The Effect of Reliance on Third-Party Specialists under Varying Levels of Internal Control Effectiveness on the Audit of Fair Value Measurements

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Abstract: We examine the effect of third-party specialists and internal control effectiveness on auditor risk assessments and planning judgments 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. Inspection reports issued by the PCAOB consistently cite audit firms for deficiencies concerning judgments related to reliance on management-hired third-party valuation specialists and controls over the FVM process. The growing number of deficiencies has led to the perception that auditors may not effectively evaluate FVMs and related disclosures, internal controls around them, or assumptions made by specialists. We conduct an experiment to examine how reliance on third-party specialists affects auditors' planning judgments for FVMs of financial instruments when observable market data is unavailable under varying levels of internal control effectiveness. We rely on the Heuristic-Systematic Model (HSM) to predict how auditors process information and reach judgments for FVMs. Results indicate that when internal controls are effective and management employs a third-party specialist to provide the FVM, auditors make the lowest inherent risk assessments. Auditors place greater reliance on management-hired third party specialists and are least likely to assess their expertise, objectivity and experience. The findings suggest that, overall, auditors engage in more effortful cognitive processing but the presence of a third-party specialist causes them to pay more attention to expert source cues, which is indicative of source expertise affecting the evaluation of risks associated with more complex and subjective accounting estimates.

Key Words: Fair value measurement, Inherent risk, Internal controls, Information processing.

JEL Classification: M42

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1. Introduction

We examine the effect of third-party specialists under varying levels of internal control effectiveness on auditors' risk assessments and planning judgments related to auditing fair value measurements (FVMs) under SFAS 157 (ASC 820). Researchers and practitioners state that FVMs can be difficult to audit because the auditor must weigh certain types of evidence with the judgment process, including inputs, valuation methods, assumptions of specialists, and level of controls. Fair value has not been featured in much research, especially where it concerns internal controls over FVMs (Martin et al. 2006). The Standing Advisory Group of the Public Company Accounting Oversight Board (PCAOB) noted that a lack of appropriate controls for determining FVMs can lead to material misstatements in financial statements (Crowe Horwath 2011), which has implications for both management and auditors.

The auditor's evaluation of the effectiveness of internal controls over the determination of FVMs, an important component to the auditor's assessment of audit risk, is also an ill-structured task that requires professional judgment and skepticism. The growing number of audit deficiencies for FVMs has led to the perception that auditors may not effectively evaluate FVMs and their related disclosures, nor the internal controls around them, or the assumptions made by valuation specialists (Copeland 2005; Martin et al. 2006; Griffith et al. 2012; Christensen et al. 2012). Specifically, we examine audit planning judgments in the context of internal control effectiveness, and the use of management-hired, third-party valuation specialists related to complex FVMs of financial instruments whose observable market data is unavailable (e.g., Level 3 assets). Both of these factors have been consistently related to audit deficiencies around FVMs, as cited in the PCAOB inspection reports. This study responds to the call for research that analyzes the use of valuation specialists (Bratten et al. 2013) and examines higher-risk FVMs as well as factors that affect auditors' risk assessments around FVMs.

The Financial Accounting Standards Board (FASB) issued SFAS 157: Fair Value Measurements in September 2006, resulting in a significant growth in the number of FVMs subject to audit. This increased the magnitude of auditors' exposure to fair value assurance, amplifying their audit significance and impact on financial reporting quality and intensifying their focus on the interpretation of financial statements. While the risk of misstatement is typically low for exchange-traded securities, more complex or volatile securities, such as non-agency collateralized mortgage obligations (CMOs), can result in greater risk of misstatement because they are considered "unobservable" (e.g., Level 3 assets). That is, their values are based on models or the assumptions of management and/or valuation specialists, and often require additional effort to determine whether or not the FVMs are presented fairly. The objective of this study is to examine auditor planning judgments in this highly complex and subjective context.

In 2010, the PCAOB noted a wide variety of audit deficiencies relating to FVMs and related disclosures; some were significant enough to result in audit failures and misstated financial statements (see Appendix 1 for an example). In fact, nearly half of all the audit deficiencies cited by the PCAOB in the 2010 inspections were related to FVMs, an increase of more than three times over 2009, with 88 percent attributable to financial instruments. The PCAOB reports indicated that most FVM audit deficiencies were caused by inadequate testing of asset prices provided by outside pricing services, and identified a number of deficiencies related to the auditors' reliance on evidence from the specialists, including failure to understand the methods, the models, and the assumptions used by valuation specialists. Further, the PCAOB report cited failures around internal controls, such as auditors relying on controls over inputs to FVMs or FVM hierarchy disclosures without testing the effectiveness of the control or without identifying an existing material weakness related to internal controls around valuation methods.

The auditor's effectiveness at auditing FVMs is essential to financial statement users in an environment where fair value is increasingly being used. Thus, it is increasingly important to

study factors that may impact auditor judgment in this ill-structured task setting. One factor that may affect auditor effectiveness is a bias in favor of FVMs that are developed by third-party specialists. According to Cannon and Bedard (2013), over 85 percent of audit teams and 66 percent of audit clients consult a third-party specialist. The PCAOB recently criticized each of the Big Four 4 firms, as well as several other public accounting firms, for improper procedures, insufficient evidence, and inappropriate reliance on specialists for FVMs (e.g., PCAOB 2011a, 2011b, 2010b, 2010c, 2009).

In practice, the auditor must evaluate the reliability of the specialist as an information source (source reliability). While the source reliability literature examining information processing achieved only mixed results in the auditing setting, findings suggest that small variations in source reliability can have a significant effect on the inferential value of information (Bamber 1983). Given the PCAOB's identification of the use of valuation specialists, and the tendency for auditors to over-rely on them as an area of concern, research is needed to gain a better understanding of how audit quality may be impacted. Bratten et al. (2013) suggest a number of research areas that are needed in order to gain a better understanding of the impact of valuation specialists on audits of FVM. 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, how auditors' lack of expertise affects reliance on external parties, and whether or not auditors are more likely to accept management's estimate if valuation experts are hired (not hired) by management.

In this study, we draw on the Heuristic-Systematic Model (HSM) (Chen and Chaiken 1999) to examine the auditor's mode of information processing when the client uses a third-party specialist (source credibility) under conditions of varying levels of internal control effectiveness. Specifically, we examine the auditor's use of heuristic processing cues and the effect on the systematic processing of information used to make audit planning judgments. According to HSM,

individuals use one or both of these modes of information processing when trying to evaluate information in order to make a judgment (Chaiken 1980; Chaiken and Maheswaran 1994; Alexander 2003). Heuristic processing involves the application of simple, readily available judgmental rules, or "heuristics," (e.g., "experts can be trusted"). Systematic processing is characterized by a thorough, analytical evaluation of judgment-relevant information.

Heuristic and systematic processing may coexist, and research demonstrates that heuristic processing can bias systematic processing of information (Chen and Chaiken 1999). For example, source credibility (heuristic processing) affects the decision makers' perception of the persuasion of the information through its impact on the importance of systematic processing (Chaiken and Maheswaran 1994; Alexander 2003). In the auditing setting, the potential for heuristic processing to bias systematic processing is particularly important because of its implications for the reliance on the judgments of experts in evaluating accounting estimates. For example, if auditors are biased toward third-party specialists because they view them as credible without having an appropriate level of skepticism, this may result in lower risk assessments, which in turn impacts the extent of audit evidence gathered.

Indeed, anecdotal evidence based on inspections by regulatory bodies suggest that auditor judgments related to FVMs are not sufficiently supported by the audit evidence documented in the audit work papers (PCAOB 2008). Similarly, the Canadian Pubic Accountability Board (CPAB) reports that the reasonableness of the data used by the specialists is not always validated by the engagement team; in fact, the work of some specialists lacked rigor; for example, assumptions used in valuations were not subjected to careful assessment (Smith-Lacroix et al. 2011). Further research suggests that auditors follow the guidance from others in order to shift responsibility for risky judgments on others (Gold et al. 2012). Thus, the potential for auditor bias in evaluating third-party specialists is of concern to regulators.

