

**THE VALUE RELEVANCE OF MANAGERS' AND AUDITORS' DISCLOSURES
ABOUT MATERIAL MEASUREMENT UNCERTAINTY**

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ABSTRACT

Regulators seek to provide financial statement users with more information about how auditors evaluate complex estimates. Because users encounter auditor-provided information alongside management-provided information about these estimates, we jointly examine the value relevance of this information. We also examine whether visual cues in auditor disclosures influence the way nonprofessional investors use this information. While disclosures from managers and auditors provide *different* value-relevant information about the *same* underlying issue, we find that users do not weight information about the audit when it is presented in a fully-narrative format. Specifically, users weight management disclosures and fully-narrative auditor disclosures as substitutes in valuation judgments. However, visual cues facilitate their weighting of information about the audit, which also changes how they weight management disclosures. Consistent with market signaling theory, users reward robust supplemental management disclosures when audit reports provide visual cues. This suggests visual cues in auditor reports can promote increased transparency from managers.

Keywords: measurement uncertainty; fair value; audit reports; disclosure.

Data availability: *Contact the authors.*

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I. INTRODUCTION

When accounting standards allow managers discretion in measuring complex financial statement estimates, reported amounts represent a point estimate among a range of reasonable values (e.g., Bratten, Gaynor, McDaniel, Montague, and Sierra 2013). The range of reasonable values for an estimate often includes amounts that, if recorded, would likely influence financial statement users' ("users") decisions (e.g., Christensen, Glover, and Wood 2012; Bell and Griffin 2012). Such instances result in material measurement uncertainty, which likely leads users to discount security prices (i.e., take price protection) (e.g., Diamond and Verrecchia 1991; Song, Thomas, and Yi 2010). However, users must rely on reported information to identify this uncertainty and impound it into security prices. Accounting regulators encourage managers to provide supplemental disclosures regarding material measurement uncertainty (SEC 2003; FASB 2010a). The PCAOB now also seeks to provide users with information about how auditors evaluate estimates that reflect material measurement uncertainty (e.g., PCAOB 2014, 2016). Because users encounter auditor-provided information alongside management-provided information about these estimates, we jointly examine the value relevance of management and auditor disclosures regarding material measurement uncertainty. We also examine whether visual cues in auditor disclosures influence the way nonprofessional investors use this information.

Issuers contend, and auditors agree, that only management should provide original information about an entity (e.g., PCAOB 2013a, 2013b, 2013c, 2013d). Under the current financial reporting model, management bears primary responsibility for providing users with original information about a company through assertions (i.e., about contracts and accounting measurement processes). On the other hand, auditors bear primary responsibility for providing

users with information about the production of attestations (i.e., assurance). While assertions relate directly to contracts and the underlying economics, attestations relate only to assertions (and not underlying economics). Information about attestations therefore has a relatively weaker causal link to underlying economics than information in management’s assertions. Material measurement uncertainty creates potential information asymmetry with respect to both *first-order* information in management’s assertions and *second-order* information about auditors’ attestations.¹ Notably, the existence of underlying material measurement uncertainty represents “bad news”, which both management and auditors can communicate credibly (Skinner 1994).

Understanding users’ valuation judgments related to material measurement uncertainty is important to standard setters as they consider approaches to reducing the information asymmetry this uncertainty creates. The current financial reporting environment provides issuers with significant discretion in determining specific disclosure practices (e.g., SEC 2003, 2008).² Understanding these judgments can help calibrate disclosure requirements around material measurement uncertainty. Additionally, the PCAOB proposes that auditors provide information about the production of assurance over high-uncertainty estimates using critical auditing matter disclosures in the audit report (PCAOB 2016). Our study can inform conversations among financial reporting stakeholders (e.g., regulators, auditors, management, and users) about potential upcoming implementation decisions related to format these disclosures.

We address two fundamental issues related to material measurement uncertainty and

¹ *Second-order* refers to information about information, while *first-order* refers to information about an underlying phenomenon (see, e.g., Silverstein 2001). Gershon (2010, 18) notes “*Second-order information* refers to the information that can guide you into understanding how particular words and statements should be interpreted” (emphasis in original). While management assertions provide first-order information about underlying economics of contracts, auditor attestations provide only second-order information about this first-order information.

