Bright lines vs. blurred lines: When do critical audit matters influence investors' perceptions of management's reporting credibility?☆

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ABSTRACT

The Public Company Accounting Oversight Board will soon require auditors to disclose critical audit matters (CAMs) to highlight areas of financial statements which are subject to a higher risk of material misstatement. Concurrently, the Financial Accounting Standards Board and the International Accounting Standards Board continue their efforts to converge both sets of accounting standards, and the newly converged revenue recognition standard contains a relatively limited amount of implementation guidance. I hypothesize and find that CAMs lower investors' perceptions of management's reporting credibility when the financial statement area discussed by CAMs is governed by precise, but not an imprecise, accounting standards. The emphasis of risks via CAMs is incongruent with investors' expectations about the ability of precise standards to reduce financial reporting risks. The results from this experiment with nonprofessional investors provide insights about the interaction between CAMs and accounting standards.

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1. Introduction

The Public Company Accounting Oversight Board (PCAOB) recently released AS 3101, *The auditor's report on an audit of financial statements when the auditor expresses an unqualified opinion*, which requires the disclosure of critical audit matters (CAMs) in the audit reports of most publicly traded companies. CAMs highlight areas of financial statements which have a higher risk of material misstatement and required an increased amount of auditor judgment. The Public Company Accounting Oversight Board (PCAOB) (2017) expects that CAMs will improve the information content of audit reports for financial statement users.[1]

Concurrently, the Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB) continue their efforts to converge both sets of accounting standards. The newly converged revenue recognition standard will soon take effect in the U.S., and it lacks much of the detailed implementation guidance that was included in the previous standard (PwC, 2014; Tysiac, 2014). These changes to accounting and auditing standards may affect managers' perceived ability to manipulate earnings, which may then influence investors' perceptions of management's financial reporting credibility. This study investigates how investors' perceptions of management's reporting credibility are influenced by the interaction between CAMs and the precision (i.e., the relative amount of implementation guidance) of the accounting standard that governs the item discussed by CAMs.

Christensen, Glover, and Wolfe (2014) provide initial evidence that CAMs decrease nonprofessional investors' intent to purchase a company's stock, and they use an experiment that manipulates the inclusion of CAMs to highlight risks associated with fair value measurements. They attribute the observed effect to CAMs providing information about the inherent uncertainty associated with estimating the fair value of investments. CAMs increase the salience of risks, so it is easier for users to incorporate this information into their decisions. However, contemporaneous research suggests that the effects of CAMs are often influenced by situational factors such as management disclosures of critical accounting matters, investor sophistication, and whether management was able to meet or beat forecasted earnings (Carver & Trinkle, 2017; Dennis, Griffin, & Johnstone, 2018; Köhler, Ratzinger-Sakel, & Theis, 2016). These contemporaneous studies,

[1] Similarly, the International Auditing and Assurance Standards Board (IAASB) issued ISA 701, *Communicating key audit matters in the independent audit report*, which was also adopted to improve the information content of audit reports. Effective for audits of financial statements for periods that end on or after December 15, 2016, this standard required auditors to discuss key audit matters (KAMs), which were the most significant items encountered during the audit and would likely be communicated to those charged with governance (International Auditing and Assurance Standards Board (IAASB), 2015). Preliminary archival studies related to the initial disclosures of KAMs within the United Kingdom suggest that they provide limited incremental information to investors beyond what has already been disclosed by management (Gutierrez, Minutti-Meza, Tatum, & Vulcheva, 2018; Lennox, Schmidt, & Thompson, 2018).

however, do not consider the potential interaction between CAMs and accounting standard precision.

To investigate the expected interaction between CAMs and accounting standard precision, I utilize congruity theory, which states that individuals prefer communication that best reflects (i.e., matches) the underlying level of uncertainty or precision of the message (Budescu & Wallsten, 1995). Research that applies congruity theory to accounting suggests that investors expect that the uncertainty associated with fair value measurements and management earnings forecasts will be reflected in the form by which this information is communicated to them (Christensen, Glover, Omer, & Marjorie, 2014; Du, McEnroe, & Stevens, 2014; Kelton & Montague, 2018).

Critics of imprecise accounting standards, which lack extensive implementation guidance, suggest that management could exhibit greater discretion (Schipper, 2003), and this could decrease perceptions of management's reporting credibility. If investors perceive that precise accounting standards can reduce accruals-based earnings management (Ewert & Wagenhofer, 2005), then the disclosure of risks associated with such accounting standards would be incongruent with investors' existing perceptions of financial statement quality. Thus, under congruity theory, I expect that investors' assessments of management's reporting credibility will decrease when the matter discussed by CAMs is governed by a precise accounting standard. Alternatively, the lack of accounting standard implementation guidance may increase the perceived financial statement risks. Since investors would already anticipate those risks, the information presented by CAMs would be congruent with their existing expectations, and CAMs would not further influence their perceptions. Therefore, congruity theory suggests that the effects of CAMs on investors' perceptions of reporting credibility will be observed when the financial statement area discussed by CAMs is governed by a precise standard.

I test this hypothesis with a 2×2 between-subjects experiment that manipulates CAMs in two conditions (included vs. excluded) and the precision of the accounting standard (precise vs. imprecise) that governs the matter disclosed in CAMs.[2] A sample of nonprofessional investors completed an online investment case adapted from Mercer (2005). Participants first reviewed company background information and provided an initial assessment of management's financial reporting credibility. Participants then received a press release stating that the company experienced a small, positive forecast error and was also preparing for a seasoned equity offering. Next, participants viewed the company's revenue recognition footnote and audit report from the previous year. Each provided the respective manipulations. Participants then provided revised assessments of management's reporting credibility and the company's stock price. I used the change in credibility assessments (e.g., Mercer, 2005) and the magnitude of stock price revision (e.g., Brown-Liburd & Zamora, 2015; Lopez, Vandervelde, & Wu, 2009) as my dependent variables.

Consistent with the hypothesized interaction, I find that the effects of CAMs are only observed when the disclosed item is governed by a precise accounting standard. If users anticipate that the flexibility associated with imprecise standards could enable opportunistic reporting (Folsom, Hribar, Mergenthaler, & Peterson, 2017; Schipper, 2003), then the risks disclosed via CAMs would be congruent with their existing expectations. However, if users anticipate that precise standards could reduce accruals-based earnings management (Ewert & Wagenhofer, 2005), then the disclosure of risks under a precise standard would be incongruent with their expectations. This incongruence between the expected and disclosed risks then lowers investors' perceptions of reporting credibility.

This paper makes the following contributions to the academic literature. First, the predicted and observed interaction between CAMs and the level of accounting standard implementation guidance provides additional evidence that the effects of CAMs are influenced by situational factors (Carver & Trinkle, 2017; Dennis et al., 2018; Köhler et al., 2016). The observed interaction in this study suggests that the effects of CAMs are observed when the disclosed item is governed by a precise accounting standard, and this is caused by the incongruity between the information presented to investors and their underlying expectations. Second, it complements research which examines the interactive effects of CAMs and accounting standard precision on jurors' assessments of auditor negligence (Gimbar, Hansen, & Ozlanski, 2016). Third, the results complement research that examines how audit report disclosures communicate financial statement risks and influence the decisions of nonprofessional investors (Christensen, Glover, & Wolfe, 2014; Doxey, 2015; Kelton & Montague, 2018; Rapley, Robertson, & Smith, 2018; Sirois, Bédard, & Bera, 2018). Finally, the results inform regulatory agencies about the potential effects of forthcoming changes to accounting and auditing standards. The interaction between CAMs and accounting standard precision inform the SEC and FASB as they continue to evaluate new accounting standards within existing U.S. GAAP. The observed interaction also underscores the interdependence between accounting and auditing standards in the financial reporting process. This is especially important as the U.S. adopts the new accounting standard for revenue recognition, which lacks much of the implementation guidance that was included in the previous standard.