Our results indicate that when a management-hired, third-party specialist provides the FVMs, and when internal controls are effective, auditors' make significantly lower inherent risk assessments. It should be noted that the auditors exhibited a blanket acceptance of the expert, assuming the expert is both competent and independent based solely on described characteristics of the expert. Given that auditors assess the measurement uncertainty associated with FVM in many cases as being equal to or greater than materiality (Canon and Bedard 2014), assessing inherent risk at such a low levels suggests that auditors may not effectively respond to the heightened risks associated with FVM. Additionally, an examination of the auditor's cognitive responses indicates that, overall, auditors engaged in systematic processing (attribute–related thoughts pertaining to the specific attributes of the internal controls and investment accounts). However, heuristic cues about the source of information affected how they processed the information.

Specifically, an analysis of the effect of auditors' cognitive responses on inherent risk assessments provides evidence that processing of heuristic cues biased systematic processing, which resulted in the lowest assessments of inherent risk for auditors in the Expert/Effective Internal Controls condition. These results are consistent with prior research, which discovered that when tasks are ill-structured, heuristic and systematic processing both influence judgments (Chaiken and Maheswaran 1994). Consequently, the source credibility of this study — the reliance on the judgment of a third-party valuation specialist (heuristic processing) — affected the auditor's judgment process partly through its impact on the valence of systematic processing, when controls were effective. Accordingly, the auditor relied on the use of knowledge structures and was more likely to agree with messages delivered by experts, without fully processing the semantic content of the message. Given the current economic climate, the transition to a more fair value-oriented set of standards, and the increased media attention on the impact of FVMs, these findings are important to auditors, investors, regulators, and public accounting firms.

The remainder of the paper is organized 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 for the results.

2. Institutional Background

When FASB issued SFAS 157, it did not introduce any new FVM requirements; its objective was to increase the consistency, comparability, and transparency of FVMs used in financial reporting by establishing an authoritative definition for fair value, a framework for measuring fair value, and requirements for financial statement disclosure. Despite the intent of the pronouncement, FVMs are fraught with difficulties when asset markets are inactive or non-existent. A report issued by the PCAOB in 2009 highlights challenges faced by auditors in properly navigating the complexities of fair value. It points to the heightened degree of judgment and subjectivity that accompany FVMs, especially those based on models such as credit default swaps, collateral debt obligations, or mortgage-backed securities.[1]

Brunnermeier and Oehmke (2009), and Schwarcz (2009) argue that financial instruments are complex and distinct from other asset classes. Schwarcz (2009) calls this complexity the greatest financial market challenge of the future because it can impair markets and investments in several interrelated ways, and because complexities of the investments can lead to a failure of investing standards and financial market practices. Complexity in this sense is derived not only from complication, but from the difficulty of valuation, which can be thought of as "cognizant complexity." In other words, things are just too complex to understand.[2]

As the use of FVMs has expanded and the complexity of the measurements has increased, so has the need for professionals with specialized skills related to fair value to respond

[1] "Auditing Fair Value Measurements and Using the Work of a Specialist," PCAOB Standing Advisory Group Meeting, October 14-15, 2009.
[2] Steven L. Schwarcz, Keynote Address: Understanding the Subprime Financial Crisis (2009) available at http://ssrn/abstract_id=1288687.

to the challenges of auditing certain FVMs. Many large accounting firms engage third-party valuation specialists, and these auditors must assess whether the third-party specialist is sufficiently independent of management. The PCAOB highlighted the use of specialists when enumerating audit problems with respect to financial instruments, including failure to obtain an understanding of the specific methods and assumptions underlying the FVM obtained from a specialist, using the same specialist that the client used to prepare the financial statements, failure to evaluate significant differences between the issuer's recorded price and a specialist's, and failure to test the underlying information used by an external specialist. The use of specialists is also an issue facing preparers (management).

The SEC has stated that they are specifically interested in how auditors audit, how management reports, and the nature of the valuation assertions when companies use third-party specialists to determine the FVM of investments that are not exchange-traded. In 2011, it was reported that the SEC has begun requesting further information related to issuers' use of information from third-party specialists as part of its filing reviews. They are now asking questions, including the extent to which prices from third-party specialists were used by an issuer in estimating fair value; whether the pricing methodology complies with generally accepted accounting principles (GAAP); and how issuers validate information received from third-party specialists to determine whether the proper classification in the fair value hierarchy has been made. The SEC has also asked whether the issuer identified any limitations or deficiencies in its internal controls related to the valuation of securities, and how it assessed the nature and severity of any such deficiencies.

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 assets are based on 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 (2012b) recently 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 2011c) and is likely due to the large number of audit deficiencies related to evaluating FVMs (PCAOB 2010b).[3] It is also consistent with concerns by the regulators that auditors are not sufficiently prepared for challenges in evaluating audit evidence to determine the reasonableness of client-prepared FVMs (PCAOB 2009).

In addition to recent reports from the PCAOB about audit deficiencies in higher risk areas of an audit, such as for FVMs, concerns have also been highlighted in recent academic research. For example, Earley et al. (2013) test whether auditors might be too lenient in allowing management to report the FVM classification it prefers or whether their accountability to regulators and litigation concerns make them skeptical of management's fair value classifications. They find that auditors are diagnostically skeptical of management's preferred classification, particularly when management prefers the less conservative (Level 3 versus Level 2) reporting choice. Riedl and Serafeim (2011) find that Level 3 assets have higher systematic risk and greater information asymmetry when compared to Level 2 assets. Therefore, Level 3 assets are valued less by investors (Song et al. 2010; Kolev 2009; Cullinan and Zhang 2012).

This study examines two areas in which the PCAOB has cited audit firms for a lack of professional skepticism and failure to critically evaluate management's estimates: assessing

[3] 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.

internal controls over FVMs and the use of third-party specialists. For example, the PCAOB has recently cited the Big 4 firms for failure to identify and test controls over the inputs used to value hard-to-value financial instruments (i.e., Level 3) and failure to obtain an understanding of the specific methods and/or assumptions underlying certain FVMs obtained from third-party pricing services used in the valuation of hard-to-value financial instruments. 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.

Internal Controls

Management is expected to establish internal controls to determine that the fair value information received from a third-party valuation specialist and used by management in the valuation process is relevant and reliable. As such, auditors are required to obtain an understanding of the process for determining FVMs and disclosures and of the relevant controls necessary to develop an effective audit approach (AU 328, AICPA 2003). In their review of the literature that examines audits of FVMs, Martin et al. (2006) suggest a number of important issues, such as the auditors' reliance on internal controls over the FVM estimation process. They base their suggestion on Barlev and Haddad (2004), who argue that internal controls over the estimation process for FVMs must be different from internal controls over other transactions; that they are likely more difficult to audit effectively; that they typically rely on different mechanisms than more traditional control systems; and that they are more likely to be developed on an application-by-application basis (as opposed to more uniform control systems applied to traditional transaction processes).

Whereas auditors must ensure that controls over FVMs are appropriate, especially in relation to separation of duties, the complexity associated with the evaluation of controls over fair value estimates usually requires more audit work to understand and test controls, and the specific information and control processes needed to support this estimate will be very specialized. This

may explain why the PCAOB has raised concerns about auditors' assessment of internal controls related to fair value estimates. Further, research suggests that auditors are not very effective at evaluating controls in more complex environments (e.g., Hunton et al. 2004). Consistent with this view, Cannon and Bedard (2013) provide evidence from a field survey of experienced audit practitioners who report that controls, even when deemed effective, are not always relied on because of the high degree of estimation uncertainty in fair value estimates. While this finding suggests that auditors may be conservative in their assessments of internal control risk related to fair value estimates, it is possible that auditors may not know how to effectively incorporate internal controls over the fair value estimation process into their audit planning judgments. Indeed, Hammersley (2008) finds that while auditors attend to information about material weaknesses when assessing risk and making planning decisions, they do not appear to know how to use the information effectively.

