

## Abstract

We examine the differential effect of management engaged versus employed valuation specialists on auditor planned evidential procedures related to auditing fair value measurements (FVMs). Accounting estimates are inherently difficult to audit, and the complex finance-based modeling that underlies estimates of many financial instruments may be beyond auditor expertise. Thus, we also examine to what extent auditor fair value expertise mitigates overreliance on management's process, rather than engaging in a critical analysis of the overall estimate. Inspection reports issued by the PCAOB consistently cite audit firms for deficiencies related to FVMs, raising concerns about auditors' application of professional skepticism and consideration of potential management bias. These deficiencies have led to the perception that auditors may not effectively evaluate FVMs or the inputs and assumptions made by management or specialists used in them. Using auditors with varying levels of fair value domain-specific expertise, we conduct a quasi-experiment to examine how management's valuation specialists (engaged vs. employed) affects auditors' evidential planning judgments for complex FVMs of financial instruments. We rely on psychological distance theory to predict how auditors process information and reach judgments for FVMs. We find that when the valuation specialist is management-engaged (outsourced FMV specialists), auditors with higher domain-specific expertise are more likely than auditors with lower domain-specific expertise to conduct a higher percentage of evaluative (i.e., judgment based) as compared to confirmatory audit procedures. Further, the judgment of auditors with less domain-specific expertise is influenced by the source of management provided evidence. Overall, these findings suggest that the source of FVMs impacts the perceived reliability of evidence gathered from management, resulting in differential perceptions of persuasiveness and nature of evidence gathered beyond assessments of the risk of material misstatement.

*Key Words:* Fair value measurement, Inherent risk, Information processing, Specialists.

JEL Classification: M42

## **Management Engaged vs. Employed Valuation Specialist: The Effect on Evidential Planning Assessments for the Audit of Fair Value Measurements**

### **Introduction**

The Financial Accounting Standards Board (FASB) issued *SFAS 157: Fair Value Measurements* in September 2006, resulting in significant growth in the number of fair value measurements (FVMs) subject to audit. SFAS 157 increased the magnitude of auditors' exposure to fair value assurance, amplifying their audit significance and impact on financial reporting quality, as well as intensifying their focus on the interpretation of financial statements. The auditor's effectiveness at auditing FVMs is essential to financial statement users due to the increased use of fair value. The growing number of audit deficiencies that have resulted in audit failures and misstated financial statements (see Appendix 1 for an example) has led to the perception that auditors may not effectively evaluate FVMs (Copeland 2005; Martin, Rich, and Wilks 2006; Griffith, Hammersley, and Kadous 2014; Christensen, Glover, and Wood, 2012; Barr-Pulliam, Mason, and Brown 2018).

FVMs can be challenging to audit because auditors must weigh more subjective evidence in their judgment process, including inputs and assumptions, as well as valuation methods and models, of specialists, along with the level of controls (e.g., Bratten, Gaynor, McDaniel, Montague, and Sierra 2013). Thus, the objective of this study is to examine factors that impact auditor planning judgments that involve highly complex and subjective financial securities (e.g., Level 3 in the fair value hierarchy). Specifically, we examine the nature of audit evidence auditors plan to examine to validate the FVMs reported by management which is a critical issue identified by the Public Company Accounting Oversight Board (PCAOB). The PCAOB has expressed concern that auditors tend to focus on the verification audit procedures related to management's model rather than critically evaluating the reasonableness of the estimate. They assert that auditors

are likely framing the task of auditing estimates as one of verification rather than evaluation. Auditors exercise professional judgment in determining the nature and extent of audit evidence to collect (Joyce 1976). Thus, since the nature and extent of substantive audit evidence examined has a direct effect on the ability to uncover a material misstatement (Mock and Wright 1993), it is important to examine the types of substantive audit procedures auditors plan to use when gathering evidence related to FVMs.

Over 66 percent of audit clients consult an engaged specialist (Cannon and Bedard 2016). The PCAOB Standing Advisory Group notes that the various methods and models used by specialists to value complex financial instruments and the measurement uncertainty inherent in those valuations have resulted in the PCAOB's identification of the use of specialists and the tendency for auditors to confirm their work-product as an area of concern (PCAOB 2009). Additionally, the PCAOB finds that there is substantial diversity in practice regarding how auditors use management employed or engaged specialists as well as the audit procedures performed to evaluate their work. Thus, we examine the effect of management-engaged valuation specialists vs. management-employed valuation specialists<sup>1</sup> on audit evidential planning judgments related to auditing complex FVMs under SFAS 157 (now ASC 820). If auditors do not appropriately assess work performed by a valuation specialist, there may be increased detection risk in that planned audit procedures will fail to detect a material misstatement (PCAOB 2017-003).<sup>2</sup>

Smith-Lacroix, Durocher, and Gendron (2012) raise an important question that is relevant in this context: do auditors' knowledge provide them with the necessary competencies to understand and question the work of these experts or have they been socialized to accept the work

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<sup>1</sup> Language consistent with the PCAOB's Proposed Amendments to Auditing Standards for Auditor's Use of the Work of Specialists (PCAOB 2017)

<sup>2</sup> Detection risk is affected by (1) the effectiveness of the substantive procedures and (2) their application by the auditor, i.e., whether the procedures were performed with due professional care (PCAOB AS No. 8).

of experts. Research suggests that auditors do not apply professional skepticism and consider potential management bias related to FVMs and are overconfident in their ability to assess risks in an environment that is more complex and where auditors may not be as knowledgeable as the specialists (e.g., Barr-Pulliam, Joe, Mason, and Sanderson, 2017). Indeed, the PCAOB has expressed concerns about auditor professional skepticism regarding performing appropriate audit procedures to address audit risk. Auditors who have developed domain-specific expertise concerning FVMs are more likely to exhibit enhanced judgment and decision making (e.g., Barr-Pulliam, Mason and Brown-Liburd 2017). Specific to this study, Bratten et al. (2013) suggest that research should be conducted to determine how auditors' lack of valuation expertise affects the audit quality of FVMs and reliance on external parties, and whether or not auditors are more likely to accept management's estimate if valuation specialists are hired (not hired) by management. Therefore, we also examine the extent that domain-specific expertise mitigates over-reliance on management's valuation specialist.

In this study, we draw on construal level theory (CLT) of psychological distance to examine how auditors with domain-specific expertise (i.e., audits of FVMs), incorporate management's use of an engaged valuation specialist vs. an employed valuation specialist into their planned audit procedures.<sup>3</sup> CLT proposes that variances in mental representations of events associated with greater versus smaller psychological distance affect predictions, evaluations, preferences, and behaviors of individuals (Liberman and Trope 2008; Trope and Liberman 2010). CLT posits that humans can mentally represent the same situation more concretely or more abstractly and the level of abstraction (i.e., construal level) has differential effects on creative and adaptive thinking (e.g., problem-solving, risk-taking, analytic evaluations). Because individuals

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<sup>3</sup> Domain specific experience relates to familiarity with an area of auditing that requires specialized knowledge, such as particular accounts or industries (Bedard and Biggs 1991).

have more opportunities to observe the behavior of people proximate to them, they can accumulate more knowledge about contextual, specific (i.e., low-level) features about the psychologically proximate individual (Jones and Nisbett 1972). Therefore, consistent with prior research in the auditing domain (e.g., Weisner 2015; Weisner and Sutton 2015) we expect that the physical separation of the management-engaged specialist from the client's physical environment will result in a more critical assessment of the information generated by the specialist.

The heightened degree of judgment and subjectivity that accompany FVMs, especially those based on models, makes it challenging for auditors to navigate the complexities of FVMs (PCAOB 2009). Thus, auditors will engage in more abstract reasoning (i.e., high-level processing in their judgments of information provided).<sup>4</sup> Further, the limited level of control and oversight auditors can exercise over management's valuation specialist requires greater audit effort in that auditors should be more skeptical and question the reliability of the source of information regardless of whether the specialist is engaged or employed. It is likely that these challenges are perceived to be greater in situations where the specialist is management engaged because of the increased risks due to lack of integrity over the valuation process and an inability to externally validate FVM assumptions (Cannon and Bedard 2016).

In contrast, auditors are generally able to observe the proprietary models used by a management-employee specialist, and as a result, they may feel less skeptical in situations where management-employed specialists provide FVMs. However, auditors have to be mindful of the possibility that management may be able to exert more significant pressure on employed valuation specialist, which increases the risk of material misstatement. Thus, the potential for auditor bias

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<sup>4</sup> "Auditing Fair Value Measurements and Using the Work of a Specialist," PCAOB Standing Advisory Group Meeting, October 14-15, 2009.

in evaluating management valuation specialists can negatively impact audit quality and is of concern to regulators.