The remainder of this paper is divided into four sections. The next section reviews the relevant literature and develops my hypothesis. The method section describes the research design, followed by a results section that presents the findings from the experiment. The final section discusses the implications of the results, contributions of the study to research and practice, and its limitations.

2. Literature review and hypothesis development

Previous accounting research defines management's reporting credibility as "investors' beliefs about management's trustworthiness and competence in financial disclosures" (Mercer, 2005, p. 275), a definition which I adopt for this study. Existing evidence suggests that changes in reporting credibility affect a firm's ability to communicate information to investors (Mercer, 2004; Williams, 1996) and influence investors' use of management's subsequent reporting and disclosures (Hirst, Koonce, & Miller, 1999; Mercer, 2005; Rogers & Stocken, 2005; Williams, 1996; Yang, 2012).

Two forthcoming changes in the accounting and auditing regulatory environment could influence users' perceptions of financial reporting quality. First, the Public Company Accounting Oversight Board (PCAOB) (2017) released a new auditing standard that will require the use of CAMs in the audit reports of most public companies. CAMs highlight areas of financial statements that required a significant amount of auditor judgment to appropriately evaluate or areas that posed the most difficulty in obtaining and evaluating evidence. CAMs are expected to improve the information content of audit reports by highlighting areas of financial statements that are subject to an increased risk of misstatement (Public Company Accounting Oversight Board (PCAOB), 2017). Second, FASB and IASB continue their efforts to converge both sets of accounting standards. The newly converged revenue recognition standard will soon take effect in the U.S., and it will lack much of the detailed implementation guidance that was included in the previous standard (PwC, 2014; Tysiac, 2014). The lack of implementation guidance is especially important because critics of imprecise accounting standards suggest that management could exhibit greater discretion and subjectivity (Bailey & Sawers, 2018; Schipper, 2003). It is important to consider how these changes could influence investors' perceptions of management's credibility, which can then affect

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[2] Although the experimental design manipulates the accounting standard at two levels (precise vs. imprecise), the classification of accounting standards is rarely dichotomous. Instead the relative amount of implementation guidance is often categorized along a continuum (Donelson, McInnis, & Mergenthaler, 2012; Folsom et al., 2017). However, such a continuum could not easily be incorporated into an experimental design.

investors' information processing and decision making (Hirst et al., 1999; Mercer, 2005; Rogers & Stocken, 2005; Williams, 1996; Yang, 2012).

2.1. Existing research on CAMs

Previous research suggests that additional disclosures in audit reports can increase the salience of risks to financial statement users. Christensen, Glover, and Wolfe (2014) utilize an experiment that manipulates the inclusion or exclusion of CAMs that discuss the risks and uncertainties associated with fair value measurements. Their results suggest that CAMs reduce investors' intent to purchase stock in a company, and additional studies provide evidence that CAMs focus users' attention on areas of financial statements that are subject to higher risk of misstatement (Sirois et al., 2018) and influence investors' perceptions of financial reporting risks (Doxey, 2015; Kelton & Montague, 2018; Rapley et al., 2018).

However, contemporaneous research suggests that the effects of CAMs are often influenced by other situational factors in the financial reporting environment. For example, Dennis et al. (2018) examine the joint influence of CAMs and critical accounting matters disclosed by management, and they find that nonprofessional investors' perceptions are influenced only when both are provided to investors. Köhler et al. (2016) examine the effects of CAMs that highlight impairment assessments, and the results suggest that the decisions of professional, but not non-professional, investors were influenced by the disclosures. Finally, Carver and Trinkle (2017) find that CAMs reduce investors' perceptions of management's reporting credibility only when the company meets or beats its earnings forecast. Collectively, the results provide evidence that additional situational factors can further explain the effects of CAMs on investors' perceptions. However, none of these studies investigate how variation in accounting standard precision interacts with CAMs to influence investors' perceptions.

Related research investigates the influence of CAMs on jurors' assessments of auditor negligence, and the results suggest that the effects of CAMs can also be influenced by situational factors. While CAMs can reduce assessments of auditor negligence (Brasel, Doxey, Grenier, & Reffett, 2016; Kachelmeier, Schmidt, & Valentine, 2018), one study investigates the interactive effects of CAMs and accounting standard precision. Gimbar et al. (2016) suggest that the effects of CAMs are greater when a precise accounting standard governs the financial statement item associated with the alleged misstatement. Even though precise accounting standards can reduce assessments of auditor negligence, the disclosure of additional auditor effort increased perceptions that the auditor would have been able to control, and therefore prevent, the misstatement. However, CAMs do not affect assessments of auditor liability under imprecise standards[3] (Gimbar et al., 2016).

2.2. Interaction between CAMs and accounting standard implementation guidance

Nelson (2003) suggests that accounting standards are often categorized by the relative amount of implementation guidance that is provided by standard-setting bodies. Imprecise accounting standards are

accompanied by lower levels of implementation guidance. The absence of "bright lines" provide flexibility in the standards which enable the underlying economics of a company's transactions to be best reflected in the financial statements (Bailey & Sawers, 2018; Securities and Exchange Commission, 2003). However, one objection to imprecise standards is that the lack of "bright lines" could increase opportunities for earnings management (e.g., Bailey & Sawers, 2018; Schipper, 2003). If investors doubt the credibility of financial disclosures, they may exhibit a preference for mechanisms that could curtail accruals-based earnings management (Lind & Tyler, 1988), and the robust implementation guidance that accompanies precise accounting standards may represent such a mechanism (Ewert & Wagenhofer, 2005; Folsom et al., 2017).[4]

Additionally, FASB and IASB continue to address accounting standard convergence, and the recently converged revenue recognition standard lacks much of the industry-specific guidance that previously existed in U.S. GAAP (PwC, 2014; Tysiac, 2014). Research suggests that managers may have difficulty with appropriately recognizing revenue when implementation guidance is lacking (Bierstaker, Kopp, & Lombardi, 2016), and earnings management can often occur through improper revenue recognition (Nelson, Elliott, & Tarpley, 2002; Stubben, 2010). Therefore, perceptions of changes in the accounting standard for revenue recognition remain an important empirical question.

Archival evidence suggests that accounting standards that lack robust implementation guidance may not be associated with changes in investors' perceptions (Kim, Li, & Li, 2011) or a decrease in measures of financial reporting quality (Folsom et al., 2017). However, the presence of reporting incentives may motivate management to exploit accounting standard flexibility to manipulate earnings, and this suggests that the increased implementation guidance associated with precise accounting standards may constrain accruals-based earnings management (Ewert & Wagenhofer, 2005; Folsom et al., 2017).