The above discussion suggests that the assessment of internal control risk related to FVM may be problematic for auditors. However, we do anticipate that when given cues indicating effective (e.g., segregation of duties, management oversight, etc.) vs. ineffective controls, auditors experienced in assessing controls over FVMs will be able to properly assess control risk since this is a routine task that audit seniors perform on these types of audit engagements. However, the complexity of processes increases when components of the evaluation process are outsourced (Bierstaker et al. 2013) and auditors may not adequately assess control risk. Therefore, we anticipate that over-reliance on controls may result when third-party specialists are utilized to develop FVMs. We discuss this expectation in the following sections.[4]

[4] Prior audit research (e.g., Waller 1993; Messier and Austin 2000) finds that there is a knowledge-based dependency between auditors' control and inherent risk assessments. As an example, Waller finds the two assessments to be highly correlated. Therefore, we do not propose a hypothesis for the effect of internal control effectiveness on inherent risk assessments.

Management-Hired, Third-Party Valuation Specialists

Management's use of third-party valuation specialists, especially those that utilize proprietary models, 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 these specialists could undermine the quality of the reported FVM and related audit work (SEC 2011; PCAOB 2011a). In fact, the PCAOB inspection reports confirm this tendency for auditors to over-rely on third-party experts. Additionally, because of the ambiguity inherent in FVMs, auditors may feel as if they have less bargaining power, especially when they need to challenge management estimates (Smith-Lacroix et al. 2012).

Research on the effects of third-party 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/or information provided by third-party specialists (e.g., Griffin et al. 2013). 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.

While some have argued that specialists engaged by management are independent (e.g., King 2006), research suggests that reliance on these specialist may be problematic (e.g., Griffin et al. 2013; Christensen et al. 2012). As an example, 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. For FVMs with extreme estimation uncertainty, which gives rise to significant risks, auditing

standards require the auditor to make evaluations in addition to the normal procedures used in the audit of estimates, such as understanding management's model, testing controls, and considering the reliability of data (AICPA AU 328). Given the number of inputs used in FVMs, the inherent economic and estimation uncertainty, and management's discretion in forming estimates, it appears that the use of third-party specialists could make the audit environment even more complicated. The risks of using a third-party specialist include, for example, lack of integrity over the valuation process, an inability to externally validate FVM assumptions as prescribed by current audit standards (Bedard and Cannon 2012), and lack of independence between management and management-hired, third-party specialists.

Despite these risks, evidence presented in the source credibility literature suggests that the audit client's use of a 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. 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 (Griffin et al. 2013). As a result, auditors may be more sensitive to source expertise as compared to source objectivity when evaluating the reliability of evidence provided by third-party valuation specialists. Therefore, they may be more likely to attend to information related to the expert as opposed to relevant information about the process. This type of information processing is known as the "expert opinion heuristic." In other words, when experts are used, individuals will process information through the application of simple, readily accessible judgmental rules, or "heuristics" (e.g., "experts can be trusted"). This blanket acceptance of experts is generally available in a person's cognitive repertoire and may guide their judgment when information about expertise is salient (Bohner et al. 2002).

Decision makers process information via two modes: heuristic processing and systematic processing (e.g., Chaiken 1980; Alexander 2003) which is commonly referred to as heuristic-systematic processing (HSM). Heuristic processing involves using judgmental rules known as knowledge structures that are learned and stored in memory (Chaiken et al. 1989). This approach offers an economic advantage by requiring minimal cognitive effort on the part of the decision maker. However, heuristics processing can interfere with experiential knowledge because incorrect information may be utilized, resulting in incorrect conclusions (Kleinman et al. 2010). In contrast, systematic processing is characterized by an analytical and comprehensive evaluation of judgment-relevant information (Chen and Chaiken 1999). Decision makers developing attitudes from a systematic basis exert considerable cognitive effort and actively attempt to comprehend and evaluate the message's arguments. Auditors use HSM when making judgments in both ill-structured and structured tasks (e.g., Brazel et al. 2004; Alexander 2003).

Specific to this study, HSM has also been used to describe how individuals make judgments about risk (Trumbo 1999; Johnson 2005) and finds that heuristic processors assess risk lower as compared to systematic processors. For example, perceived source characteristics, such as expertise, determine risk perceptions in that individuals appear to apply the expert heuristic if they themselves do not possess the task expertise (e.g., Siegrist and Cvetkovich 2000). In other words, because of the complexity inherent to FVMs and the expertise they themselves do not possess, auditors may place greater reliance on the information generated by the expertise of management-hired, third-party specialists when making their audit planning risk judgments. Further, research on risk communication and persuasion finds that individuals generally rely on expertise when forming risk judgments (Petty et al. 1981; Chaiken 1987; Siegrist 2000), are persuaded more by experts (DeBono and Harnish 1988; Pallak et al. 1983; Petty et al. 1981), and are influenced more by source expertise when arguments are ambiguous (Chaiken and Maheswaran, 1994).

In the audit context, it has been demonstrated that auditors view evidence provided by the client as less persuasive than evidence offered by a third-party specialist. Further, when inherent risk is high, auditors rely more on work outsourced to a third-party specialist (e.g., Glover et al. 2008; Desai et al. 2011). However, audit studies have primarily focused on reliance on third-party internal audit functions. These outsourcing arrangements are primarily related to internal controls over financial reporting, which is arguably not as susceptible to bias and is less complex and subjective than the FVM estimation process. Further, it can be argued that auditors generally have more task-relevant expertise with regard to the evaluation of internal controls over financial reporting, and as such, are better able to evaluate the work of third-party internal auditors. Thus, because the estimation process for FVMs is more ambiguous and difficult to audit effectively, auditors are likely to place greater reliance on third-party specialist. Further, since individuals are sensitive to the credibility of an information source when forming judgments and making decisions (Bamber 1983; Eagly and Chaiken 1993; Hirst 1994), we expect that the presence of a management-hired third-party specialist will trigger heuristic processing and auditors will rely on heuristic cues to process information. Also, consistent with HSM, auditors will engage in less systematic processing which will result in lower planning judgments.

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

H1: *When fair value measurements are provided by third-party valuation specialists, auditors will engage in a greater extent of heuristic processing.*

H2: *Auditors' audit planning judgments (i.e., risk assessments and planned substantive tests) will be lower when third-party valuation specialists provide fair value measurements than when client prepared.*

Heuristic processing can co-occur with systematic processing (Chaiken and Maheswaran 1994). In a study examining the effects of source credibility and argument ambiguity on heuristic and systematic processing, Chaiken and Maheswaran (1994) find that source credibility affects the decision makers' perception of the persuasion of the information through its impact on the

importance of systematic processing, confirming that heuristic processing can bias systematic processing. In the auditing setting, the potential for heuristic processing to bias systematic processing is particularly important because of its implications for the reliance on the judgments of experts in evaluating accounting estimates. For example, if auditors are favorably biased toward third-party specialists because they view them as credible without having an appropriate level of skepticism, this may result in lower risk assessments. The auditor's assessment of the susceptibility of an account for misstatement impacts the assessment of inherent risk, and, accordingly, the risk of material misstatement and subsequent audit procedures. Hence, the risk assessment process is directly influenced by this bias. Thus, a likely interdependent interaction exists, resulting in systematic processing (evaluation of effective internal controls) which will be influenced by cues that trigger heuristic processing (third-party expert).

Research suggests that the effect of source reliability is conditional on the potential diagnosticity (relevance) of the information, with the impact of source reliability increasing along with the relevance of the information (e.g., Schum and Du Charme 1971; Gettys & Wilke 1969). In the audit setting, the presence of strong internal controls increases the diagnosticity (relevance) of assertions, since a lower control risk assessment indicates a lower risk of material misstatements in financial statement accounts. This results in the auditor reducing the amount of substantive testing. Information generated in an effective internal control environment takes on greater relevance because the auditors are relying on that system of internal control to prevent or to detect material misstatements. In addition, the complexity associated with the evaluation of controls over fair value estimates would lead auditors to engage in more systematic processing. Systematic processing involves more complex effortful assessment related to data acquisition, evaluation and integration of information (Chaiken 1980; Chen and Chaiken 1999).

