumption also fall here because that encompasses both revenue and expense projections. Also code here if assumption is not explicitly stated but it is obvious from the info that it relates to one specific assumption (e.g., info about new product prospects). General references to assumptions tested by audit team (e.g., "the projections tested by the audit team") do *not* go here but in 3.

Examples:

a. New product info (P10)
   Reason: relates directly to the revenue projection

2-Information related to assumptions tested by internal specialist

Definition: The focus is on one or more specified specialist assumptions: discount rate or long-term growth rate. Also code here if assumption is not explicitly stated but it is obvious from the info that it relates to one specific assumption (e.g., info about inflation rate). General references to assumptions tested by specialist (e.g., "the specialist's evaluation of inputs") do *not* go here but in 3.

3-Information related to one or more unspecified assumptions

Definition: The focus is on assumptions (whether they indicate collective/aggregate consideration or not) but specific assumptions are not detailed, or too vague to tell which assumptions they are referring to

Examples:

a. The sensitivity analysis over each operating assumption was helpful in assessing the potential flux in changing all the factors considered (P2).
b. The assumptions of management (P15)
c. Inputs into the company's calculation (P19)

4-Other case information

Definition: The focus is on information included in the case that is not related to or focused on the five key assumptions (revenue projection, operating expense projection, capital expenditures projection, discount rate, long-term growth rate). Items must be *factually correct* to belong in this category; incorrect facts go in 5.

Examples:

a. Materiality (P25)
b. Management competence; in-house/third party preparer's qualifications, independence (P10)
c. Correct observation about something that is missing (P70, items 5-7)

5-Other

Definition: The item fits none of the above categories. This includes items that are too vague to categorize, factually incorrect, not logical or coherent, etc.

Examples:

a. Involvement of specialist or third party without describing any qualifications of the specialist/third party
b. The method used in calculation of fair value (P5); management's model (P33)
c. Comparison to peers (P23) – without specifying what info related to Black Bear they are comparing to peers
   Reason: for all of the above, too vague to categorize in 1-4
d. Consideration of management's control over fair value measurement process (PX)
e. Management structure (P8)
f. Management stress (P10, item 3)
   Reason: for d-f above, the information is not included in the case.

Structure (dimension 2):

1-Fact

Definition: Item directly restates facts from the case or paraphrases statements from the case; restates procedure(s) performed

Examples:

a. List of assumptions with no additional detail: revenue, expense, discount rate (P47)
b. Sensitivity analysis; discounted cash flow model
   Reason: simply states which test/workpaper/item from the case they considered, with no evaluation or analysis of the outcome of the test or of the item

2-Relationship

Definition: Item relates (implicitly or explicitly) or compares two or more items from the case, or mentions a trend over time. Code here even if the relationship is stated in the case. Key words/phrases include "all assumptions" and "compared to." Note that relationships can be observed among any of the case information and are not limited to relationships among the five key assumptions.

Examples:

a. Fact that all projections were on aggressive end of range (P16)
b. Comparison of past projections to actual outcomes (without explicit evaluation/inference about management's forecasting ability)
c. Projections/items appear inconsistent with each other (P15), or items appear consistent with each other
d. Assumption falls within audit team or specialist's range

3-Abstraction/inference

Definition: Information not included explicitly in the case that evaluates case information (facts or relationships), synthesizes and/or abstracts from case information, or makes inferences or judgments from case information. Inferences/judgments include ascribing a cause to a relationship. Note that abstractions can be made from any of the case information and are not limited to abstractions about the five key assumptions.

Examples:

a. Projections are unreasonable
b. Management has shown a poor ability to forecast accurately
   Reason: evaluation of case info, i.e., the projections

c. In aggregate the effect of sensitivity analyses is material
Reason: synthesis of case info (each individual sensitivity analysis) and inference (impact will be material)
d. Concerns about management bias because all assumptions are aggressive
Reason: inference (ascribing a cause—bias—to an observed relationship—that all assumptions are aggressive)
e. Suggest different audit procedures, aggregated sensitivity analysis, or different sensitivity analysis thresholds
Reason: evaluation of case info and judgment that different testing should be done
f. Evaluating if an item is a triggering event for impairment
Reason: evaluation of case info

4-Other

Definition: Does not fit into 1-3 above.