To motivate the hypothesized interaction between CAMs and accounting standard precision, I turn to congruity theory, which states that individuals prefer communication that best reflects the perceived level of uncertainty associated with the underlying message (Budescu & Wallsten, 1995). Research that investigates this preference for congruity suggests, for example, that precise weather forecasts are perceived as having an underlying degree of uncertainty because it is difficult to accurately predict temperatures and wind speeds (Joslyn, Savelli, & Nadav-Greenberg, 2011; Savelli & Joslyn, 2013). Additionally, preference is often exhibited for guidance that reflects the uncertainty associated with predicting future events or answering difficult questions that require a specific numerical response. (Gaertig & Simmons, 2018; Yaniv & Foster, 1995, 1997). This preference is specifically examined by Yaniv and Foster (1997) who find that participants are more likely to select wider ranges of possible answers, relative to narrower ranges, because the wider ranges better reflect the uncertainty associated with providing the correct answer to trivia questions that require accurate numerical answers (e.g., distance between two cities, a specific year that an event occurred, the total numbers of points scored by an athlete, etc.).

Examples of the application of congruity theory in accounting are available in the literature that examines earnings forecasts and fair value measurements. For example, managers are more likely to communicate earnings forecasts as range estimates when there is greater uncertainty about future earnings (Du, Budescu, Shelly, & Omer, 2011; Hughes & Pae, 2004; King, Pownall, & Waymire, 1990), and investors

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[3] Although the results of Gimbar et al. (2016) suggest that CAMs and accounting standard precision have an interactive effect on jurors' assessments, it is not clear that the results would generalize the decisions of nonprofessional investors. Juror decision making is often explained by the Culpable Control Model (Alicke, 2000; Alicke, Buckingham, Zell, & Davis, 2008) which states that jurors' verdicts are influenced by their assessments of the auditor's ability to have controlled the alleged misstatement. Perceptions of control are comprised of the following dimensions: causing the negative outcome, ability to have foreseen it, and intentions to have prevented it. Alternatively, investors evaluate financial statement information to assess a company's future financial performance, and their assessments of management's reporting credibility are comprised of perceived competence and trustworthiness (Mercer, 2005). Since the goals of jurors and investors are not the same and their decisions are explained by different theories, it is not apparent that the results from juror studies would generalize to nonprofessional investors.

[4] It is important to note that real earnings management and accruals-based earning management can often be used as substitutes, and managers' propensity to use real earnings management techniques may increase as accruals-based earnings management becomes more difficult (Ewert & Wagenhofer, 2005; Zang, 2012).

provide higher assessments of estimated stock price and management credibility when there is congruity between the form of earnings estimates (i.e., point vs. range) and the level of uncertainty about future firm performance (Rupar, 2017).

Research related to fair value measurements suggests that investors prefer ranges to point-estimates when measurement uncertainty increases for financial statement items (Christensen, Glover, Omer, & Marjorie, 2014), and fair value estimates are perceived as more credible when they are accompanied by a reasonable range of values (Du et al., 2014). Additionally, the disclosure of risks related to point-estimates, via CAMs, is inconsistent with investors' existing perceptions of financial statements because point-estimates imply a higher level of precision and, thus, less underlying risk associated with the estimated amount (Kelton & Montague, 2018). Collectively, these studies are consistent with congruity theory because investors show a preference for ranges over point-estimates as the level of measurement uncertainty increases because ranges are congruent with the underlying uncertainty of the information.

In the context of this study, greater levels of implementation guidance in the accounting standards increase their precision. The presence of precise standards should decrease investors' perceptions of financial statement risks because additional guidance may reduce accruals-based earnings management (Ewert & Wagenhofer, 2005; Folsom et al., 2017). Alternatively, a lack of implementation guidance decreases the precision of the accounting standard, and the additional flexibility and uncertainty associated with imprecise standards should increase perceptions of financial statement risks. Therefore, I expect that investors will have higher assessments of management's reporting under precise standards than imprecise standards when CAMs are excluded from the audit report. This leads to the following hypothesis:

H1a. *Investors' perceptions of management's reporting credibility will be higher under precise accounting standards than imprecise standards when CAMs are excluded from the audit report.*

Secondly, if investors already anticipate that the lack of implementation guidance associated with imprecise accounting standards should increase financial reporting risks, the disclosure of such risks via CAMs would be congruent with investors' existing expectations about the underlying uncertainty of the financial statements. Therefore, the inclusion of CAMs would have no effect on investors' perceptions under imprecise accounting standards. This leads to the following hypothesis:

H1b. *CAMs will not affect investors' perceptions of management's reporting credibility when the item subject to a CAM disclosure is governed by an imprecise accounting standard.*

Finally, if investors anticipate that the robust implementation guidance associated with precise standards should reduce financial reporting risks, the disclosures of such risks via CAMs would be incongruent with investors' expectations about the underlying uncertainty of the financial statements. This lack of congruity will reduce investors' perceptions of management's reporting credibility because the message of the audit report will not be consistent with investors' expectations that precise standards can reduce uncertainty in the financial statements. This leads to the following hypothesis:

H1c. *CAMs will lower investors' perceptions of management's reporting credibility when the item subject to a CAM disclosure is governed by a precise accounting standard.*

Collectively, these hypotheses predict that investors' perceptions of management's reporting credibility will be highest under precise accounting standards when CAMs are excluded. Perceived credibility is then predicted to be lower under precise standards when CAMs are

included and also under imprecise standards when CAMs are either included or excluded from the audit report.

3. Method

3.1. Participants

To test these hypotheses, I conducted an online experiment with nonprofessional investors who were recruited with the assistance of Qualtrics Labs, a professional survey firm. Nonprofessional investors are defined as individuals who are 18 years of age or older, who purchased stock within the past six months, and who do not purchase stock as part of their employment responsibilities. The use of online methods to recruit participants in common in accounting research, and my definition of nonprofessional investors is consistent with existing accounting research (e.g., Brown-Liburd & Zamora, 2015).

Participants were invited to participate in the experiment by Qualtrics, and they were compensated for their completed responses. Qualtrics verified that the individuals met the criteria of nonprofessional investors, and participants reaffirmed that they met these criteria when they provided their informed consent. If they did not meet them, their participation in the study was terminated.

3.2. Experimental design and task

The experiment used a 2 × 2 between-subjects design that manipulated the following variables: inclusion or exclusion of CAMs in the company's previous year's audit report and precision of the accounting standard that governs revenue recognition.

The experimental task was adapted from Mercer (2005). Participants completed an investment case and evaluated management's reporting credibility for a hypothetical software development company. First, participants received a set of the company's prior year's financial statements, an overview of the company, and the consensus forecast for the first quarter of the current fiscal year. Participants then provided an initial evaluation of the credibility of management's financial reporting and also an estimate of the company's stock price. Appendix A provides the questions used to assess participants' perception of management's reporting credibility (Mercer, 2005).