When auditors perceive controls as effective, they generally rely on these controls to reduce substantive audit procedures. Thus, as FVMs generated in a system of effective internal

controls become more diagnostic (relevant) in the auditor's decision-making process, the auditor places more reliance upon the valuation estimates that are generated in a system with strong internal controls over the valuation process. When there is a third-party expert, it is possible that the presence of an expert (source credibility) will reinforce the auditor's reliance upon FVMs generated from the accounting information system. However, since at the planning stage auditors have little information about the reliability of the information provided by the third-party valuation specialist, reliance may result in biased processing. According to the bias hypothesis, heuristic processing of messages associated with expert sources leads to a more favorable evaluation of message content (Chaiken and Maheswaran 1994). In other words, the increased risks associated with FVMs will result in auditors engaging in more systematic processing of relevant information cues. However, because of the complexity inherent to FVMs and the lack of auditor expertise, the presence of the management-hired, third-party specialist is likely to result in auditors engaging in heuristic processing. Thus, there is likely an interdependent interaction resulting in systematic processing (evaluation of effective internal controls over the FVM process) that will be influenced by cues that trigger heuristic processing (third-party expert).

Therefore, we propose the following hypotheses:

H3: *Under conditions of effective internal controls, source credibility cues (i.e., third-party expert) will bias auditor judgments, resulting in lower audit planning judgments.*

H4: *Under conditions of effective internal controls, auditors' audit planning judgments (i.e., risk assessments and planned substantive testing) will be lowest when fair value measurements are provided by a third-party valuation specialist.*

3. Experimental Design

Participants

Audit managers and seniors were recruited from three international public accounting firms to participate in the study by senior representatives from their firms. Sixty-nine auditors with an average of 3.38 years of auditing experience, and who are routinely responsible for auditing

FVMs, completed the experiment either in their office or at a training seminar conducted by one of the participating firms. Table 1 presents the demographic statistics. The mean for self-reported knowledge of FVM and training is 4.04 and 4.30, respectively, on a seven point Likert Scale - 1 (Not Very Knowledgeable) to 7 (Very Knowledgeable). Further, participants indicated a mean of 5.1 times they encountered FVM issues on their audit engagements. Thus, participants have the requisite knowledge to complete the experiment. Table 1 presents demographic information.

Insert Table 1 here

Experimental tasks

Auditors were randomly assigned to one of four experimental conditions to complete the requisite tasks. In our experiment, internal control effectiveness (less effective vs. more effective) and client use of a valuation specialist (no third-party vs. third-party) are manipulated between participants. Participants received a realistic case adapted from an auditing case that was developed by one of the Big 4 firms.[5] Our adaptation of the case was reviewed by, and minor modifications were made, 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, 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

[5] No participants were recruited from this firm.

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. Participants were told 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 was provided about the company (industry, history, audit history, and summary financial statements) and the issue at hand. Participants were then asked to provide planning judgments about an FVM, including risk assessments (e.g., inherent and control), level of substantive tests, and the likelihood of performing selected substantive procedures. Additionally, participants provided selected demographic information.

Manipulation of the Independent Variables

As noted, two variables are manipulated between subjects: internal control effectiveness (*ICE)* and use of a third-party valuation expert *(EXPERT)*. The more effective internal control manipulation is one in which controls are properly designed and operating effectively to ensure that a separation of duties exists between those responsible for executing transactions for securities and those who prepare FVMs; persons preparing or overseeing valuation have significant years of experience with the company and extensive knowledge of FVMs; the company maintains a formal investment policy approved by the board of directors and has an investment committee of the board that is responsible for oversight of all investments and compliance with formal investment policy; the treasurer and CFO monitor the application of these policies and procedures on a

monthly basis; and variances in excess of established thresholds are investigated and appropriately resolved.[6]

In contrast, the less effective system of internal controls is one in which the controls are properly designed to ensure that separation of duties exists between those responsible for executing transactions for securities and those who prepare FVMs; however, these controls do not operate effectively. The person responsible for preparing and overseeing the valuation is new to the position and has a limited knowledge of FVMs. The formal investment policy has not been approved by the board, nor is there an investment committee that is responsible for oversight of the investments and compliance with the formal investment policy. Further, neither the treasurer nor the CFO monitors the application of these policies and procedures, and thresholds for variances have not been established.

The expert manipulation is one in which the company either does or does not outsource FVMs to a third-party valuation specialist. In the outsourced condition, participants are told that for securities with an inactive market and where significant inputs are unobservable, the company retains the services of a third-party valuation specialist with extensive expertise in FVMs for complex Level 2 and 3 securities; that the firm has a strong standing in the industry; and that it has worked with the company for over 10 years. Additionally, a director at the valuation specialist firm was a former VP of Finance at the company and as a result, the firm is knowledgeable about the company's business.[7]

Further, senior management believes that it is necessary to review evidence used to support the specialist's FVMs and relevant assumptions, and challenges the assumptions and inputs when considered necessary. Accordingly, the company's manager that is responsible for FVMs and disclosure communicates with the third-party specialist on a regular basis and has a

[6] The manipulation was based on factors identified in the standards (AICPA AU 328).
[7] 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 N0. 2, PCAOB 2007).

sufficient understanding of the valuation models, assumptions, and inputs used by the specialist to determine the FVM. In the condition where there is no third-party valuation specialist, participants are told that the computation of fair value is performed in-house by a manager responsible for fair value measurement and disclosure.

Dependent Variables

We are interested in the auditors' planning judgments under varying levels of effective internal controls and the source of FVMs, so we solicited the auditors' assessments of inherent risk (*IR*).[8] Participants were asked to indicate their risk assessments on a 7-point Likert scale, where 1 represents low risk, 4 represents moderate risk, and 7 represents high risk. Additionally, we are interested in how the independent variables influence the level of substantive testing (*SUBTESTS*). Participants were asked to rate on a scale of 1 (low) to 7 (high), "given your assessment of control risk and inherent risk related to fair value measurement and disclosure, what is the extent of substantive test of details that you would perform in the audit of fair value measurement and disclosure?" We included task experience (e.g., number of times FVM issue has been encountered on audit engagements) as a covariate because this variable was significantly different across conditions.

In addition to auditors' planning judgments, we are also interested in how auditors process information about fair value estimates. Because planning judgments involve the auditor's assessment of risks, we were interested in the factors that lead to each participant's inherent and control risk assessments. Accordingly, participants were asked to list the three most important factors they considered when arriving at their assessments. We coded the reasons for inherent risks only because this was our primary dependent variable. The reasons were independently categorized by two of the researchers as attribute-related (e.g., "level 3 is inherently risky," and

[8] Because we manipulated internal control effectiveness, we did not include participants' assessment of control risk as a dependent variable. We captured the control risk assessments in order to ensure successful manipulation of control effectiveness.

"inputs are unobservable") or source-related ("specialist is knowledgeable," and "person responsible does not have experience"). Inter-rater agreement was 83 percent, and differences were resolved by a third researcher. Consistent with prior research (e.g., Chaiken et al. 1989; Chaiken and Maheswaran 1994) the number of thoughts in each category was summed for each participant, and a variable was calculated representing the difference between attribute vs. source-related thoughts (*HSM)*. The higher the number, the more the auditor engaged in systematic processing (i.e., greater attribute related cues vs. source cues).

4. Results

Manipulation Checks

To determine whether participants encoded the *EXPERT* experimental condition as intended, we asked them to respond to the statement: "In developing fair value measurement and disclosures, SI uses the services of an independent third-party valuation firm," where 1=true and 2=false. The untabulated mean (standard deviation) responses were 1.40 (0.50) and 1.74 (0.45) for participants in the third-party expert and the internal expert conditions, respectively. The difference in means is in the expected direction and significant ($\chi^2 = 7.81$, $p < .05$). [9]

For the effectiveness of the internal control manipulation, we used the participants' control risk assessment as an indication that they encoded the experimental conditions as intended. The untabulated mean (standard deviation) responses were 2.84 (1.67) for participants in the effective internal control condition and 6.34 (1.18) for participants in the ineffective condition. The difference in means is in the expected direction and significant ($t = -9.90$, $p < .000$).