Our results indicate that auditors' assessment of the risk of material misstatement is not differentially impacted by whether the valuation specialist is management-engaged or management-employed. This finding suggests that auditors would likely determine the same level of detection risk and therefore, the nature and extent of audit procedures would not vary between management employed versus management-engaged valuation specialist.<sup>5</sup> However, when management uses an engaged vs. employed valuation specialist, we find that auditors with domain-specific expertise are more likely to conduct evaluative audit procedures (i.e., judgment based) as compared to confirmatory audit procedures. In other words, they plan to perform more effective substantive audit procedures. In contrast, auditors with less domain-specific expertise are not as adept at isolating the information that is most important and task-relevant, a skill that has been shown to improve as familiarity increases (Worth and Mackie 1987). As such, these auditors indicate a lower likelihood of performing evaluative substantive audit procedures to gather sufficient and appropriate audit evidence regarding the engaged specialist and FVM information generated by the specialist. This finding is consistent with audit deficiencies identified by the PCAOB, and we provide evidence that low domain expertise may explain the deficiencies noted.

Additional analysis indicates that the difference between auditors' assessments of the persuasiveness of management provided evidence for an engaged versus employed valuation specialist is greater for auditors with less domain-specific expertise than auditors with high domain-specific expertise. Our results suggest that auditors with superior FVM expertise respond to the potential management bias inherent in FVMs by engaging in a critical assessment (i.e., a

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<sup>5</sup> Indeed, the guidance provided by auditing standards apply to both management-engaged and management employed specialist (PCAOB AS No. 1210).

skeptical mindset) of management provided evidence and responding with a planned audit approach that incorporates more evaluative vs. confirmatory audit procedures. Given the current economic climate, the transition to a fairer value-oriented set of standards, and the increased media attention on the impact of FVMs, these findings are important to auditors, investors, and regulators. Further, our results provide insight on one of the top three deficiencies identified by PCAOB inspectors, auditors' assessment and response to the risk of material misstatement. Specifically, inspectors note that substantive procedures are not always responsive to significant risks of material misstatement.

We organize the remainder of the paper as follows: in the next section, we provide an institutional background of this study, while the third section includes a discussion of the relevant literature and hypotheses development. The fourth section outlines our experimental method, the fifth section presents our results, and the final section discusses the implication of the findings.

## **Theory and development of hypotheses**

### ***Auditing Fair Value Measurements (FVMs)***

Accounting estimates are, by nature, difficult to audit, and the complex finance-based modeling underlying estimates of many financial instruments may be beyond an auditor's expertise. FVMs for Level 3 instruments involves a high degree of subjectivity, both in the preparation and attestation phases. The complexity of many FVMs and their judgment-based nature can create difficulties for auditors who attest to their reasonableness (Copeland 2005). Due to the complexity associated with the audits of FVMs, the PCAOB (2014) added FVMs of financial instruments to its list of priority projects. This action is consistent with the growing importance of FVMs for financial reporting and to regulators (PCAOB 2011b) and is likely due to the large

number of audit deficiencies related to evaluating FVMs (PCAOB 2010b).<sup>6</sup> It is also consistent with concerns by the regulators that auditors are insufficiently prepared for challenges in evaluating audit evidence to determine the reasonableness of client-prepared FVMs (PCAOB 2009).

The SEC has stated that they are also interested in how auditors audit and how management reports the nature of the valuation assertions when reporting entities use engaged specialists to determine the FVM of exchange-traded investments. Anecdotal evidence indicates the SEC has requested further information related to issuers' use of data from engaged specialists as part of its filing reviews. Specific information requested relates to the extent an issuer estimates FVMs using prices from engaged specialists, how issuers validate the information to determine whether the fair value classification is proper; and whether the issuer identified any limitations or deficiencies in its internal controls related to FVMs, along with the nature and severity of any such deficiencies.

In addition to recent reports from the PCAOB about audit deficiencies in higher risk areas such as FVMs, recent academic research has also highlighted concerns. Earley, Hoffman, and Joe (2008) discuss the challenge for auditors of being the "second mover," making their judgments after being exposed to their client's judgment and note that fair value judgments are an important area where management's valuation judgment precedes the auditors' judgment and that the fair value task is uncertain and ill-structured. They caution that fair value judgments could be a setting in which auditors' judgments could be swayed towards management's preferred treatment because they are the "second mover." Griffin (2014) examines the impact that supplemental disclosures may have on auditor fair value judgments and finds that when both estimation subjectivity and

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<sup>6</sup> Of 82 PCAOB inspection reports released in August and September of 2011, there were 84 deficiencies attributed to 36 firms. Forty-two percent of the deficiencies relate to the valuation of FVMs and other estimates.

estimation imprecision are high, auditors are less likely to require adjustment if the financial statements include supplemental disclosures.

This study examines an area in which the PCAOB has cited audit firms for lack of professional skepticism and failure to critically evaluate management's estimates: the use of valuation specialists. For example, the PCAOB expects auditors to perform procedures to "evaluate whether management's assumptions are reasonable and to evaluate the source and reliability of the evidence supporting management's assumptions." Procedures that assess whether the client's assumptions are appropriate in light of the client's circumstances require auditors to consider whether other assumptions would be more appropriate, but current standards lack specific guidance about what constitutes significant assumptions. Therefore, auditing assumptions are relatively subjective, less structured, and less verifiable audit procedures that potentially challenge auditors' judgment capabilities. Less precise guidance may explain why the PCAOB cites Big 4 firms for failure to obtain an understanding of the specific methods and assumptions underlying certain FVMs obtained from third-party pricing services used in the measurement of hard-to-value financial instruments. Further, these deficiencies may be attributable to auditors who may lack the domain-specific expertise to effectively identify audit procedures that will produce more persuasive audit evidence, and as such, the nature of substantive tests do not sufficiently support the audit conclusions reached. We, therefore, examine whether the sourcing of valuation specialist and auditor domain-specific expertise affect the nature of substantive audit procedures that auditors plan to use during the audit planning phase.

The following sub-sections discuss these two important factors as noted by the PCAOB and prior research (e.g., Martin et al., 2006), subsequently leading to the development of our research hypotheses.

### ***Management's valuation specialists***

Management's use of valuation specialists, whether engaged or employed, can make the audit process more difficult, given the lack of an audit trail, the underlying task complexity, and the estimation uncertainty factors related to the FVMs. As a result, regulators have expressed concerns that over-reliance on management's or their specialists' process could undermine the quality of the reported FVM and related audit work (SEC 2011; PCAOB 2011a). While there is some extant literature on the auditor's use of specialists, research on the effects of management valuation specialists on audit quality is lacking, and further empirical research is needed to examine the implications of their use on the quality of audits of FVMs (Bratten et al., 2013). Much of the recent literature points to a lack of understanding of the measurement inputs by the auditor and suggests an over-reliance on management's assertions and information provided by valuation specialists (e.g., Griffith et al., 2014, Barr-Pulliam et al., 2017). Smith-Lacroix et al. (2012) explore the behavioral consequences of the use of FVMs and argue that the auditors' system of expertise is now considerably more reliant on a "secondary" layer of expertise revolving around valuation specialists, causing the auditors' degree of control over their work to increasingly erode.

Some have argued that specialists engaged by management are independent (e.g., King 2006), and when FVM is outsourced inherent risk decreases (e.g., Bierstaker et al., 2013).<sup>7</sup> However, research suggests that reliance on engaged specialist may be problematic (e.g., Griffith et al., 2014; Christensen et al., 2012). As an example, Glover et al. (2014) survey audit partners and report that significant issues encountered when using engaged specialists include the inability

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<sup>7</sup> While management engaged valuation specialist may be perceived as being independent, auditors are expected to ascertain if there is a relationship between the external specialist and the company that could impair the specialist's objectivity and compromise the integrity of the work performed (PCAOB AS 1210). Thus, auditors should maintain a skeptical mindset and not exhibit blanket acceptance of the engaged valuation specialist's independence from management.

of the audit team to obtain sufficient information about the proprietary models or assumptions. As a result, auditors find it difficult to gain an understanding of how the FVM is derived to assess the reasonableness of management's inputs, assumptions, and methodologies. Additionally, Christensen et al. (2012) examine estimates reported by public companies and find that FVMs based on subjective models and inputs can contain estimation uncertainty or imprecision that can be many times greater than materiality. This estimation uncertainty, coupled with untested proprietary models or assumptions and complex FVMs with wide ranges can result in material misstatements due to estimation errors (i.e., increased inherent risks).