Second, participants received a press release containing the quarterly earnings announcement, which indicated that the company experienced a small, positive forecast error. The press release also included information to suggest that the company had an incentive to manage earnings to achieve its reported earnings.[5] The participants also obtained a description of the company's accounting policy for revenue recognition, which would be disclosed in the notes to the financial statements.[6]

The manipulations of accounting standard precision, which was related to revenue recognition for customer service contracts associated with software purchases, varied the level of implementation guidance associated with the accounting standards. For the treatment group

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[5] The press release indicated that earnings increased because the company recognized previously deferred revenue. It also stated that the company was preparing for an equity offering, which provided an incentive for the company to potentially manage earnings. This ensured that the presence of management's reporting incentives was held constant across each of the experimental cells and that all participants had reason to doubt the credibility of management's reporting.

[6] The financial statement footnote disclosure was crafted by examining annual reports for a sample of software development and manufacturing companies. Revenue recognition criteria are generally provided in the discussion of companies' significant accounting policies. Many of the companies also separately discussed the revenue recognition criteria for software sales, customer service agreements, and other agreements that include multiple deliverables. Such separate disclosures often included a discussion of the factors that need to the satisfied (either general or specific) before revenue could be recognized.

that received an imprecise standard, participants were told that revenue for service contracts could be recognized at the time of sale of the software if collectability is assured, the contract is short term, and the majority of the costs for providing customer support have already been incurred. For the group that received the precise accounting standard, participants were given the same information, but they also received three specific criteria that must be satisfied before the company could recognize revenue. Both the underlying standard and the detailed implementation guidance were based on guidance included in U.S. GAAP for software revenue recognition (ASC 985-605-25). The revenue standard manipulation is consistent with previous research on the decisions of nonprofessional investors and jurors, which manipulate accounting standards by varying the extent of "bright lines" and level of implementation guidance (Bailey & Sawers, 2012; Kadous & Mercer, 2012).[7] Appendix B provides the accounting standard manipulations.

Finally, participants received a copy of the audit report related to the previous year's financial statements, with a manipulation that either included or excluded CAMs.[8] The CAMs disclosure was adapted from the Center for Audit Quality (CAQ) (2011), and it states that revenue recognition was subject to an increased risk of material misstatement and that the auditor performed appropriate procedures to address those risks. It also refers to the appropriate footnote, which discusses management's policy for revenue recognition.[9] Appendix C provides the audit report manipulation. Then, participants provided a second assessment of management's reporting credibility (Mercer, 2005) and a revised stock price (i.e.,Brown-Liburd & Zamora, 2015; Lopez et al., 2009).

3.3. Dependent variables

I measure participants' perceptions of management's credibility using two alternative measures. My first measure of credibility is adopted from Mercer (2005), and the construct of management's reporting credibility comprises management's competence and trustworthiness in financial reporting. A composite credibility score is formed by summing the participants' responses to the six individual questions.[10] The change in credibility, which I use as a dependent measure, is calculated as the difference between the second and first assessments (Mercer, 2005).

In addition to a direct measure of reporting credibility, Mercer (2004) suggests that indirect measures of management's reporting credibility can provide insight into the economic significance of credibility revisions. One common indirect measure of credibility is stock price revision (e.g.,Brown-Liburd & Zamora, 2015; Lopez et al., 2009). Participants provided an estimate of the stock trading price of the company

before receiving the company's earnings announcement and after obtaining the manipulations (Brown-Liburd & Zamora, 2015; Lopez et al., 2009). The price revision variable, which is also used as a dependent variable, is calculated as the change in price divided by the initial stock price.

4. Results

4.1. Comprehension checks

The press release provided to participants indicated that earnings increased because the company recognized previously deferred revenue. It also indicated that the company was preparing for an equity offering, which provided an incentive for the company to manage earnings. The initial sample consisted of 196 participants, and they rated their agreement with a statement indicating that management had an incentive to misstate earnings. Responses were on a nine-point scale with endpoints of 1 = strongly disagree and 9 = strongly agree. The average response was 6.47, which is greater than the mid-point value of 4.50 ($t = 25.101$, two-tailed $p < .001$).[11] This suggests that participants perceived that management had an incentive to manipulate earnings.

4.2. Manipulation checks

To ensure that participants correctly perceived the audit report manipulations, they rated their agreement with two statements indicating that the audit report 1) commented on a specific account and 2) highlighted risks in management's financial statement. Responses were reported on a nine-point scale with endpoints anchored at 1 = strongly disagree and 9 = strongly agree. Higher (lower) values are associated with the inclusion (exclusion) of CAMs. The mean response of the included (excluded) condition was 6.76 (5.59) in agreement that the audit report commented on a specific account. The conditions are significantly different ($t = 3.974$, two-tailed $p < .001$). Also, the mean response of the included (excluded) condition was 6.20 (4.91) in agreement that the report highlighted risks in management's financial statements. This difference is also significant ($t = 4.143$, two-tailed p < .001). Collectively, this suggests that participants perceived their respective audit report treatment.

Additionally, I assessed the manipulation of the accounting standard by asking participants to use the same nine-point scale to rate their agreement with a statement that the accounting standard provided specific guidance and rules for revenue recognition. Higher (lower) values are associated with precise (imprecise) accounting standards. The mean response for the precise (imprecise) treatment was 6.99 (6.24) in agreement with the statement that the accounting standard provided specific guidance and rules. The means are significantly different ($t = 3.119$, two-tailed $p = .002$), which suggests that participants also perceived their respective accounting standard treatment.

To further evaluate participants' perceptions of their respective experimental manipulations, I developed a composite measure of the three manipulation check questions. First, I considered the two questions related to the CAMs manipulation. Since higher values are associated with the inclusion of CAMs, I reverse coded the responses from the participants who received the standard audit report (CAMs excluded). Next, I considered the question that asked about the presence of guidance and rules in the accounting standard. Since higher values are associated with the precise standard manipulation, I reverse coded the responses from participants who received the imprecise accounting standard. The reverse coding enabled me to then interpret higher

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[7] The experimental manipulations that examine the decisions of nonprofessional investors and jurors are also consistent with studies that examine auditors' and managers' decisions under precise and imprecise accounting standards. These experiments provide participants with detailed rules (similar to existing U.S. GAAP) or general guidance without detailed implementation guidance (similar to existing IFRS) to reflect the underlying economics of the transactions (i.e., Agoglia, Doupnik, & Tsakumis, 2011; Jamal & Tan, 2010).

[8] The content of the paragraph was held constant for both accounting standard treatments; it discusses the company's accounting policies for revenue recognition to parallel the accounting standard manipulations.

[9] The experimental design requires that, regardless of the accounting standard treatment, revenue recognition for service contracts associated with the sale of computer software could potentially meet the criteria for disclosure as a CAM. Revenue recognition for service contracts associated with software sales is an example of a multiple-element sale (ASC 985–605-25). The auditing standard indicates that CAMs often involve subjective and complex judgments or are areas of the audit that posed the greatest difficulty in obtaining and evaluating evidence. Additionally, the PCAOB (2017) specifically notes that the significant judgments associated with revenue recognition related to multiple-element sales contracts may be one example of an item that could be considered a CAM. Therefore, it is possible that regardless of the accounting standard treatment, revenue recognition for multiple element sales could potentially be disclosed as a CAM.

[10] To ensure that the questions consistently measured a common construct, I assessed the reliability of the scales. The Cronbach's alpha is 0.799, which is consistent with Mercer (2005).