Results

Table 2 provides the means and standard deviations of the participants' audit planning judgments for the dependent variables by experimental conditions. Mean comparisons of planning

[9] Twenty three participants incorrectly responded to the expert manipulation check questions. Analyses were conducted excluding these participants and results were qualitatively similar. Thus, the discussion of the results includes the full sample.

judgments for *ICE* and *EXPERT* are generally consistent with our expectations. To investigate the effects of internal control effectiveness (*ICE*) and the use of a valuation specialist (*EXPERT*) on audit planning judgments, we conduct ANOVAs using participant-provided assessments of risks and substantive testing (*IR* and *SUBTESTS)*. *ICE* is coded "1" for effective internal controls or "0" otherwise. *EXPERT* is coded "1" if the client uses a third-party specialist or "0" otherwise.

Insert Table 2 here

While we do not make formal predictions for *ICE*, our results indicate that assessments for *IR* (means = 4.86 vs. 5.56, t = 1.79, p <.10); *RMM* (4.57 vs. 5.75, t = 3.61, p < .01); and *SUBTESTS* (means = 5.32 vs. 6.0, t = 2.27, p < .05) are lower when controls are effective vs. ineffective. Results suggest that auditors view an environment of effective controls as reducing the likelihood that an error or fraud could occur and not be detected. Consistent with the audit risk model, lower risk assessments generally lead to lower levels of substantive testing since the auditor determines that internal controls can be relied on to reduce testing. Further, the result indicating a significant effect of *ICE* on *IR* is consistent with prior research which finds that assessments of internal control and inherent risks are not independent (e.g., Waller 1993; Messier and Austin 2000), despite the guidance posited by the audit risk model.

We also find that the level of systematic processing is triggered by the effectiveness of internal controls. Table 3 presents descriptive statistics for systematic (attribute) vs. heuristic (source) processing relevant cues identified. *HSM* is significantly greater when internal controls are more effective (means = 2.13 vs. 1.41, t = 2.167, p < .05). This result is consistent with systematic processing (e.g., greater attribute relevant cues were documented). When auditors perceive controls as effective they generally rely on these controls to reduce substantive audit procedures. Thus, auditors are more likely to engage in a more analytical and comprehensive evaluation of internal control strengths in order to justify their control risk assessment and subsequent evidence decisions.

The means for *EXPERT* suggests that auditors in the expert condition engaged in greater heuristic processing indicating that *HSM* is significantly lower when an expert is used (means = 1.46 vs. 2.16, t = -2.049, p < .05). A lower mean is consistent with participants in this condition citing a greater number of source relevant cues. Thus, we find support for H1, which predicts that auditors will engage in greater heuristic processing when a third-party expert provides FVMs.

Insert Table 3 here

The results of ANOVA testing are presented in Table 4. H2 posits that audit planning judgments will be lower when the company outsources FVM to a third-party specialist. We find a significant main effect of *EXPERT* for our dependent variable *IR* (F = 3.18, p < .05) where the effect is lower with a third-party specialist (means = 4.83 vs. 5.56, t = 1.88, p < .10). We also find marginally significant results for *RMM* (F= 1.86, p < .10), where the risk of material misstatement is greater in the presence of an *EXPERT* (means = 5.14 vs. 5.09, t = -.153, p > .10). While auditors are likely to reduce the level of substantive tests in the presence of an *EXPERT* (means = 5.49 vs. 5.79, t = 1.01, p > .10) results for *SUBTESTS* (F = .009, p > .10) were not significant.

We also investigate the interdependent effect of systematic and heuristic processing on audit planning judgments. H3 predicts that under conditions of effective internal controls, source credibility cues (i.e., third-party expert) will bias auditor planning judgments. To examine this interdependent interaction we performed a path analysis.[10] As Figure 2 illustrates, the analysis estimated the direct paths from *ICE* (β= -.29, t (66) = 2.44, p < .01) and *EXPERT* (β= -.17, t (66) = 1.45, p < .10) to *IR*, the direct path from *HSM* to *IR*, (β= .25, t (66) = 2.08, p < .05) and the indirect path from *ICE* (β= .26, t (66) = 2.25, p < .05) and *EXPERT* to (β= -.25, t (66) = 2.14, p < .05) *IR*. Results of the path analysis indicate that *HSM* influenced auditors' inherent risk assessments and both *EXPERT* and *ICE* directly influenced *IR* through *HSM*.

[10] Because the analysis does not yield an interdependent interaction of *ICE* x *EXPERT* for *SUBTESTS* and *RMM* we only present the figure and results of the analysis for *IR*.

These results suggest that *systematic* processing was mediated by biased heuristic processing (*HSM*).[11] To further explore mediation we conducted four additional path analyses, for systematic vs. heuristic processing when controls are effective vs. not effective. Figure 1 illustrates the results which indicate that heuristic processing biases systematic processing only when internal controls are effective. Specifically, for effective internal controls path analysis estimated the direct paths from *EXPERT* to *IR* (β= -.33, t (34) = 2.14, p < .05), the direct path from *Heuristic Processing* to *IR*, (β= .-26, t (34) = 1.66, p < .10) and the indirect path from and *EXPERT* to (β= -.26, t (35) = -1.62, p < .10) *IR*. In contrast, the path analysis for ineffective internal controls the estimated the direct paths from *EXPERT* to *IR* (β= -.05, t (39) = -.282, p > .10), the direct path from *Heuristic Processing* to *IR*, (β= -.19, t (29) = 1.01, p > .10) and the indirect path from *EXPERT* to (β= .14, t (30) = .80, p > .10) *IR*. These results suggest that the perception of source credibility (*EXPERT)* triggered heuristic processing, resulting in lower inherent risk assessments, but only when internal controls are effective.

Insert Figure 1 here

The path analyses for systematic processing estimated the direct paths from *EXPERT* to *IR* (β= -.37, t (34) = 2.42, p < .05), the direct path from *Systematic Processing* to *IR*, (β= .-21, t (34) = 1.36, p < .10) and the indirect path from and *EXPERT* to *IR* (β= -.14, t (35) = -.83, p > .10) for effective internal controls. For ineffective internal controls the estimates from *EXPERT* to *IR* (β= .04, t (29) = .209, p >.10), the direct path from *Systematic Processing* to *IR*, (β= .08, t (29) = .449, p < .10) and the indirect path from and *EXPERT* to *IR* (β= -.17, t (35) = -.934, p > .10). The results of these path analyses indicate that systematic processing moderately influences inherent risk assessments and that auditors' perception of source credibility negatively impacts systematic processing resulting in lower inherent risk assessments, when controls are effective. Overall, the

[11] Results (untabulated) of an ANOVA with *IR* as the dependent variable, *ICE* and *EXPERT* as the independent variables, and *SHDIFF* as a control variable, produced results consistent with our mediational assumptions.

results of the path analyses indicate that while participants in the expert/effective internal controls condition reported more attribute relevant cues (mean = 2.16 vs. 1.60, t = -3.01, p <.01), indicative of systematic processing, they also engaged in a higher level of heuristic processing as indicated by a higher number of source relevant cues (mean = .32 vs. -.18, t = -3.08, p <.01) as compared to all other conditions. Path analysis for *RMM* and *SUBTESTS* did not yield similar evidence of biased heuristic processing.

Insert Figure 2here

Finally, we examine the interactive effect of *ICE* and *EXPERT*. H4 posits that participants will make the lowest audit planning judgments when internal controls are effective and the client uses a third-party specialist. Consistent with our hypothesis, we find a significant interaction effect of *ICE* x *EXPERT* for *IR* (F = 10.68, p < .05), (means = 4.16 and 5.58, respectively, t = 7.517 p < .001). The ANOVA results do not suggest a significant interaction for *RMM* and *SUBTESTS*. Figure 3 presents the effects of internal control effectiveness and expert on each dependent variable and as demonstrated, the influence of *ICE* alone does not result in a lower inherent risk, but rather effective internal controls in combination with the presence of an expert source significantly reduces the assessment of inherent risk.