For FVMs with extreme estimation uncertainty, which gives rise to significant risks, auditing standards require the auditor to make evaluations in addition to the standard procedures used in the audit of estimates, such as understanding management's (or specialist's) model, testing controls, and considering the reliability of data (PCAOB (2003b), AICPA 2003). Given the number of inputs used in model-driven FVMs, the inherent economic and estimation uncertainty, and management's discretion in forming estimates, it appears that the use of valuation specialists could make the audit environment even more complicated. The risks of using an engaged specialist include, for example, lack of integrity over the valuation process, an inability to externally validate FVM assumptions as prescribed by current audit standards (Cannon and Bedard 2016), and lack of independence between management and management-engaged specialists.

Despite these risks, the evidence presented in the source credibility literature suggests that the audit client's use of an engaged valuation specialist is likely to lead to the auditor's over-reliance on their work because auditors may perceive the specialists' work to be independent of management and that the specialist has a degree of competence. Further, over-reliance may also result from the inability of the auditor to fully understand the FVMs or the process to develop it.

In fact, auditors report that they sometimes fail to understand what the fair value model's key risk drivers are due to a lack of knowledge about the methods or models used; therefore, they misinterpret which assumptions are critical (Griffith et al., 2014). As a result, auditors may be more sensitive to source credibility as compared to source objectivity when evaluating the reliability of evidence provided by engaged valuation specialists. Because of the complexities associated with audits of FVMs, ambiguous auditing standards, and the need to integrate multiple and changing cues to determine an outcome that is uncertain, auditors face increased processing demands that may cause them to use simplifying processing strategies (Bratten et al., 2013).

In contrast to blanket acceptance of experts, it is possible that auditors may have lower confidence in management-engaged valuation specialist, and as a result place less reliance on the work performed by the engaged specialist (Weisner and Sutton 2015). While there should be no difference in auditors' planned evidence gathering procedures when the FVM is determined by a management-engaged or a management-employee valuation specialist, construal level theory (CLT) proposes that variances in mental representations of events associated with greater versus smaller psychological distance affect predictions, evaluations, preferences, and behaviors of individuals (Liberman and Trope 2008; Trope and Liberman 2010). In other words, the greater an individual's psychological distance from target events or objects, whether temporal, spatial, or social, the higher the likelihood that target events and objects will be abstractly represented (high-level construal) rather than concretely (low-level construal).

People are more likely to organize behavior regarding abstract traits when thinking about temporally distant vs. near individuals (Nussbaum, Trope, and Liberman 2003). Abstract characteristics (high-level construals) involves interpreting events in more systematic and straightforward terms (Liberman, Sagristano, and Trope 2002) and retaining only features

considered relevant to the object, while omitting those that are perceived to be unrelated (Rosch and Lloyd 1978; Schul, 1983; Semin and Fiedler 1988; Smith 1998). In contrast, low-level construals exhibit more concrete traits which focus on features that are incidental. Further, compared to low-level construals, high-level construals are more focused on “why,” and as a result, only the essential meaning of the action is retained, while less important details are omitted (Liberman and Trope 1998).

Psychological distance is considered a subjective experience about proximity (Trope and Liberman 2010) and studies demonstrate that the link between psychological distance and level of construal occurs on a conceptual level as well (Bar-Anan, Liberman, and Trope 2006) and is subconsciously activated (Bar-Anan, Trope, Liberman, and Algom 2007). As an example, experimental participants watched a video of two students interacting with one another and were then asked to write a written description of what went on in the video (Fujita, Henderson, Eng, Trope, and Liberman 2006). Participants viewed a video where the students in the video were from the same campus as the participants (spatially near), or the students in the video were from the same school but on a study abroad trip in another country (spatially distant). Participants in the spatially distant location condition used more abstract language when describing the video as compared to participants in the spatially near condition.

In an audit setting, Weisner and Sutton (2015) use CLT to examine whether the physical location of a computer audit specialist and historical experience with the auditee's internal control environment influences auditors' reliance on the work of the specialist. Specific to this study, they find that auditors are less confident about relying on the work of a management-hired computer audit specialist who is physically distant (high psychological distance) as compared to a physically proximate specialist (low psychological distance). Regarding the effect on audit planning, auditors

are less likely to reduce budgeted audit hours due to reliance on the work of the specialist if the specialist is a physically distant specialist. These results suggest that auditors may be more skeptical of management engaged specialist and may place less reliance on their work.

### ***Domain Specific Expertise***

Auditing research demonstrates that auditors with greater experience generally exhibit better performance than less experienced auditors (e.g., Farmer et al. 1987; Libby and Frederick 1990; Bedard and Biggs 1991; Tubbs 1992; Shelton 1999), but not always (e.g., Ashton 1991; Bedard and Chi 1993; Nelson et al. 1995; Bonner et al. 1996). Bonner and Lewis (1990) show that, although more experienced auditors outperform less experienced auditors on average, knowledge and innate ability provide a better explanation of variation in performance. Specific experiences and training create knowledge, and knowledge combines with innate ability to perform specific audit tasks. According to Barr-Pulliam, Mason, and Brown-Liburd (2018), most auditors enter the profession with a background that sufficiently equips them with technical accounting knowledge that includes exposure to rudimentary fair value-related concepts such as testing for impairment of goodwill, but considerably more effort is necessary to lead to *expertise* in fair value for financial instruments. Training and working on audit engagements requiring assessments of lower order FVMs, may improve auditor ability, generally, but alone are probably insufficient to appreciate the FVMs fully for complex financial instruments.

The mixed results suggest that general experience measures are not sufficient in predicting superior performance (Bedard 1989; Libby and Luft 1993). However, instead, task-specific measures of knowledge or experience are found to better identify “experts” (Davis and Solomon 1989; Bonner and Lewis 1990), in that these measures are better predictors of superior performance (e.g., Libby and Tan 1994; Ramsay 1994; Jamal and Tan 2001).

While increased processing demands associated with the audit of FVMs may cause auditors to over-rely on a specialist's process, auditors who develop specialized knowledge and experience with fair value accounting are more likely to possess a higher cognitive capacity and as a result are less likely to fall prey to the "experts can be trusted" heuristic. As a result, they are more likely to exhibit enhanced judgment and decision making because of the domain specific expertise they have developed concerning FVMs (e.g., Barr-Pulliam, Mason and Brown-Liburd 2017).

### ***Interactive Effect of Sourcing of Valuation Specialist and Domain Specific Expertise***

Consistent with CLT, we expect that the general association between psychological distance and level of construal will influence how auditors process information about management-engaged vs. management-employed valuation specialists. Specifically, the physical separation of the management-engaged specialist from the client's physical environment will result in a more critical assessment of the information generated by the specialist. Because individuals have more opportunities to observe the behavior of people in closer proximity to them, they can accumulate more knowledge about contextual, specific (i.e., low-level) features about the psychologically proximate individual (Jones and Nisbett 1972). Also, psychologically proximate relationships ordinarily involve more exposure to privileged information about the other's thoughts and feelings, and thus a better sense of the other's complexities and depth of personality (e.g., Andersen, Glassman, and Gold 1998; Andersen and Ross 1984).

Therefore, we expect auditors to rely on high-level processing in their judgments of information provided by management-engaged specialists and on lower level processing in judgments of management-employed specialists even in situations where the auditor has equivalent knowledge about both types of specialist. We expect this effect to occur when auditors have greater domain specific expertise because, as noted in the discussion of domain specific

expertise above, expertise reflects the accumulated amount of deliberate practice of explicit, effortful, and goal-directed actions, which is reflective of high-level construals. Essentially, auditors with greater domain specific expertise will recognize, that while the evidence originated from a management engaged specialist is outside of the influence of management because management is ultimately responsible for the FVMs reported, the evidence has the potential to be manipulated by management. Thus, auditors with greater domain specific expertise will be more cognizant of the unique risks associated with complex FVM and will have the abilities necessary to effectively identify audit procedures that will provide more persuasive evidence. In contrast, auditors with less domain specific expertise will likely view the evidence by the management engaged specialist as independent of management. Therefore, they will rely on less effortful processing, and as such, will resort to simple decision rules (e.g., experts know best); resulting in planned audit procedures that focus more on confirmatory as opposed to evaluative audit procedures.

Based on the above discussion, we propose the following hypothesis:

**H1:** Auditors with greater domain specific expertise will make planning judgments (i.e., planned audit procedures) that result in more evaluative (i.e., persuasive) vs. confirmatory audit procedures when management-engaged specialists versus management-employed specialists prepare fair value measurements. Whereas, auditors with less domain specific expertise will make planning judgments resulting in less persuasive vs. confirmatory audit procedures, regardless of the type of valuation specialist.