[11] Untabulated pairwise comparisons among the experimental cells suggest that participants' perceptions of management's incentive to manipulate earnings were held constant across each of the treatment groups.

values, regardless of the treatment groups, as more accurately perceiving the experimental manipulations. Finally, the composite score was calculated as the mean response to the three manipulation check questions.

4.3. Data screens

I then considered the dispersion of the composite score that measured the extent to which all 196 participants perceived their manipulations. The overall mean of the composite score was 5.24, which is greater than the midpoint value of 4.50 ($t = 7.402$, two-tailed p < .001). However, the lowest (highest) value was 1.00 (9.00), and this indicates that some participants did not correctly perceive the manipulations. The values of the composite score were then ranked and assigned to deciles. The lowest decile had a mean of 2.60 and was comprised of 19 participants. Since these individuals did not accurately perceive their respective manipulations, they were excluded from the sample to ensure that the observed effects are attributed to the experimental manipulations, and the remaining sample included 177 participants.

Next, I considered the dispersion of the assessed stock price revision. Untabulated descriptive statistics of the stock price revision for the remaining 177 participants indicate that the mean revision is 1556% with a standard deviation of 17,196%. The magnitude and dispersion of the stock price revision suggest that some participants in the sample misunderstood the question, made typographical errors, or did not understand the economics of forecasting initial and revised stock prices. As I am unable to discriminate among these three alternative considerations, I include only participants that provided a stock price revision with an absolute value of 80% or less when testing my hypothesis.[12] This second data screen excluded an additional 29 participants which resulted in a final sample of 148 participants.

4.4. Demographic data

Table 1 provides demographic data about the 148 participants who comprise the sample used for the statistical tests, the 48 participants who were excluded from the statistical analyses, and the total sample of 196 participants. Untabulated comparisons between the participants who were included and excluded from the statistical tests suggest no differences in their underlying demographics, so I discuss the descriptive statics related to the sample of 148 participants used in the statistical tests.[13] The mean age is 45 years, and males represent 60% of the sample. Approximately 72% have at least a bachelor's degree, and about half have an annual income between $50,000 and $100,000. The mean investing experience is 11 years, and participants, on average, read and evaluate the financial statements of approximately seven companies annually.

4.5. Covariate

This experiment is designed to investigate the hypothesized effects of CAMs and accounting standard precision on changes in investors' perceptions of management's reporting credibility. Previous research suggests that incentive-consistent disclosures and a lack of forthcoming financial reporting are associated with lower perceived credibility (Krische, Sanders, & Smith, 2013). Additionally, the inclusion of emphasis of matter paragraphs in audit reports is associated with a greater likelihood of a future restatement in the accounts discussed in the paragraphs (Czerney, Schmidt, & Thompson, 2014). Since perceptions of financial reporting quality are correlated with assessments of reporting credibility, I measured the perceived risk that the financial statements contained a material misstatement or that they will be restated in the future (Lopez et al., 2009). Responses to each question were on a nine-point scale with endpoints of 1 = very low and 9 = very high, and the average of the responses to both questions represents perceptions of the company's financial reporting quality.[14] This assessment is included as a covariate in the analyses reported below. It controls for any differences in the perceived financial reporting quality across the experimental cells, which enables any observed differences to be attributed to the experimental manipulations.

4.6. Hypotheses testing

My first assessment of reporting credibility uses the direct measure developed by Mercer (2005). Table 2, Panel A presents the adjusted mean credibility revisions, standard deviations, and cell sizes for each of the treatment groups. Table 2, Panel B presents the ANCOVA results with CAMs representing the audit report manipulation and Standard Precision representing the accounting standard manipulation. Table 2, Panel C presents the simple effects used to test each of the components of the predicted interaction. The results are also depicted in Fig. 1.

The ANCOVA on credibility revision shows an interaction between CAMs and Standard Precision ($F = 2.559$, one-tailed $p = .055$), suggesting that the effects of CAMs are dependent on the relative precision of accounting standards. H1a predicts that assessments of management's reporting credibility will be higher under precise than imprecise accounting standards when CAMs are excluded from the audit report. The mean credibility revision under precise (imprecise) accounting standards when CAMs are excluded is 2.06 (-0.05). Tests of simple effects suggest that perceived credibility is higher under precise standards ($F = 2.272$, one-tailed $p = .067$). H1b predicts that the inclusion of CAMs will not affect perceptions of management's reporting credibility under imprecise accounting standards. The mean credibility revision when CAMs are excluded (included) under imprecise standards is -0.05 (0.39), and tests of simple effects suggest that the means are not different ($F = 0.101$, two-tailed $p = .751$). H1c predicts that the inclusion of CAMs will lower perceptions of management's reporting under precise accounting standards. The mean credibility revision when CAMs are excluded (included) is 2.06 (-0.56), and tests of simple effects suggest that the means are different ($F = 4.181$, one-tailed $p = .022$). Finally, I test the form of the interaction using contrast weighs of -1, -1, -1, and 3 (Buckless & Ravenscroft, 1990), and the fourth experimental cell represents precise accounting standards when CAMs are excluded. The contrast coding yields a significant result ($F = 3.982$, two-tailed $p = .048$), which supports the form of the hypothesized interaction between accounting and auditing standards.

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[12] I also completed sensitivity analyses using alternative cutoff values at 10% increments for stock price revision. Inferences remain unchanged for cutoff values of 40%, 50%, 60% and 70%. Cutoff values of 90%, 100% and 150% provide significant results when the dependent variable is credibility revision but not price revision. Cutoff values of 20% and 30% provide significant results when the dependent variable is price revision but not change credibility revision. Finally, I note that the overall pattern of the results is similar if the lowest decile of the responses to the manipulation check composite score is not excluded. However, the statistical significance weakens. Cutoff values of 20%, 30%, 40%, 50% and 60% provide significant results when the dependent variable is price revision, and the results are not significant at these cut-off values when the dependent variable is credibility revision.

[13] The individuals who were excluded from the statistical analyses purported to be more familiar with the differences between the U.S. and international accounting standards for revenue recognition ($t = 1.623$, two-tailed $p = .056$.). However, the mean response of the excluded participants was not significantly greater than the midpoint value of 4.5 ($t = 2.113$, two-tailed $p = .100$), which suggests that they did not possess a strong awareness of the differences in revenue recognition.

[14] I measured risk of material misstatement with the following questions: "What is your judgment of the risk that the current financial reporting of Goldenrod is materially misstated?" Risk of restatement was measured by asking "What is your judgment of the risk that the current financial reporting of Goldenrod will eventually be restated?" The correlation between the risk of misstatement and the risk of restatement is 0.611 (two-tailed $p < .000$), and the Cronbach's alpha for the items is 0.754, which suggests that I measured a common construct.

Table 1
Summary of participant demographic information.