Insert Figure 3 here

Since there is a significant interaction term for *IR*, the main effects cannot be interpreted in a straightforward manner. Table 4, panel B presents the results of a contrast test. We coded the position of participants in the Expert/Effective IC as -3 and the position of participants in the other three conditions as -1. Consistent with our hypothesis, we find that auditors in the target group make the lowest inherent risk assessment relative to an equally weighted composite group from the other experimental conditions (t = 3.51, p = .001). Follow-up simple effects tests support our prediction. *IR* assessments for Expert/Effective IC is significantly greater than that in the other conditions (No Expert/Effective IC [t = -2.60, p < .05], Expert/Ineffective IC [t = -2.56, p < .05],

and No Expert/Ineffective IC [$t = -2.47$, $p < .05$]). In general, the findings suggest that the effect of management-hired third-party specialist on inherent risk assessments depends on the effectiveness of the clients' system of internal controls over the FVM process.

Insert Table 4 here

Overall, these results suggest auditors view third-party specialists as a credible source of evidence and incorporate the client's use of the specialist into their audit planning judgments. While auditors respond to the complexity inherent in FVMs by engaging in more effortful systematic processing of attribute relevant information, the source expertise of the person preparing the FVM biases the level of systematic processing that they engage in. As a result, inherent risk was assessed significantly lower. Additionally, while auditors place greater reliance on management-hired third party specialist, auditors are least likely to assess the third-party valuation specialist (5.8 vs. 6.6, $p = .009$); or evaluate the expertise, objectivity and experience of individuals determining FVMs (6.1 vs. 6.6, $p = .085$). This finding further highlights the bias that auditors exhibit with respect to source expertise.

5. Conclusion

This study examines the effects of internal control effectiveness and the client's use of third-party valuation specialists on audit planning judgments. Using a 2 x 2 experimental design, we asked 69 auditors with prior experience in auditing FVMs to make an inherent risk assessment and to determine the extent of planned substantive testing after viewing a case involving FVMs and disclosures. Results indicate that auditors assess inherent risk as lower for FVMs that are classified as Level 3 when the client uses a third-party valuation specialist, but only when internal controls are perceived to be effective. This finding suggests that the presence of a third-party expert triggered heuristic processing of information, leading auditors to make significantly lower inherent risk assessments for FVMs that prior research (Riedl and Serafeim 2011; Song et al. 2010) indicate are inherently riskier. Based on the audit risk model when both inherent and control

risks are assessed lower, auditors will place greater reliance on the client's accounting information system and reduce the level of substantive tests performed to gather audit evidence. Incorrect risk assessments could have a negative impact on audit quality.

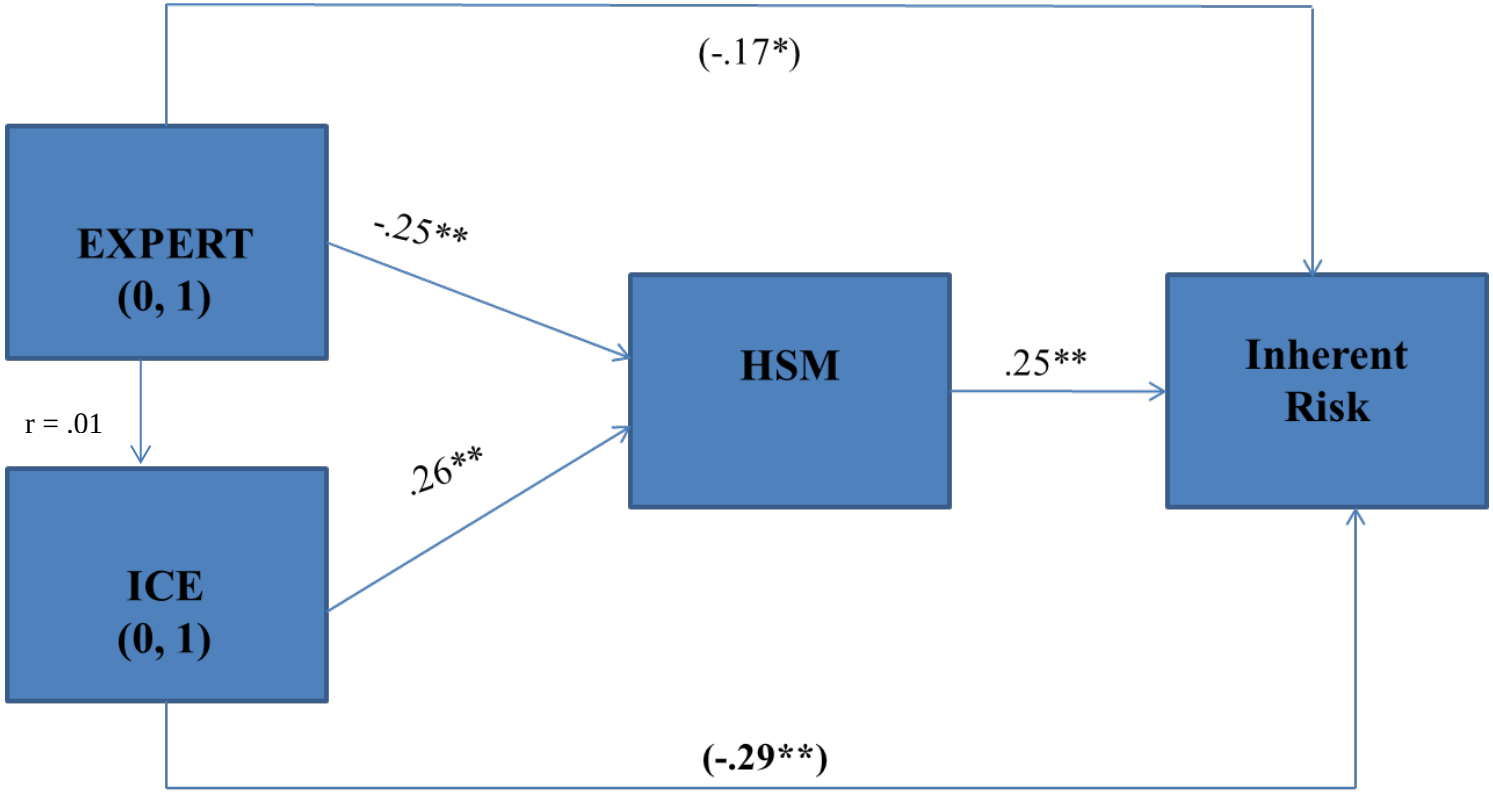
Our findings suggest that auditors may be prone to the expert opinion heuristic, which posits that when judgment-related information is ambiguous, decision-makers will assess information on the basis that statements by experts can be trusted, thus perceiving the expert source as credible. Holistic evaluative judgments about internal control effectiveness can influence how auditors search for and evaluate details. Bratten et al. (2013) suggest that 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 that lead to many of the PCAOB-cited deficiencies.

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 be reflected in the financial statements. Future research could examine how auditors resolve issues related to FVMs and disclosure. Additionally, this study captures auditors' planning judgments and not the actual audit evidence decisions made. Given the PCAOB finding from inspections that auditors are not obtaining sufficient evidence to support their risk assessments related to internal controls 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 2010e). 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-hired, third-party 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. Perhaps auditors view the combination of effective controls that are corroborated by a third-party affirmation as suggestive of a lower likelihood of material error (essentially the combined inherent x control risk).