## **Experimental Design**

### ***Participants***

Auditors who specialize in the audits of FVMs were recruited from three international public accounting firms and one regional public accounting firm to participate in the study by senior representatives from their firms. Sixty-eight auditors with an average of 3.69 years of auditing experience, completed the experiment either in their office or at a training seminar

conducted by one of the participating firms. The majority of the participants are audit seniors who are generally responsible for evaluating complex estimates (Griffith et al., 2014). The mean for self-reported knowledge of FVM and training is 3.76 and 3.74, respectively, on a seven point Likert Scale - 1 (Not Very Knowledgeable) to 7 (Very Knowledgeable). Further, participants indicated a mean of 5.91 times they encountered similar FVM issues on their audit engagements. These demographics indicate participants had the requisite general domain auditing knowledge as well as task specific knowledge. Table 1 presents demographic information. Except for “the number of times participants encountered the audit issue,” there were no significant demographic differences between the four experimental conditions, supporting random assignment.<sup>8</sup>

*Insert Table 1 here*

### ***Experimental tasks***

Auditors were randomly assigned to one of two experimental conditions to complete the tasks. In our experiment, we manipulate the client use of a valuation specialist (employed vs. engaged) between participants. Participants received a realistic case adapted from an auditing case that was developed by one of the Big 4 firms.<sup>9</sup> We made minor modifications to the case based on the comments and experiences of audit partners, an audit manager, and national practice employees with expertise in FVMs and disclosures at several firms.

Our case solicits planning risk assessments and evidence judgments, as well as planned audit procedures, after reviewing a client situation where there are material Level 2 and Level 3 financial assets subject to FVMs, and arguably an environment where both engagement risk and inherent risk are higher (i.e., publicly held company, highly subjective estimates, Level 3 assets,

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<sup>8</sup> Participants in the management-engaged condition had the greatest amount of experience with the audit issue as compared to all other conditions (means = 15.12 vs. 1.53, respectively;  $p < .001$ ). We conduct additional analyses to examine the impact of this variable on our overall findings, which we discuss in the additional analyses section.

<sup>9</sup> No participants were recruited from this firm.

etc.). The client, a for-profit publicly traded conglomerate consisting of multiple business lines and operating in a variety of industries throughout the United States, is highly profitable and has a financial segment that manages an investment portfolio of approximately \$500 million, used to fund operations as needed. Their investment portfolio represents approximately 20 percent of consolidated total assets, and for the past several years, it has consisted of both equity securities within the S&P 500 Index, investment grade bonds, and alternative investments. Alternative investments consist primarily of collateralized debt obligation (CDO) securities.

The company's FVMs have been determined to be an area of concern for the current year's audit engagement because the market for certain securities held in the portfolio experienced a significant decrease in the volume and level of activity that could result in their classification from a Level 2 to a Level 3 investment.<sup>10</sup> Participants received information indicating that the company has been a major client for the past seven years with significant billable hours and audit fees and that in each of those years a standard unqualified audit report has been issued. Background information focused on the company (industry, history, audit history, and summary financial statements) and the issue at hand. Participants were then asked to provide planning judgments about FVM, including risk assessments (e.g., risk of material misstatement), and the likelihood of performing selected substantive audit procedures. Additionally, participants provided selected demographic information.

### ***Independent variables***

We investigate the effects of the client's use of a valuation specialist (*SPECIALIST*) AND domain specific expertise (*EXPERTISE*) on auditors' planned audit procedures to gather evidence

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<sup>10</sup> Approximately 72% of auditors indicated that the CDO should be classified as a Level 3 investment, compared to 26% who indicated that the CDO should be classified as a Level 2 investment.

about reported FVMs.<sup>11</sup> The specialist manipulation is one in which the company either does or does not outsource FVMs to an engaged valuation specialist. In the outsourced condition, participants are told that for securities with an inactive market and where significant inputs are unobservable, the company engages a third-party valuation specialist with expertise in FVMs for complex Level 2 and 3 securities; that the specialist firm has a strong standing in the industry; and that the specialist has worked with the company for over 10 years. Additionally, a director at the specialist firm was a former VP of Finance at the company, and as a result, the firm is knowledgeable about the company's business. Thus, there is a potential that the information provided by the engaged specialist firm may not be entirely objective, and auditors may be skeptical of the relationship between the client and the valuation specialist.<sup>12</sup>

In contrast, in the condition where an employed valuation specialist (in-house), participants are told that the fair value measurement is produced in-house by a manager responsible for FVMs and disclosure. The employed fair value specialist responsible for preparing FVMs has over ten years of experience with the company, extensive knowledge of fair value estimation, and the required experience to perform FVMs for complex Level 2 and 3 securities.

To measure domain-specific expertise, we construct a variable which measures auditors' self-reported years of audit experience, task experience, and knowledge of FVMs. These three measures load on a single factor that captures our measure of *EXPERTISE* (eigenvalue = 1.75). Similar to Barr-Pulliam et al. (2017) our expertise measure examines technical expertise (i.e., knowledge and ability) rather than general expertise. Because the majority of auditors enter the profession with a background that sufficiently equips them with technical accounting knowledge,

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<sup>11</sup> We use *Interaction!*, a windows based software program designed to perform statistical analysis of interactions using dichotomous, categorical, or continuous variables.

<sup>12</sup> Auditors are required to evaluate the relationship of the valuation specialist to the client including circumstances that might impair the objectivity of the valuation specialist (SAS No. 73, AICPA 1994, SAPA NO. 2, PCAOB 2009).

they are capable of auditing simple fair value-related concepts (e.g., calculating and testing for impairment of goodwill). However, they acquire greater knowledge when accounting firms invest considerable resources that provide on-the-job and firm-specific training in areas such as fair value and when they gain direct experience though working on audit engagements requiring assessments of FVM (Solomon, Shields, and Whittington 1999). In fact, prior research suggests that the preferred way for auditors to acquire knowledge is through specialized indirect experience such as training coupled with focused direct experience such as working on audit engagements requiring a specific skill (Solomon et al. 1999).

### ***Dependent variables***

To examine how the reliance on management's specialist potentially impact subsequent audit evidence decisions, we analyze auditors' responses to the likelihood of performing selected substantive audit procedures generally conducted to gather evidence about FVMs. Audit participants received a list of 16 standard substantive audit procedures taken from a general audit program for the audits of FVM and were asked to indicate the likelihood of performing the audit procedure.<sup>13</sup> The list included both confirmatory procedures (i.e., those that focus on verification of management's model components and that require little judgment) and evaluative procedures (i.e., those that focus on the evaluation of the reasonableness of significant assumptions and model selection that are more susceptible to management bias). (Appendix 2 lists both the confirmatory and evaluative substantive audit procedures.).

To verify that the classification of the procedures as confirmatory or evaluative, we validated the classification by having two Ph.D. students with prior audit experience independently classify each of the procedures by the nature of the procedure (more confirmatory [less auditor

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<sup>13</sup> We asked auditors to respond to several substantive audit procedures based on procedures outlined in the auditing standards for fair value estimates (AU 328).

judgment] versus more evaluative [more auditor judgment]). Differences were reconciled by an accounting professor, not associated with this study, specializing in research related to audits of FVMs. Our dependent variable is the participants' proportion of planned evaluative to confirmatory substantive audit procedures (RATIOEVAL), calculated as the mean likelihood assessments of audit procedures classified as evaluative procedures divided by the mean likelihood assessments of audit procedures classified as confirmatory. Because there is greater risk of intentional or unintentional bias with subjective versus objective financial statement accounts (Glover et al. 2008; DeZoort et al. 2001), audits of subjective accounts require more judgment based audit analysis than objective accounts. Further, evaluative audit procedures require auditors to engage in more critical thinking. As noted by Nolder and Kadous (2017) critical analysis of evidence entails organizing pieces of evidence in an integrative manner; which is akin to a skeptical mindset.

We control for auditors' assessment of the risk of material misstatement. Assessed risk of material misstatement impacts the auditor's decision regarding the nature, timing, and extent of audit evidence gathered to achieve their planned level of detection risk and guides the selection of audit procedures to achieve an effective and efficient audit. For example, if the risk of material misstatement is assessed as high, the auditor would presumably design audit procedures to collect more persuasive evidence and engage in more direct observation than when the risk of material misstatement is assessed as low.