Variables	Included in statistical tests $n = 148$	Excluded from statistical tests $n = 48$	Full sample[a] $n = 196$
	Mean (std. dev.)	Mean (std. dev.)	Mean (std. dev.)
Age in years	45.5 (13.9)	45.1 (15.9)	45.4 (14.4)
Work experience in years	22.3 (12.7)	21.5 (13.7)	22.1 (12.9)
Investing experience in years	11.4 (10.0)	10.3 (10.6)	11.1 (10.0)
Number of companies evaluated annually by analyzing their financial statements	7.1 (11.8)	8.1 (16.1)	7.4 (13.0)
Number of annual buy/sell transactions[b]	117.1 (1231.9)	10.4 (15.6)	91.0 (1070.6)
Percentage of investment portfolio actively traded	28.5 (22.1)	28.3 (23.1)	28.4 (22.26)
Percentage of software companies in portfolio	10.1 (15.2)	10.5 (18.5)	10.2 (16.0)
Percentage of male participants	59.5	58.3	59.2
Percentage of participants with at least a bachelor's degree	71.6	62.5	69.4
Percentage of participants reporting an annual income between $50,000 and $100,000	48.6	56.2	50.5
Percentage of participants who reported reading the audit report when evaluating financial statements	58.8	70.1	61.7
Familiarity with U.S. accounting standards for revenue recognition[c]	5.1 (2.3)	5.6 (2.4)	5.2 (2.3)
Familiarity with international accounting standards for revenue recognition[c]	4.5 (2.3)	4.8 (2.4)	4.6 (2.3)
Familiarity with the difference between the U.S. and international accounting standards for revenue recognition[c]	4.2 (2.4)	5.1 (2.3)	4.4 (2.4)

[a] Comparisons of the demographic information for those participants who included and excluded from the statistical tests suggest that the excluded participants reported greater familiarity with the difference between the U.S. and international accounting standards for revenue recognition ($t = 2.113$, two-tailed $p = .036$). However, the mean response of the excluded participants was not significantly greater than the midpoint value of 4.5 ($t = 2.113$, two-tailed $p = .100$), which suggests that they did not possess a strong awareness of the differences in revenue recognition. No other differences were observed between the two groups.

[b] One participant reported 15,000 buy/sell transactions. If the participant is excluded, the mean (standard deviation) of trades is 15.9 (23.5) for the sample used for the statistical tests and 14.5 (22.0) for the full sample. An examination of all the responses for this participant suggests that he understood the experimental manipulations, the relevant details of the case materials, and the economics of estimating stock prices and price revisions. Therefore, the participant was included in the analysis.

[c] Participants assessed three separate statements on a nine-point scale with endpoints of 1 = strongly disagree and 9 = strongly agree. Higher responses represent greater familiarity.

I next consider the effects of the manipulations on stock price revision, which is an indirect measure of reporting credibility. Table 3, Panel A presents the adjusted mean stock price revisions, standard deviations, and cell sizes for each of the treatment groups. Table 3, Panel B presents the ANCOVA results with CAMs representing the audit report manipulation and Standard Precision representing the accounting standard manipulation. Table 3, Panel C presents the simple effects used to test each of the components of the predicted interaction. The results are also depicted in Fig. 2.

Table 2
Effects of accounting standard precision and expanded auditor reporting on investors' perceptions of management's reporting credibility

	Precise standard	Imprecise standard	Total
Panel A: Adjusted means (std. dev.) for changes in management's reporting credibility			
CAMs included	−0.56 (6.98) $n = 40$	0.39 (5.95) $n = 42$	−0.83 (6.15) $n = 82$
CAMs excluded	2.06 (5.68) $n = 37$	−0.05 (3.59) $n = 29$	1.00 (5.02) $n = 66$
Total	0.75 (6.37) $n = 77$	0.17 (5.03) $n = 71$	0.46 (5.66) $n = 148$

	Df	MSE	F-stat	One-tailed p-value
Panel B: ANCOVA results				
CAMs	1	41.702	1.319	0.127
Standard precision	1	12.315	0.389	0.267
CAMs X standard precision	1	82.207	2.599	0.055
Covariate: financial statement risks	1	355.986	11.256	0.001
Error	143	31.626		

	H#	Df	MSE	F-stat	p-value
Panel C: simple effects					
CAMS excluded: precise vs. imprecise accounting standards	1a	1	71.851	2.272	0.067 (one-tailed)
Imprecise accounting standards: CAMs included vs. CAMs excluded	1b	1	3.198	0.101	0.751 (two-tailed)
Precise accounting standards: CAMs included vs. CAMs excluded	1c	1	132.235	4.181	0.022 (one-tailed)

Table 2 shows the effects of accounting standard precision and CAMs on changes in management's reporting credibility. Before receiving the experimental manipulations, participants provided an initial assessment of management's reporting credibility by evaluating six statements that measure credibility (Appendix A). After receiving the experimental manipulations, participants provided a second assessment of reporting credibility using the same questions. Each participant's change in credibility was calculated by subtracting the initial composite assessment from the second composite assessment. Panel A reports the changes in management's reporting credibility by experimental condition. Panel B reports an ANCOVA that tests the effects of CAMs and standard precision on changes in reporting credibility. Panel C reports the simple effects that test the components of the interaction.
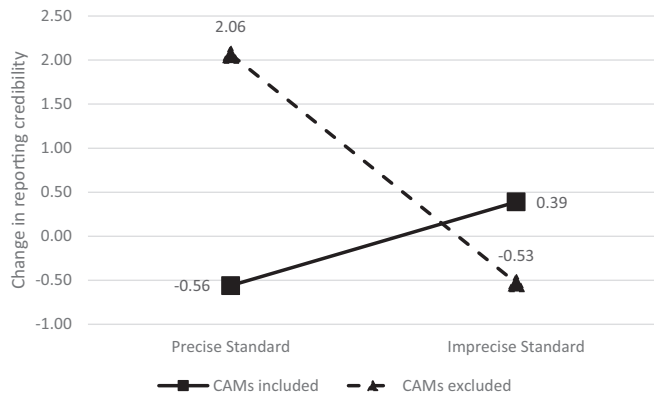
Fig. 1. Graph of the effects of accounting standard precision and CAMs on participants' perceptions of management's reporting credibility. Before receiving the experimental manipulations, participants provided an initial assessment of management's reporting credibility by evaluating six statements that comprise credibility (Appendix A). A composite score of credibility was formed by summing the responses to the six questions. After receiving the experimental manipulations, participants then provided a second assessment of reporting credibility using the same six questions. Each participant's change in credibility was calculated by subtracting the initial composite assessment from the second composite assessment.

The ANCOVA on credibility revision shows an interaction between CAMs and Standard Precision (F = 1.831, one-tailed p = .089), suggesting that the effects of CAMs are dependent on the relative precision of the accounting standards. H1a predicts that assessments of management's reporting credibility will be higher under precise than imprecise accounting standards when CAMs are excluded from the audit report. The mean credibility revision under precise (imprecise) accounting standards when CAMs are excluded is 6.95 (−5.59). Tests of simple effects suggest that perceived credibility is higher under precise standards (F = 3.066, one-tailed p = .041). H1b predicts that the inclusion of CAMs will not affect perceptions of management's reporting

under imprecise accounting standards. The mean credibility revision when CAMs are excluded (included) under imprecise standards is −5.59 (−2.29), and tests of simple effects suggest that the means are not different (F = 0.214, two-tailed p = .644). H1c predicts that CAMs will reduce perceptions of management's reporting under precise accounting standards. The mean credibility revision when CAMs are excluded (included) is 6.95 (−2.88), and tests of simple effects suggest that the means are different (F = 2.257, one-tailed p = .068). Finally, I test the form of the interaction using contrast weighs of −1, −1, −1, and 3 (Buckless & Ravenscroft, 1990), and the fourth experimental cell represents precise accounting standards when CAMs are excluded. The contrast coding yields a significant result (F = 3.720, two-tailed p = .056), which supports the form of the hypothesized interaction between accounting and auditing standards.