Figure 1 Path Analysis

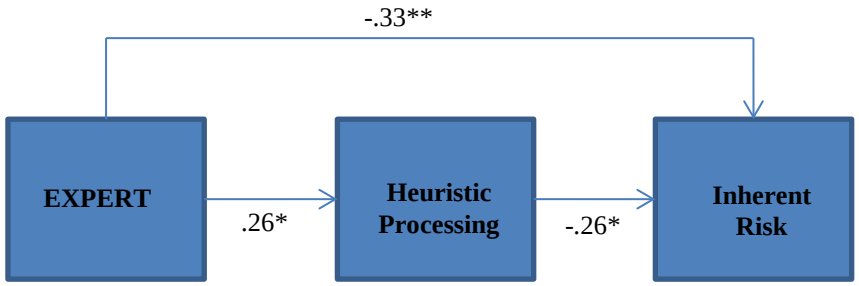


Notes:

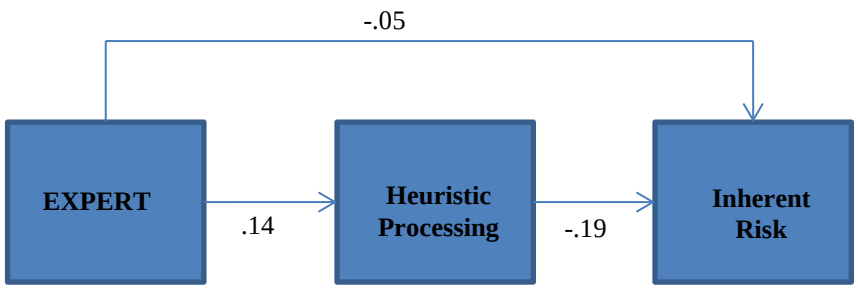
1. This figure represents the direct paths from ICE and EXPERT to IR; the direct path from HSM to; and the indirect path from ICE and EXPERT to IR.
2. "ICE" is the between-subject manipulation where internal controls are effective (coded as1) vs. less effective (coded as 0). 'EXPERT' is the between-subject manipulation where there is a third-party valuation specialist (coded as 1) vs. none (coded as 0). HSM represents the number of attribute related cues (systematic processing) minus the number of source related cues (heuristic processing) identified by participants; the larger the difference, the greater the amount of systematic processing. IR represents auditors' inherent risk assessments.
3. Statistics represent the beta weights.

Figure 2 Path Analyses for Effective vs. Ineffective Controls

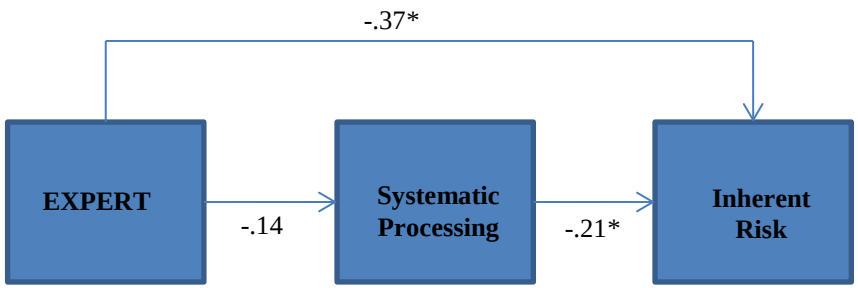
Panel A-Effective Internal Controls-Heuristic Processing



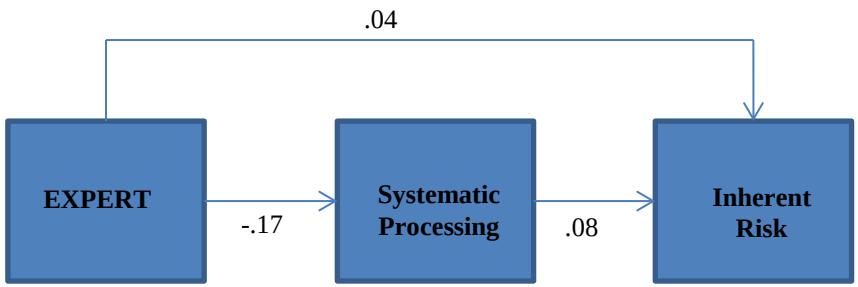
Panel B-Ineffective Internal Controls-Heuristic Processing



Panel C-Effective Internal Controls-Systematic Processing



Panel D-Ineffective Internal Controls-Systematic Processing

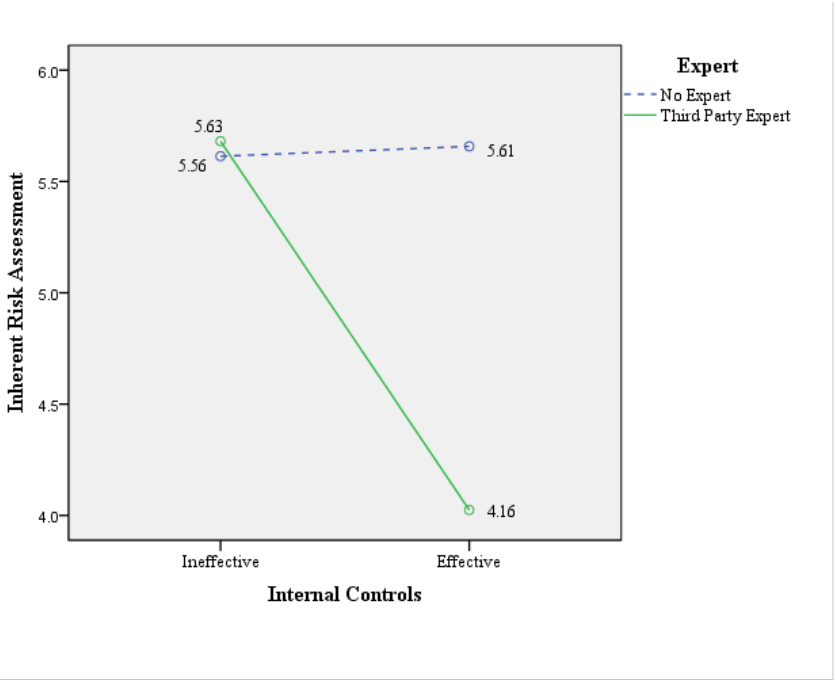


Notes:

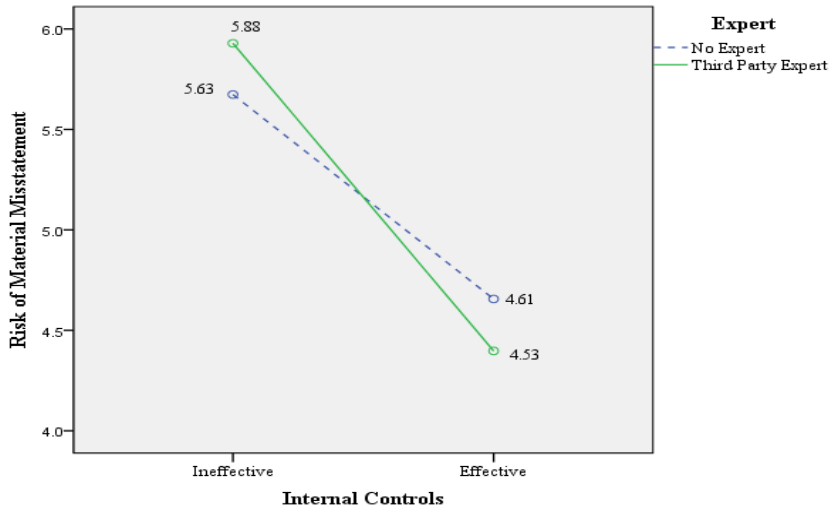
1. This figure represents the direct paths from EXPERT to IR; the direct path from Heuristic Processing or Systematic Processing to IR; and the indirect path from EXPERT to IR.
2. 'EXPERT' is the between-subject manipulation where there is a third-party valuation specialist (coded as 1) vs. none (coded as 0). Heuristic processing represents the number of source related cues and Systematic processing represents the attribute related cues identified by participants.
3. Statistics represent the beta weights.