## **Results**

### ***Manipulation checks***

To determine whether participants encoded the *SPECIALIST* experimental condition as intended, we asked them to respond to the statement: "In developing fair value measurement and

disclosures, SI uses the services of a third-party valuation firm,” where 1=true and 2=false. 100 percent of participants in the engaged specialist condition answered true, and 100 percent of the participants in the employed specialist conditions answered false ( $\chi^2 = 68.0, p < .001$ ).

### ***Test of hypotheses***

Table 2 provides the means and standard deviations of the participants’ audit planning judgments by experimental conditions.

*Insert Table 2 here*

*Insert Table 3 here*

H1 posits that participants with greater domain specific expertise will assess a higher likelihood of performing evaluative versus confirmatory audit procedure when the client uses an engaged specialist to develop FVMs, the interactive effect of *EXPERTISE* and *SPECIALIST*. A multiple regression indicates results ( $F(4, 13) = 2.214, p = .07, R^2 = .123$ ) consistent with our hypothesis. We find a significant interaction effect of *EXPERTISE* x *SPECIALIST* for *RATIOEVAL* ( $\beta = -.122, t(63) = -2.79, p = .007$ ). Figure 1 presents the interactive effects of *EXPERTISE* x *SPECIALIST* for *RATIOEVAL* and as demonstrated, the influence of *EXPERTISE* results in a higher proportion of evaluative substantive audit procedures for management-engaged specialist as compared to management-employed specialists. Recall, there is no significant difference in the risk of material misstatement across conditions which indicates that the planned audit approach would be equivalent. However, our results suggest that psychological distance influences auditors’ evidential planning judgments given the finding that auditors with greater domain specific expertise are more likely to perform a higher proportion of evaluative substantive audit procedures when management uses an engaged specialist versus management-employed valuation specialists.

*Insert Figure 1 here*

### ***Additional Analyses***

Given regulator's concern regarding auditors' application of professional skepticism and consideration of potential management bias, we explore whether the source of the FVM and the level of domain specific expertise has an impact on the perception of the credibility of management provided evidence. Specifically, we examine auditors' perception of the persuasiveness of management-provided evidence. Auditor's assessment of the persuasiveness of management-provided evidence likely impacts the extent that they will rely on the evidence. For example, less reliable information should be weighted less in the auditor's judgment process (Hirst 1994), and as such, auditors will adjust the planned audit approach accordingly (Beaulieu 2001, 1994). Further, professional standards require auditors to maintain an attitude that incorporates a questioning mind, and critical assessment of client provided evidence and information (e.g., AS 13.7; AU §§ 230.07, 316.13).

We ask auditors to respond to the following question on a 7-point Likert scale (1 = Very Low Persuasiveness and 7 = Very High Persuasiveness), *How would you weight the persuasiveness of the audit evidence SI provided related to the fair value measurement and disclosure of the CDO?* Non-tabulated results demonstrate a moderately significant interaction of *EXPERTISE* x *SPECIALIST* ( $\beta = .578, t(63) = 1.76, p = .082$ ). This finding provides evidence that auditors with high domain specific expertise assess the persuasiveness of management provided-evidence the same regardless of the source of the valuation (i.e., management engaged vs. management employed specialist), means = 4.27 vs. 4.0, respectively. However, the source of the FVM influences low domain specific expertise auditors judgments regarding the nature of audit procedures performed. Specifically, these auditors find management provided evidence to be more

persuasive when management employed vs. management engaged specialist develop the FVMs (means = 5.09 vs. 3.80, respectively).

Taken together, results from our primary and supplemental analysis suggest that auditors with superior FVM expertise respond to the potential management bias by adopting a skeptical mindset. In other words, they engage in a critical assessment of management provided evidence and respond with a planned audit approach that incorporates more evaluative vs. confirmatory audit procedures. However, it is of concern that auditors regardless of the level of domain specific expertise did not indicate that they would perform a higher proportion of evaluative procedures for an employed specialist. Evidence generated by management is generally considered to be the least reliable form of evidence, and as such, auditors are expected to perform substantive audit procedures that provide them with more persuasive evidence, especially given the inherent complexity and risks associated with FVMs. Indeed, the PCAOB inspection reports have consistently cited auditors for deficiencies related to their reliance on evidence generated by specialists, including failure to understand the methods, models, and assumptions used by the specialists.

## **Conclusion**

This study examines the effects of domain specific expertise and the client's use of engaged or employed valuation specialists on audit planning judgments. We asked 68 auditors with prior experience in auditing FVMs to indicate the likelihood of using selected substantive audit procedures consisting of both evaluative and confirmatory procedures after viewing a case involving FVMs. Results indicate that auditors are more likely to use a higher proportion of evaluative procedures when the client engages a valuation specialist, *AND* the auditor has greater domain specific expertise.

Our findings suggest that auditors may be prone to the effects of psychological distance when auditing FVMs generated by a management-engaged valuation specialist. Specifically, using construal level theory to motivate our expectation of the influence of psychological distance we find that auditors with greater domain expertise appear to be more skeptical of FVMs prepared by a management-engaged valuation specialist and as such are more likely to perform substantive audit procedures that will result in more persuasive evidence. Further, results suggest that auditors, regardless of domain specific expertise are more likely to select audit procedures that are less extensive and persuasive (i.e., confirmatory) when the client employs the valuation specialist. Given that there was no significant difference in the risk of misstatement when management employed vs. engaged a specialist, it is logical to expect the nature and extent of testing to be similar.

As in all studies, there are limitations that represent opportunities for future research. We do not solicit the outcome that auditors expect to report in their financial statements. As Level 3 FVMs are highly subjective, it is likely that auditors will have to engage in negotiations with management to arrive at the appropriate amounts to report in the financial statements. Future research could examine how auditors resolve issues related to FVMs. Additionally, this study captures auditors' planning judgments and not the actual audit effort. Given the PCAOB finding from inspections that auditors are not obtaining sufficient evidence to support their risk assessments for FVMs, future research that provides more insight into the relationship between planning risk assessments and audit effort would be valuable.

This study has implications for the auditing profession, as recent PCAOB inspection reports for the largest audit firms cite a number of deficiencies related to auditing FVMs and the effectiveness of controls over them (PCAOB 2010a). They state that a number of the deficiencies

cited are due to a lack of professional skepticism on the part of the auditor. By applying a well-documented theory from psychology to this audit context, we provide insight concerning how auditors incorporate valuations of management-engaged versus management-employed valuation specialists into their planning judgments, which potentially helps to explain why auditors may not exhibit an appropriate level of professional skepticism when auditing fair value estimates. Additionally, our study sheds light on the PCAOB findings that audit evidence obtained is not appropriate and does not sufficiently support audit conclusions related to fair value estimates.

**Appendix 1: Example of audit deficiencies relating to FVMs and related disclosures**

PCAOB Release No. 104-2013-147 - Inspection of KPMG LLP - July 30, 2013

*A.12. Issuer L*

In this audit, the Firm failed in the following respects to obtain sufficient appropriate audit evidence to support its audit opinions on the financial statements and the effectiveness of ICFR –

- The issuer used information from an external pricing vendor to determine the recorded fair value of the majority of its fixed-maturity AFS investment securities. For securities for which pricing information was not available from the external pricing vendor, the issuer obtained prices from its external investment manager. The Firm failed to sufficiently test the issuer's controls over the valuation of the fixed-maturity AFS investment securities without readily determinable fair values. Specifically –
  - With respect to the prices obtained from the external pricing vendor, the Firm selected for testing a control that consisted of the issuer's review of information provided by the issuer's external investment manager. The information reviewed included the investment manager's comparison, for certain of the issuer's investments, of prices obtained from the issuer's external pricing vendor to prices received from other pricing vendors, and the identification of investments for which variances between prices exceeded established thresholds. There was no evidence in the audit documentation, and no persuasive other evidence, that the Firm had identified and tested controls to ensure that the prices used in the investment manager's comparison were the same as those the issuer used to record its fair values. In addition, the Firm failed to consider the effect of incorrect calculations by the investment manager of certain variances between prices on its conclusions regarding the severity of an identified deficiency in this control.
  - The Firm failed to test whether the issuer's controls addressed the need for the issuer to have a sufficient understanding of how the external pricing vendor had priced the AFS investment securities without readily determinable fair values to enable the issuer to determine (a) whether the prices were reasonable and determined in accordance with GAAP and (b) whether the securities were appropriately classified within the fair value hierarchy.
  - The Firm failed to identify and test any controls over the valuation of investments for which its external pricing vendor did not provide a price.