5. Discussion and conclusion

5.1. Discussion of results

The results of this study provide evidence on the interactive effects of CAMs and accounting standard precision on investors' perceptions of management's reporting credibility. The results suggest that the effects of CAMs are observed when the financial statement item associated with the CAM disclosure is governed by a precise, but not an imprecise, accounting standard. This result extends existing research that examines the influence of CAMs on investors' attention to the content of financial statements, perceptions of the company's financial statements, and the financial reporting environment (Christensen, Glover, & Wolfe, 2014; Doxey, 2015; Kelton & Montague, 2018; Rapley et al., 2018; Sirois et al., 2018). It also complements contemporaneous research that examines additional situational factors that interact with CAMSs to affect investors' decisions. Examples include management disclosures of critical accounting matters, investor sophistication, and whether management was able to meet or beat forecasted earnings (Carver & Trinkle, 2017; Dennis et al., 2018; Köhler et al., 2016).

Table 3
Effects of accounting standard precision and expanded auditor reporting on investors' stock price revisions.

	Precise standard	Imprecise standard	Total
Panel A: Adjusted means (std. dev.) for stock price revisions (%).			
CAMs included	−2.88	−2.29	−2.58
	(31.38)	(26.90)	(29.13)
	n = 40	n = 42	n = 82
CAMs excluded	6.95	−5.59	0.68
	(30.95)	(29.00)	(30.05)
	n = 37	n = 29	n = 66
Total	−3.94	2.04	−0.952
	(31.00)	(28.15)	(29.62)
	n = 77	n = 71	n = 148

	df	MSE	F-stat	One-tailed p-value
Panel B: ANCOVA results				
CAMs	1	373.970	0.455	0.251
Standard precision	1	1294.466	1.574	0.106
CAMs X standard precision	1	1506.203	1.831	0.089
Covariate: financial statement risks	1	8080.754	9.826	0.001
Error	143	822.421		

	H#	Df	MSE	F-Stat	p-value
Panel C: simple effects					
CAMS excluded: precise vs. imprecise accounting standards	1a	1	2521.897	3.066	0.041 (one-tailed)
Imprecise accounting standards: CAMs included vs. CAMs excluded	1b	1	176.162	0.214	0.644 (two-tailed)
Precise accounting standards: CAMs included vs. CAMs excluded	1c	1	1856.315	2.257	0.068 (one-tailed)

Table 3 shows the effects of accounting standard precision and CAMs on stock price revision. Before receiving the experimental manipulations, participants provided an initial assessment of stock price. After receiving the experimental manipulations, participants provided a second assessment of stock price. Stock price revision was calculated as follows: ([Price2 – Price1]/ Price1)*100. Panel A reports the stock price revision by experimental condition. Panel B reports an ANCOVA that tests the effects of CAMs and standard precision on stock price revision. Panel C reports the simple effects that test the components of the interaction.
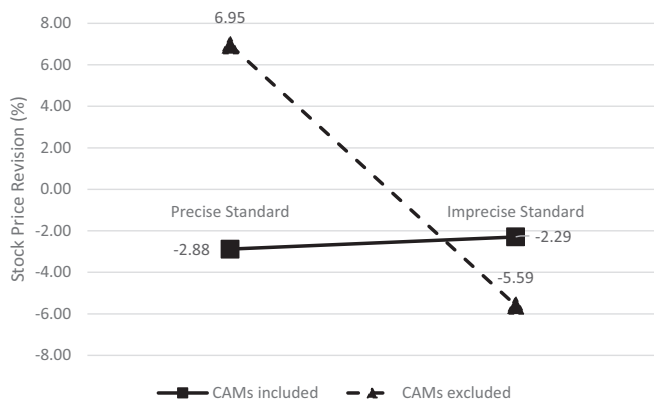
Fig. 2. Graph of the effects of accounting standard precision and CAMs on stock price revision. Before receiving the experimental manipulations, participants provided an initial assessment of stock price. After receiving the experimental manipulations, participants then provided a second assessment of stock price. The change in stock price was calculated with the following formula: ([Price2 – Price1]/Price1)*100.

The hypothesized and observed interaction is also consistent with congruity theory, which states that individuals prefer communication forms that best reflect the perceived level of uncertainty related to the underlying message (Budescu & Wallsten, 1995). Precise accounting standards can reduce financial reporting risks by constraining accruals-based earnings management (Ewert & Wagenhofer, 2005; Folsom et al., 2017), so investors perceive risks to be lower. However, the communication of potential risks via CAMs is incongruent with investors' expectations about financial reporting risks, and this lack of congruity reduces investors' perceptions of management's reporting credibility. Additionally, this observed interaction contributes to the existing accounting research that examines the congruity between the form of the communication and the underlying uncertainty associated with accounting measurements and earnings forecasts (Christensen, Glover, Omer, & Marjorie, 2014; Du et al., 2011; Du et al., 2014; Hughes & Pae, 2004; Kelton & Montague, 2018; King et al., 1990).

Finally, the results of this study inform regulatory agencies about the forthcoming changes to accounting and auditing standards. The results suggest that the effects of CAMs are only observed when the CAM disclosure relates to a financial statement item that is governed by a precise accounting standard. This interaction between CAMs and standard precision will be informative to the SEC and FASB, especially as the U.S. prepares to adopt a new accounting standard for revenue recognition that lacks much of the implementation guidance that was included in the previous standard.

5.2. Limitations

It is important to acknowledge the limitations of this study. First, the participants were nonprofessional investors, which is consistent with existing research (Brown-Liburd & Zamora, 2015; Christensen, Glover, & Wolfe, 2014; Kelton & Montague, 2018; Lopez et al., 2009; Mercer, 2005). Even though all of the participants in this study met the criteria of nonprofessional investors, 48 participants were excluded from the statistical tests for not correctly attending to their respective experimental manipulations or for providing highly dispersed stock price revisions. This suggests that a portion of the participants may have been uncertain about the manipulations, misunderstood the stock price assessment questions, made typographical errors, or did not understand the economics of forecasting initial and revised stock prices. However, the overall pattern of results is consistent with research that uses college students as proxies for lay jurors to investigate the interactive effects of CAMs and standard precision on jurors' assessments of auditor negligence. Gimbar et al. (2016) present evidence that the disclosure of CAMs increase assessments of auditor liability under precise, but

not imprecise standards. Even though jurors' decisions are examined by a different theoretical framework than investors, the collective evidence suggests that CAMs interact with accounting standard precision to influence the decisions of unsophisticated financial statement users. It is not clear, however, if the observed interaction between CAMs and accounting standard precision will generalize to sophisticated financial statement users. Köhler et al. (2016) present evidence that the effects of CAMs can be influenced by investor sophistication. Future research may consider if this observed interaction generalizes to the decisions of more sophisticated financial statement users such as professional investors, analysts, loan officers or expert jurors.