Figure 3 Interactive Effects:

Panel A - Inherent Risk Assessments



Panel B - Level of Substantive Tests



Panel C - Level of Substantive Tests

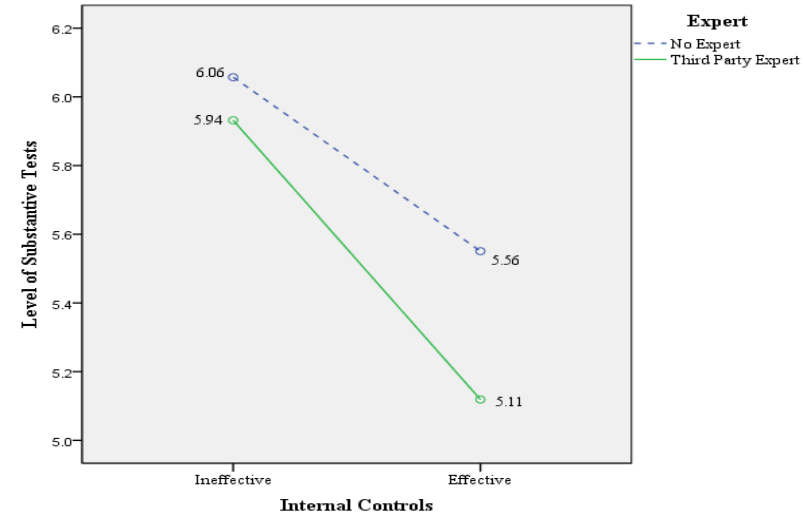


TABLE 1
Sample Demographics

Variables	**Third-party Expert & Effective IC N = 19**	**Third-party Expert & Ineffective IC N = 16**	**No Expert & Effective IC N = 18**	**No Expert & Ineffective IV N = 16**	**Total N = 69**
Audit Experience years	3.6 (1.7)	3.0 (1.2)	3.3 (1.4)	3.6 (2.0)	3.4 (1.6)
Number of times encountered FV issues	14.8 (45.3)	0.7 (1.2)	1.4 (2.5)	1.1 (1.8)	5.1 (24.7)
Position					
Manager	0(0%)	0 (0%)	2 (11%)	2 (12%)	4 (6%)
Senior	13 (68%)	9 (56%)	9 (50%)	8 (50%)	39 (56%)
Advanced In-Charged	6 (32%)	7 (44%)	7 (39%)	6 (38%)	26 (38%)
Percentage of engagements requiring FV accounting	64.7 (31.0)	44.7 (41.0)	59.2 (42.1)	61.9 (34.5)	58.0 (37.3)
Knowledge of FV	4.4 (0.9)	4.1 (1.6)	3.6 (1.4)	4.1 (1.0)	4.0 (1.2)
FV Training	4.4 (1.3)	4.4 (1.5)	4.2 (1.1)	4.2 (1.0)	4.3 (1.2)

This table presents demographic data for each of the experimental conditions and 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 for each condition.

TABLE 2
Audit Planning Judgments: Descriptive Statistics

Variable		Mean (SD)	Third-Party Valuation Specialist		
			No Expert	Expert	Total
Internal Control Effectiveness	**Ineffective**	Inherent Risk	5.50 (1.37)	5.63 (1.31)	5.56 (1.32)
		Risk of Material Misstatement	5.63 (1.41)	5.88 (1.20)	5.75 (1.29)
		Level of Substantive Tests	6.06 (1.06)	5.94 (0.99)	6.0 (1.32)
		N	16	16	32
	Effective	Inherent Risk	5.61 (1.38)	4.16 (1.95)	4.86 (1.83)
		Risk of Material Misstatement	4.61 (1.04)	4.53 (1.71)	4.57 (1.40)
		Level of Substantive Tests	5.56 (1.29)	5.11 (1.49)	5.32 (1.40)
		N	18	19	37
	Total	Inherent Risk	5.56 (1.35)	4.83 (1.82)	5.19 (1.64)
		Risk of Material Misstatement	5.09 (1.31)	5.14 (1.63)	5.12 (1.47)
		Level of Substantive Tests	5.79 (1.20)	5.49 (1.34)	5.64 (1.27)
		N	34	35	69

This table presents the by-cell means, standard deviations and sizes for participants' assessment of inherent risk and risk of material misstatement measured on a scale of 1 – 7 where 1=low risk; 4 = moderate risk; and 7 = high risk. Level of substantive tests represents the participants planned level of substantive tests given their risk assessments measured on a scale of 1 – 7, where 1 = low; 4 = moderate; and 7 = high.

TABLE 3
Systematic/Heuristic Processing: Descriptive Statistics

Variable		Mean (SD)	Third-Party Valuation Specialist		
			No Expert	**Expert**	**Total**
Internal Control Effectiveness	**Ineffective**	Attribute Related Cues (Systematic)	1.37 (1.50)	0.94 (1.12)	1.16 (1.32)
		Source Related Cues (Heuristic)	-0.44 (1.15)	-0.06 (1.48)	-.25 (1.32)
		Attributes vs. Source Cues (*HSM*)	1.81 (1.51)	1.00 (1.59)	1.41 (1.58)
		N	16	16	32
	Effective	Attribute Related Cues (Systematic)	2.39 (0.85)	2.16 (0.83)	2.27 (0.84)
		Source Related Cues (Heuristic)	-0.05 (0.72)	0.31 (0.67)	0.13 (0.71
		Attributes vs. Source Cues (*HSM*)	2.44 (1.10)	1.84 (1.26)	2.13 (1.20)
		N	18	19	37
	Total	Attribute Related Cues (Systematic)	1.91 (1.29)	1.60 (1.14)	1.75 (1.22)
		Source Related Cues (Heuristic)	-0.23 (0.95)	0.14 (1.11)	-0.04 (1.05)
		Attributes vs. Source Cues (*HSM*)	2.15 (1.33)	1.46 (1.46)	1.79 (1.43)
		N	34	35	69

This table reports the mean results for the amount of attribute vs. source related cues indicated by auditors. Higher values for HSM signify more systematic processing (more attribute related cues) vs. heuristic processing (more source related cues). Negative values for source related cues indicate that auditors identified more negative source related cues (i.e., "The person responsible for fair value estimates is not knowledgeable").

TABLE 4
Test of Hypotheses

Panel A: ANOVA

Variable	Hypothesis	Inherent Risk	Risk of Material Misstatement	Level of Substantive Tests
ICE		7.88 3.32**	27.21 14.97***	7.69 4.99***
EXPERT	+	7.56 3.18**	.000 .000	1.42 0.92
*ICE*EXPERT*	+	10.68 4.49**	1.106 .609	0.45 0.29
Task Experience		6.61 2.94*	6.17 3.39*	.069 .044

This table presents the ANOVA results. Values in cells represent the mean square and the F-value. ***, **, and * represent one-tailed significance at the 0.01, 0.05, 0.10 level, respectively.

Panel B: Planned Contrasts and Follow up Simple Effect Tests

	IR		
Contrast (-3, 1, 1, 1)	*t-Statistic*	*DF*	*p-value*
Inherent risk assessment is lowest when internal controls over the FVM process are effective and FVMs is generated by a management-hired third party specialist, and significantly higher in the other three conditions.	3.51	65	**.001**
Follow Simple Effects Tests			
1) Expert/Effective IC vs. Expert/Ineffective IC	-2.56	33	**.015**
2) No Expert/Effective IC vs. No Expert/Ineffective IC	.107	32	**.916**
3) Expert/Effective IC vs. No Expert/Effective IC	-2.60	35	**.013**
4) Expert/Ineffective IC vs. No Expert/Ineffective IC	.137	30	**.892**
5) Expert/Effective IC vs. No Expert/Ineffective IC	-2.47	33	**.019**
6) No Expert/Effective IC vs. Expert/Ineffective IC	.030	32	**.976**

Panels A and B present the ANOVA and planned contrast results of the hypothesis test, respectively. In Panel B, the contrast coefficients for the respective cell conditions are -3 for the Expert/Effective IC, 1 for the Expert/Ineffective IC, 1 for the No Expert/Effective IC and 1 for the No Expert/Ineffective IC conditions, respectively.

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

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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 on 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 on 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.

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