- With respect to the substantive testing of the valuation of the AFS investment securities, the Firm tested the value of the securities at an interim date and, to extend its conclusions to the year end, it developed expectations of year-end values for the AFS investment securities and tested some transactions that occurred after the interim testing. The procedures performed to extend the Firm's conclusions were not sufficient. Specifically –
  - The Firm's expectations were that the value of most of the investments it had tested at interim dates would not change significantly from the interim testing date to year end, and that, for some investment securities without readily determinable fair values, the value would not change by more than five percent of the value on the interim testing date. The Firm failed to obtain evidence to support these expectations but nevertheless used them despite the diverse composition of the issuer's portfolio, the issuer's disclosure regarding market volatility in the last half of the year, and the decline in the credit rating of certain of the relevant investments. The Firm's testing of the valuation of certain investments that were reclassified from level 2 to level 3 between the interim testing date and year end was not sufficient. Specifically, the Firm's year-end testing was limited to (1) comparing the value of these securities at the interim testing date to the value at year end and (2) obtaining a price for only one security from a pricing service, without performing any additional procedures to evaluate whether the price was reasonable and determined in accordance with GAAP.
  - The Firm failed to sufficiently test the valuation of the securities that the issuer acquired between the interim testing dates and year end, as its testing was limited to (a) testing the prices at the date of acquisition and (b) verifying that the change in price from the date of acquisition to year end was in line with its expectation, without obtaining evidence to support its expectation.

#### *A.13. Issuer M*

In this audit, the Firm failed in the following respects to obtain sufficient appropriate audit evidence to support its audit opinions on the financial statements and the effectiveness of ICFR –

- The issuer obtained pricing information for the majority of its AFS investment securities from external pricing vendors and used this information to record the securities' fair value. The Firm failed to test whether the issuer's controls addressed the need for the issuer to have a sufficient understanding of how the external

pricing vendors had priced its AFS investment securities without readily determinable fair values to enable the issuer to determine (a) whether the prices were reasonable and determined in accordance with GAAP and (b) whether the securities were appropriately classified within the fair value hierarchy.

- The Firm tested the value of the issuer's AFS investment securities at an interim date and, to extend its conclusions to the year end, it developed expectations of year-end values for these securities. With respect to certain AFS investment securities, the Firm used market indices to develop its expectations of the securities' value, but it failed to obtain evidence to support its assumption that the securities underlying the indices were comparable to the issuer's AFS investment securities. In addition, for one category of AFS investment securities, the Firm failed to perform procedures to support its conclusion that a difference between the recorded fair value and its expectation of fair value, which exceeded the Firm's level of materiality, did not represent a material misstatement.

**Appendix 2: SUBSTANTIVE AUDIT PROCEDURES**

- **EVALUATIVE:** Procedures that focus on the evaluation of the reasonableness of significant assumptions and model selection that are more susceptible to management bias.
  1. Determine that management has identified significant assumptions underlying the valuations. Identify and evaluate any specific risks identified.
  2. Evaluate the consistency of assumptions and sensitivity to changes in assumptions for SI's valuation method.
  3. Consider whether variances from the prior period fair value measurements result from changes in market or economic circumstances.
  4. Assessment of the third party valuation specialist used to evaluate and document the appropriateness of management's assumptions.
  5. Develop independent fair value estimates for corroborative purposes and compare to SI's fair value estimates.
  6. Use an external third party valuation specialist to develop independent expectations.
  7. Evaluate the expertise, objectivity, and experience of those persons determining the fair value measurements (including 3<sup>rd</sup> party specialist).
  
- **Confirmatory:** Procedures that focus on verification of management's model components that require little judgment.
  8. Confirm holdings of SI's investments on a security by security basis.
  9. Review investment statements from third parties reflecting investment activity and compare with SI's records.
  10. Perform tests of SI's significant assumptions, valuation models, and the underlying data.
  11. Identify and verify sources of documented support for management's assumptions.
  12. Perform recomputation of selected inputs.
  13. If an independent specialist is used to estimate fair value, obtain an understanding of the nature of the work performed by the specialist.
  14. Determine that SI's valuation method is appropriate and applied consistently. Specifically, assess the accuracy of management's assumptions over time.
  15. Verify growth rates, discount rates, etc. used in the valuation model.
  16. Reconcile differences between SI's fair value estimates and independent fair value estimates.

**Table 1**  
Sample demographics

<b>Variables</b>	<b>N</b>	
Audit Experience years	68	3.69 (4.74)
Number of times encountered FV issues	68	3.07 (6.01)
Position		
Partner	3	4%
Director	1	1%
Manager	7	10%
Senior	55	82%
Advanced In-Charged	1	1%
Knowledge of FV	68	3.76 (1.31)
FV Training	67	3.74 (1.39)

This table presents demographic data for the total sample. Amounts represent the mean responses and (standard deviations). For position, the responses represent the number of participants and percentage of the total.

**Table 2**  
 Audit planning judgments: Descriptive statistics.

Variable		Mean (SD)	Valuation Specialist		
			Management Engaged	Management Employed	Total
Domain Specific Expertise	Low	RATIOEVAL	.946 (.11)	.95 (.134)	.939 (.130)
		Risk of Material Misstatement	4.56 (1.46)	4.46 (.849)	4.74 (1.22)
		N	18	26	44
	High	RATIOEVAL	.987 (.29)	.92 (.121)	.966 (.207)
		Risk of Material Misstatement	4.15 (1.14)	4.82 (1.33)	4.17 (1.02)
		N	13	11	24
	Total	RATIOEV	.963 (.205)	.941 (.130)	.951 (.167)
		Risk of Material Misstatement	4.39 (1.33)	4.57 (1.01)	4.49 (1.16)
		N	31	37	68

This table presents the by-cell means, standard deviations, and sizes for participants' assessment of the risk of material misstatement measured on a scale of 1 – 7 where 1=low risk; 4 = moderate risk; and 7 = high risk and the planned proportion of evaluative versus confirmatory substantive audit procedures.

**Table 3**  
Test of Hypotheses

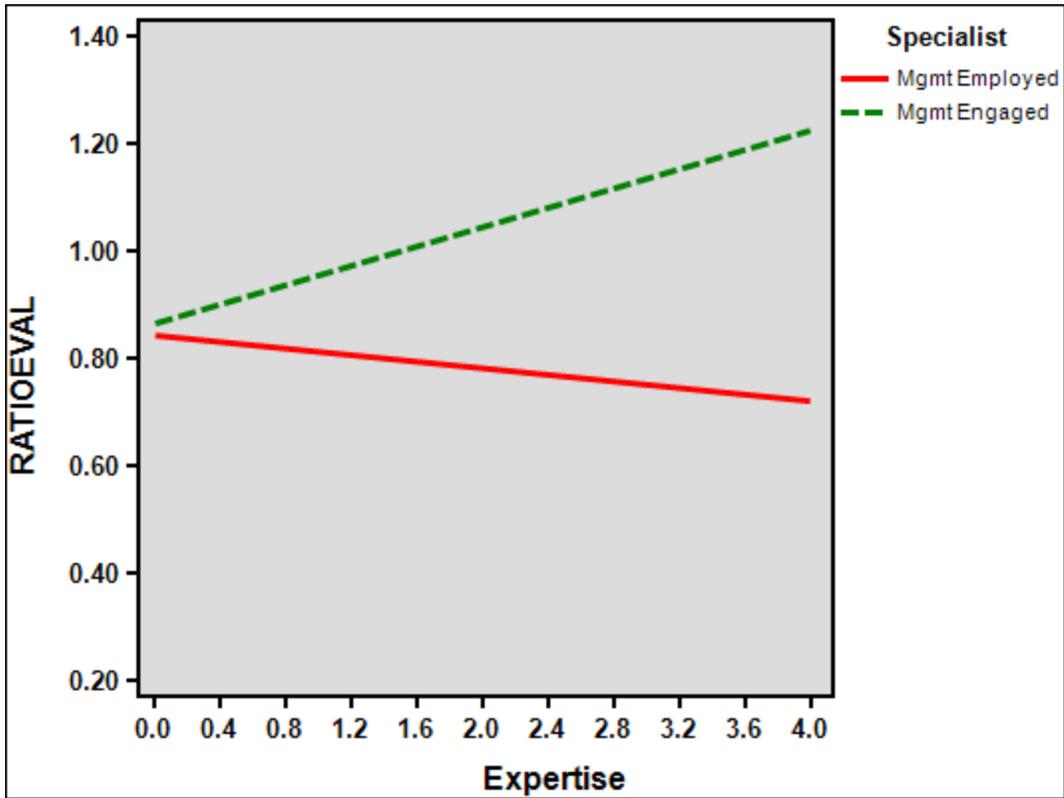
	Beta Estimate	Std. Error	t-value
Constant	.865	.080	10.707
<i>EXPERTISE</i>	.091	.036	2.481**
<i>SPECIALIST</i>	-.020	.039	-.495
<i>EXPERTISE * SPECIALIST</i>	-.122	.044	-2.79**
RMM	.021	.017	1.20

Notes:

1. Dependent Variable: *RATIOEVAL* = the proportion of evaluative versus confirmatory planned substantive audit procedures
2. *SPECIALIST* (0 = Management Employed; 1 = Management Engaged [Reference category]); *EXPERTISE* = constructed single variable measuring auditors' self-reported years of audit experience, task experience, and knowledge of FVMS; RMM = participants' assessment of risk of material misstatement measured on a scale of 1 – 7 where 1=low risk; 4 = moderate risk; and 7 = high risk
3. \*\*- p-values are significant at the .05 level.