Second, contemporaneous research uses alternative measures to assess the effects of CAMs on investors' decisions. This study uses a direct measure of investors' perceptions of management's reporting credibility which was developed by Mercer (2005) and stock price revision. The latter measure was calculated as the percent change between the estimated price that was provided before and after reviewing the experimental manipulations (e.g., Lopez et al., 2009). An alternative approach would have been to state the company's trading price, provide the manipulations and then assess the expected magnitude and direction of the price revision (Brown-Liburd & Zamora, 2015). This alternative design may have mitigated the wide dispersion of stock price revision which was observed in the full sample. Additionally, contemporaneous research uses other measures to assess the effects of CAMs. These include perceptions of the "economic situation" of the company, the change in the company's estimated P/E multiple, the likelihood of investing in the company, and the allocation of an investment fund to the company's stock (Köhler et al., 2016; Dennis et al., 2018; Rapley et al., 2018; Christensen, Glover, Omer, & Marjorie, 2014; Doxey, 2015; Kelton & Montague, 2018). Although all of these variables measure the effects of CAMs on investors' decision, these alternative assessments could have been considered when designing the experiment.

Third, the experimental manipulation of CAMs in this study disclosed only one area that required additional auditor effort, but it is likely that auditors will disclose multiple CAMs when the new auditing standard is adopted (Public Company Accounting Oversight Board (PCAOB), 2017). If audit reports contain multiple CAMs, nonprofessional investors will need to exert even additional cognitive effort to incorporate the information into their decisions (e.g., Dennis et al., 2018). This could potentially dilute the observed effects of CAMs because contemporaneous research suggests that nonprofessional investors may find it difficult to read and interpret these additional disclosures (Carver & Trinkle, 2017; Köhler et al., 2016).

Finally, the experimental manipulation of CAMs was based on the initial proposal of the auditing standard (Public Company Accounting Oversight Board (PCAOB), 2011) and preliminary guidance from the Center for Audit Quality (CAQ) (2011). One notable difference between the initial and final proposal is the requirement for auditors to discuss the procedures that that were performed in response to CAMs (Public Company Accounting Oversight Board (PCAOB), 2017). Previous research suggests that a discussion of such procedures can offset the negative perceptions that the presence of CAMs may cause (Christensen, Glover, & Wolfe, 2014). Therefore, the observed interaction between accounting and auditing standards may not generalize to the decisions of investors once this additional information is provided. Additionally, after the transition to the new auditing standard, auditors will either disclose the relevant CAMs or provide a statement that no CAMs were identified (Public Company Accounting Oversight Board (PCAOB), 2017; Rapley et al., 2018). This study only compares the inclusion and exclusion of CAMs, and it does not investigate the potential interactive effects between accounting standard precision and the disclosure that no CAMs exist.

Appendix A. Management's reporting credibility questions

The following statements were adapted from Mercer (2005) to assess participants' perceptions of management's reporting credibility. Participants assessed each of the statements on a nine-point scale with endpoints of 1 = strongly disagree and 9 = strongly agree. Assessments of credibility were provided twice: before and after viewing the experimental manipulations. To reduce response bias (e.g., Mercer, 2005), most questions were written such that high credibility was indicated with agreement (i.e., high ratings). However, items 2 and 6 were written such that high credibility was indicated with disagreement (i.e., low ratings). These items were reverse-coded so that higher responses always indicate increased levels of credibility. Then, participant responses to the six questions were summed to form a composite measure of management's reporting credibility. Each participant's change in credibility was calculated by subtracting the composite assessment provided before the experimental manipulation from the composite assessment provided after the experimental manipulation.

Assessment of management's financial disclosure/reporting competence:

1) I believe that Goldenrod management is very competent at providing financial disclosures.
2) I believe that Goldenrod management has little knowledge of the factors involved in providing useful disclosures.
3) I believe that few people are as qualified as Goldenrod management to provide useful financial disclosures about Goldenrod.

Assessment of management's trustworthiness:

4) I believe that Goldenrod management is very trustworthy.
5) I believe that Goldenrod management is very honest.
6) I believe that Goldenrod management may not be truthful in their financial disclosures.

Appendix B. Accounting standard manipulation

The following is the manipulation of the accounting standard as either precise or imprecise. This was accomplished by providing a greater (less) amount of implementation guidance for the precise (imprecise) manipulation. The manipulation is based on existing research that experimentally considers the specificity of accounting standards (Bailey & Sawers, 2012; Kadous & Mercer, 2012). Participants received the accounting standard manipulation after they reviewed background information, provided initial assessments of reporting credibility, and obtained the press release of the quarterly earnings announcement. The manipulation for the precise standard included the italicized text whereas the manipulation for the imprecise standard did not.

Deferred revenues typically result from undelivered product and customer support services. Revenue recognition for these services is determined by applying The Accounting Standards Codification (ASC). The principles of the ASC indicate that revenue must be deferred and recognized ratably over the term of the contract. However, revenue for customer support contracts can be recognized at the time of sale of the software if collectability is assured, the contract is short-term, and the majority of the costs of providing customer supports have already been incurred.

The ASC specifies that the principles for recognizing revenues from customer service contracts as of the date of sale of the software are met, if and only if each of the following conditions are met:

1) *the amount of the support service is included in the initial license fee,*
2) *the terms of the support contract are renewed annually, and*
3) *the costs of providing the support service is inconsequential.*

Revenue remains deferred until the rules [*principles*, in the imprecise manipulation] enumerated in the accounting standards are met.

Appendix C. Audit report manipulation

Participants received the audit report manipulation after they reviewed background information, provided initial assessments of reporting credibility, obtained the press release of the quarterly earnings announcement, and reviewed the accounting standard manipulation (Appendix B). All participants received a copy of the standard unqualified audit report which was adopted from Auditing Standards No. 1 (Public Company Accounting Oversight Board (PCAOB), 2003) and No. 5 (Public Company Accounting Oversight Board (PCAOB), 2007). However, the manipulation of CAMs was accomplished by the inclusion or exclusion of the paragraphs provided below.

The manipulation is based on guidance provided by the Center for Audit Quality (CAQ) (2011). The audit report of the CAMs included group contained the additional paragraphs provided below, and they were included between the scope and opinion paragraph of the audit report. The content of the paragraphs was held constant for both accounting standard treatments; the content discusses the company's accounting policies for revenue recognition to parallel the accounting standard manipulations.

In connection with our audit, we also bring to your attention the matter listed below. This is not intended to be a complete list of all areas that our audit procedures addressed in response to identified risks of material misstatement.

1) The Company's software sale agreements often include ongoing customer support services. Revenue recognition of customer payments for these customer support services is deferred until the company's criteria for recognizing revenue is appropriately satisfied. At December 31, 2011, the total deferred revenue approximated $8108 million. This compares to the total deferred revenue balance of $9668 million at December 31, 2010. The net revenue recognized from these license and product support agreements approximated $24,031 million during 2011. See Note E for further details.

We highlight the above matter because it represents an area of audit emphasis during the periods covered by our report. Our audit included performing procedures designed to address the risks of material misstatement associated with the above matters. Such procedures were designed in the context of our audit of the consolidated financial statements taken as a whole, and not to provide assurance on individual accounts or disclosures. As noted above, our audit also included procedures in response to identified risks and those required by professional standards that have not been specifically identified herein.

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