Figure 1

Interaction of Expertise and Specialist



## References

- Alba, J. W., and J. W. Hutchinson. 1987. Dimensions of consumer expertise. *Journal of Consumer Research*, 13: 411–54.
- Alexander, R. M. 2003. The effects of source credibility on tax professional judgment in consulting engagements. *Journal of the American Taxation Association* 25 (s-1): 33-49.
- American Institute of Certified Public Accountants (AICPA). 1991. Statement on Auditing Standards No. 65: The auditor's consideration of the internal audit function in an audit of financial statements. New York.
- American Institute of Certified Public Accountants (AICPA). 2003. Auditing Fair Value Measurements and Disclosures. Statement on Auditing Standards No. 101. New York, NY: AICPA.
- Ashton, A. H. 1991. Experience and error frequency knowledge as potential determinants of audit expertise. *The Accounting Review* 66 (April): 218-239.
- Bamber, E. M. 1983. Expert judgment in the audit team: A source reliability approach. *Journal of Accounting Research* 21(2): 396-412.
- Bar-Anan, Y., Liberman, N. and Trope, Y., 2006. The association between psychological distance and construal level: Evidence from an implicit association test. *Journal of Experimental Psychology: General*, 135(4), p.609.
- Barlev, B., and Haddad, J. R. 2004. Tracks: Dual Accounting and the Enron Control Crisis. *Journal of Accounting, Auditing & Finance* 19(3): 343-359.
- Barr-Pulliam, D., J. Joe, S. Mason, and K. Sanderson. 2017b. Unlocking the Black Box in Fair Value Measurement: Examining How Valuation Specialists Prepare and Evaluate Fair Value Estimates. In *Working Paper Series*. The University of Wisconsin-Madison.
- Barr-Pulliam, D, Mason, S., and Brown-Liburd, H. 2018. Does Accounting Firm-Level Fair Value Expertise Mitigate Opportunistic Use of Fair Value-Related Accounting Discretion?, *Working Paper*, University of Wisconsin-Madison.
- Bedard, J. 1989. Expertise in auditing: Myth or reality? *Accounting, Organizations and Society* 14(1-2): 113-131.
- \_\_\_\_\_, and M. T. H. Chi. 1993. Expertise in auditing. *Auditing: A Journal of Practice & Theory* (Supplement): 21-45.
- \_\_\_\_\_, and S. F. Biggs. 1991. The effect of domain-specific experience on evaluation of management representations in analytical procedures. *Auditing: A Journal of Practice & Theory* (Supplement): 77-90.
- Bierstaker, J., Chen, L., Christ, M. H., Ege, M., and Mintchik, N. 2012. Obtaining assurance for financial statement audits and control audits when aspects of the financial reporting process are outsourced. *Auditing: A Journal of Practice & Theory* 32(sp1): 209-250.

- Bohner, G., Ruder, M., and Erb, H. P. 2002. When expertise backfires: Contrast and assimilation effects in persuasion. *British Journal of Social Psychology* 41(4): 495-519.
- Bonner, S. E. 1990. Experience effects in auditing: The role of task-specific knowledge. *The Accounting Review* 65 (1): 72-93.
- \_\_\_\_\_, and B. L. Lewis. 1990. Determinants of auditor expertise. *Journal of Accounting Research* 28 (Supplement): 1-20.
- \_\_\_\_\_, R. Libby, and M. W. Nelson. 1996. Using decision aids to improve auditors' conditional probability judgments. *The Accounting Review* 71 (April): 221-240.
- Brazel, J. F., Agoglia, C. P., and Hatfield, R. C. (2004). Electronic versus face-to-face review: The effects of alternative forms of review on auditors' performance. *The Accounting Review*, 79(4): 949-966.
- Bratten, B., Gaynor, L. M., McDaniel, L., Montague, N. R., and Sierra, G. E. 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): 7-44.
- Cannon, N. H., & Bedard, J. C. (2016). Auditing challenging fair value measurements: *Evidence from the field*. *The Accounting Review*, 92(4), 81-114.
- Choo, F. and K. T. Trotman. 1991. The relationship between knowledge structure and judgments for experienced and inexperienced auditors, *The Accounting Review*, 66 (3): 464-485.
- Christensen, B. E., Glover, S. M., and Wood, D. A. 2012. Extreme estimation uncertainty in fair value estimates: Implications for audit assurance. *Auditing: A Journal of Practice & Theory* 31(1): 127-146.
- Copeland Jr, J.E. 2005. Ethics as an Imperative. *Accounting Horizons* 19 (1): 35-43.
- Crowe Horwath, "Insights," 2011. <http://www.crowehorwath.com/estimating-fair-value-of-securities/>
- Daniel, S. J. (1988). Some empirical-evidence about the assessment of audit risk in practice. *Auditing: A Journal of Practice & Theory*, 7(2): 174-181.
- Davis, J. S., and I. Solomon. 1989. Expertise and experience in behavioral accounting research. *Journal of Accounting Literature* 150-164.
- DeBono, K. G., and Harnish. R. J. 1988. Source expertise, source attractiveness, and the processing of persuasive information: A functional approach. *Journal of Personality and Social Psychology* 55 (4): 541.
- Desai, N. K., Gerard, G. J., and Tripathy, A. 2011. Internal audit sourcing arrangements and reliance by external auditors. *Auditing: A Journal of Practice & Theory* 30 (1): 149-171.
- Eagly, A. H., and Chaiken, S. 1993. *The Psychology of Attitudes*. Harcourt Brace Jovanovich College Publishers.

- Earley, C. E., Hoffman, V. B., and Joe, J. R. 2008. Reducing management's influence on auditors' judgments: An experimental investigation of SOX 404 assessments. *The Accounting Review* 83 (6): 1461-1485.
- Eveland, W. P., & Dunwoody, S. (1998). Users and navigation patterns of a science World Wide Web site for the public. *Public Understanding of Science*, 7(4), 285-311.
- Farmer, T. A., L. E. Rittenberg, and G. M. Trompeter. 1987. An investigation of the impact of economic and organizational factors on auditor independence. *Auditing: A Journal of Practice & Theory* 7 (Fall): 1-14.
- Financial Accounting Standards Board, 2006, Statement of Financial Accounting Standards No. 157, *Fair Value Measurements*, FASB: Norwalk, Connecticut.
- Fujita, K., Trope, Y., Liberman, N. and Levin-Sagi, M., 2006. Construal levels and self-control. *Journal of personality and social psychology*, 90(3), p.351.
- Gettys, C. F., and Wilke, T. A. 1969. An Application of Bayes' Theorem When the True Data State Is Unknown." *Organizational Behavior and Human Performance* 4: 125-41.
- Glover, S. M., Prawitt, D. F., and Wood, D. A. 2008. Internal Audit Sourcing Arrangement and the External Auditor's Reliance Decision. *Contemporary Accounting Research* 25(1): 193-213.
- Glover, S. M., Taylor, M. H., and Wu, Y. J. (2014). Challenges in Auditing Fair Value Measurements and Other Complex Estimates: Insights from Audit Partners. *Available at SSRN 2515807*.
- Gold, A., Knechel, W. R., and Wallage, P. 2012. The effect of the strictness of consultation requirements on fraud consultation. *The Accounting Review* 87(3): 925-949.
- Griffin, J. B. 2014. The effects of uncertainty and disclosure on auditors' fair value materiality decisions. *Journal of Accounting Research* 52(5): 1165-1193.
- Griffith, E. E., Hammersley, J. S., and Kadous, K. 2014. Auditing complex estimates as verification of management numbers: How institutional pressures shape practice. *Contemporary Accounting Research*, forthcoming.
- Hammersley, J. S., Johnstone, K., and Kadous, K. 2011. How do senior auditors respond to heightened fraud risk? *Auditing: A Journal of Practice and Theory*, 30: 81-101.
- Hirst, D. E. 1994. Auditors' sensitivity to source reliability. *Journal of Accounting Research* 32(1): 113-126.
- Hunton, J. E., Wright, A. M., and Wright, S. (2004). Are financial auditors overconfident in their ability to assess risks associated with enterprise resource planning systems? *Journal of Information Systems*, 18(2): 7-28.
- Jacoby, J., T. Troutman, A. Kuss, and D. Mazursky. 1986. Experience and expertise in complex decision making, in *Advances in Consumer Research*, Vol. 13: 469-475, ed. Richard J. Lutz, Provo, UT: Association for Consumer Research.

- Jamal, K., and H. T. Tan. 2001. Can auditors predict the choices made by other auditors? *Journal of Accounting Research* 39 (December): 583-597.
- Jiambalvo, J. and W. Waller. 1984. Decomposition and assessments of audit risk. *Auditing: A Journal of Practice & Theory*, 3(Spring): 80-88.
- Johnson, B. B. 2005. Testing and expanding a model of cognitive processing of risk information. *Risk Analysis*, 25(3): 631-650.
- Johnson, E. J., and J. E. Russo. 1984. Product familiarity and learning new information. *Journal of Consumer Research*, 11(June): 542-550.
- King, A. M. 2006. Auditing valuation reports. *Valuation Strategies* 9 (6): 18–25.
- Kleinman, G., Anandarajan, A. Medinets, A., and, Palmon, D. 2010. A theoretical model of cognitive factors that affect auditors' performance and perceived independence. *International Journal of Behavioral Accounting and Finance* 1(3): 239-267.
- Libby, R. (1981). *Accounting and human information processing: Theory and applications*. Prentice Hall.
- \_\_\_\_\_, and D. M. Frederick. 1990. Experience and the ability to explain audit findings. *Journal of Accounting Research* (Autumn): 348-367.
- \_\_\_\_\_, and J. Luft. 1993. Determinants of judgment performance in accounting settings: Ability, knowledge, motivation, and environment. *Accounting, Organizations and Society* 18 (July): 425-450.
- \_\_\_\_\_, and H. T. Tan. 1994. Modeling the determinants of audit expertise. *Accounting, Organizations and Society* 19 (November): 701-716.
- Lieberman, N. and Trope, Y., 2008. The psychology of transcending the here and now. *Science*, 322(5905), pp.1201-1205.
- Lieberman, N., Sagristano, M.D. and Trope, Y., 2002. The effect of temporal distance on level of mental construal. *Journal of experimental social psychology*, 38(6), pp.523-534.
- Maletta, M. J. 1993. An examination of auditors' decisions to use internal auditors as assistants: The effect of inherent risk\*. *Contemporary Accounting Research*, 9(2): 508-525.
- Martin, R. D., Rich, J. S., and Wilks, T. J. 2006. Auditing fair value measurements: A synthesis of relevant research. *Accounting Horizons* 20 (3): 287-303.
- Nolder, C. J., and Kadous, K. 2018. Grounding the professional skepticism construct in mindset and attitude theory: A way forward. *Accounting Organizations and Society*, 67 (May): 1-14.
- Nussbaum, S., Trope, Y. and Liberman, N., 2003. Creeping dispositionism: The temporal dynamics of behavior prediction. *Journal of personality and social psychology*, 84(3), p.485.
- Power, M. 2010. Fair value accounting, financial economics and the transformation of reliability. *Accounting and Business Research*, 40(3): 197-210.

- Public Company Accounting Oversight Board (PCAOB). 2003. *Auditing Fair Value Measurements and Disclosures*. PCAOB Interim Auditing Standards AU Section 328. Washington, D.C.: PCAOB.
- \_\_\_\_\_. 2009. *Auditing Fair Value Measurements and Using the Work of a Specialist*. Standing Advisory Group Meeting. October 14-15. Washington, D.C.: PCAOB.
- \_\_\_\_\_. 2010a. *Report On Observations of PCAOB Inspectors Related To Audit Risk Areas Affected By The Economic Crisis*. PCAOB Release No. 2010-006, September 29. Washington, D.C.: PCAOB.
- \_\_\_\_\_. 2010b. *Auditing Standards Related to the Auditor's Assessment of and Response to Risk and Related Amendments to PCAOB Standards*. PCAOB Release No. 2010-004, August 5. Washington, D.C.: PCAOB.
- \_\_\_\_\_. 2011a. *Report on 2010 Inspection of KMPG LLP*. November 8. Washington, D.C.: PCAOB.
- \_\_\_\_\_. 2011b. *Assessing and Responding to Risk in the Current Economic Environment*. Staff Audit Practice Alert No. 9. December 6, Washington, D.C.: PCAOB.
- \_\_\_\_\_. 2014. *Staff Consultation Paper: Auditing Accounting Estimates and Fair Value Measurements*. August 19, 2014. Washington, D.C.: PCAOB.
- \_\_\_\_\_. 2017a. *Staff Consultation Paper No. 2017-003, The Auditors' Use of the Work of Specialists*. Washington, DC: PCAOB. <https://pcaobus.org/Rulemaking/Docket044/2017-003-specialists-proposed-rule.pdf>
- \_\_\_\_\_. 2017b. *Information about 2017 Inspections*, Staff Inspection Briefs Vol. 2017/3 (August). Washington, D.C.: PCAOB. <https://pcaobus.org/Inspections/Documents/inspection-brief-2017-3-issuer-scope.pdf>
- Ramsay, R. J. 1994. Senior/manager differences in audit workpaper review performance. *Journal of Accounting Research* 32 (Spring): 127-145.
- Riedl, E. J., and Serafeim, G. 2011. Information risk and fair values: an examination of equity betas. *Journal of Accounting Research* 49 (4): 1083-1122.
- Rosch, E. and Lloyd, B.B. eds., 1978. Cognition and categorization.
- Schum, D. A, and DuCharme. W. M. 1971. Comments on the relationship between the impact and the reliability of evidence, *Organizational Behavior and Human Performance* 6: 111-31.
- Securities and Exchange Commission (SEC). 2011. Disclosure and Corporate Governance: Financial Reporting Challenges for 2011. The Harvard Law School Forum on Corporate Governance and Financial Regulation. Available at: <http://blogs.law.harvard.edu/corpgov/2011/03/12/sec-disclosure-and-corporate-governance>.
- Shanteau, J. (1992). Competence in experts: The role of task characteristics. *Organizational Behavior and Human Decision Processes*, 53(2): 252-266.
- Siegrist, M., and Cvetkovich, G. (2000). Perception of hazards: The role of social trust and knowledge. *Risk Analysis*, 20(5): 713-720.

- Smith-Lacroix, J., Durocher, S., and Gendron. Y. 2012. The erosion of jurisdiction: Auditing in a market value accounting regime. *Critical Perspectives on Accounting* 23 (1): 36-53.
- Song, C. J., Thomas, W. B., and Yi, H. 2010. Value relevance of FAS No. 157 fair value hierarchy information and the impact of corporate governance mechanisms. *The Accounting Review* 85 (4): 1375-1410.
- Trope, Y. and Liberman, N., 2003. Temporal construal. *Psychological review*, 110(3), p.403.
- Trope, Y., Liberman, N. and Wakslak, C., 2007. Construal levels and psychological distance: Effects on representation, prediction, evaluation, and behavior. *Journal of consumer psychology*, 17(2), pp.83-95.
- Weisner, M. M. 2015. Using construal level theory to motivate accounting research: a literature review. *Behavioral Research in Accounting*, 27(1), 137-180.
- Weisner, M.M., and Sutton, S.G., 2015. When the world isn't always flat: The impact of psychological distance on auditors' reliance on specialists. *International Journal of Accounting Information Systems*, 16, pp.23-41.
- Whittington, R., and Margheim, L. 1993. The effects of risk, materiality, and assertion subjectivity on external auditors' reliance on internal auditors. *Auditing: A Journal of Practice & Theory*, 12(1): 50-64.
- Wood, W. 1982. Retrieval of attitude relevant information from memory: Effects on susceptibility to persuasion and on intrinsic motivation. *Journal of Personality and Social Psychology*, 42: 798-810.
- \_\_\_\_\_, and C. A. Kallgren. 1988. Communicator attributes and persuasion: Recipients' assess to attitude relevant information in memory. *Personality and Social Psychology Bulletin*, 14: 172-182.
- Worth, L. T. and D. M. Mackie 1987. Cognitive mediation of positive mood in persuasion, *Social Cognition*, Vol. 5: 76-94.