² SEC comment letters highlight significant and pervasive room for improvement in these disclosures in practice (e.g., Ernst & Young 2014). Additionally, research finds considerable variation in compliance with disclosure requirements, even for disclosures that do *not* involve complex judgments (Ettredge, Johnstone, Stone, and Wang 2011). This suggests that variation in the quality of supplemental disclosures about material measurement uncertainty will be particularly pronounced in practice.

information asymmetry. First, we jointly examine the value relevance of first-order and second-order information about material measurement uncertainty. Financial reporting stakeholders anticipate that many critical auditing matter disclosures will relate to issues about which management already provides robust supplemental disclosures (e.g., PCAOB 2013a, 2013b, 2013c, 2013d). Additionally, observations of expanded audit reports in the U.K. reveal instances where the auditor provides “key audit matter” disclosures with second-order information, but management *does not* provide supplemental disclosures with corresponding first-order information (e.g., Heineken 2015). Our study provides insights regarding the valuation implications of material measurement uncertainty under these different information scenarios.

Second, we examine whether visual cues in auditor reports influence the way nonprofessional investors use information about material measurement uncertainty. Research suggests that visual linkages between recognized amounts and disclosed information reduce information processing costs, as compared to narrative linkages (e.g., Einhorn and Hogarth 1981, 1986; Maines and McDaniel 2000; Clor-Proell, Proell, and Warfield 2014). Interestingly, while audit reports that reference specific amounts in financial statements do so *narratively*, reports in certain assurance settings do so *visually* (e.g., “comfort letters”; see Appendix A).³ We examine whether users impound information about material measurement uncertainty differently when auditors identify amounts visually versus narratively in critical auditing matter disclosures.

Using a sample of 102 nonprofessional investors, we examine how supplemental management disclosures and auditor disclosures interactively affect users’ valuation judgments. Participants in all conditions receive required, standardized ASC 820 disclosures that indicate Level 3 inputs reflect management’s assumptions and learn that the auditors issued an

³ AU 634, *Letters for Underwriters and Certain Other Requesting Parties* (PCAOB 2003), describes a presentation format whereby auditors place labels adjacent to amounts on financial reports to indicate the results of procedures applied to the respective amounts (par. 58). AU-C 920 (AICPA 2013) describes the same presentation format.

unqualified (“clean”) opinion. First, we manipulate management disclosure through a series of statements about the material measurement uncertainty of a Level 3 fair value estimate and the related investment gain. Second, we manipulate auditor disclosure at three levels: absent, auditor narrative disclosure, and auditor visual disclosure. Participants receiving the auditor narrative disclosure manipulation view a fully-narrative critical auditing matter disclosure related to material measurement uncertainty in a Level 3 investment gain. Participants receiving the auditor visual disclosure manipulation view a critical auditing matter disclosure that visually identifies the Level 3 investment gain with a label on the face of the income statement. We measure participants’ valuation judgments (our dependent variable) using assessed P/E multiples.

We predict and find that management disclosure and auditor narrative disclosure function as substitutes in reducing information asymmetry for nonprofessional investors (i.e., these users discount P/E multiples nearly equivalently in response to either or both). Auditor disclosures must incidentally indicate the existence of first-order information in order to communicate second-order information. While nonprofessional investors appear to weight the existence of this first-order information when auditor narrative disclosure is present, they do not incrementally weight the second-order information in their P/E multiple assessments.

We also predict and find that visual cues change the way nonprofessional investors use information about material measurement uncertainty in their valuation judgments. When management disclosure is absent, nonprofessional investors discount P/E multiples more in response to auditor visual disclosure than auditor narrative disclosure. Consistent with market signaling theory (e.g., Spence 1973; Healy and Palepu 1993), we also find that nonprofessional investors appear to reward management disclosure when auditor visual disclosure is present (i.e., assess *higher* P/E multiples when management disclosure is present than absent).

Our findings suggest that nonprofessional investors find both first-order and second-order

information about material measurement uncertainty to be value-relevant. This is consistent with supplemental management disclosures and critical auditing matter disclosures providing *different* information about the *same* underlying measurement uncertainty. Our findings also demonstrate that nonprofessional investors use information about material measurement uncertainty differently when auditor reports provide visual, versus narrative disclosures. These users appear do not appear to weight second-order information when audit reports present it in a fully-narrative format. However, when audit reports visually identify the related amounts, nonprofessional investors appear to weight both first-order and second-order information in a manner consistent with market signaling theory (e.g., Spence 1973). Specifically, these users assess higher P/E multiples when management provides robust supplemental disclosures alongside auditor visual disclosures than when management fails to do so. This suggests that visual cues in auditor reports can promote increased transparency from managers.

Our study contributes to prior research on several dimensions. First, we draw the critical distinction between first-order information that GAAP requires managers to provide regarding material measurement uncertainty and second-order information about the related attestations. Our findings suggest that the valuation implications of auditor disclosures are conditional on whether management provides robust supplemental disclosures. Second, our findings demonstrate the importance of presentation format and visual cues in communicating second-order information about material measurement uncertainty. In doing so, we extend emerging research on implications of critical auditing matter disclosures (e.g., Brown, Majors, and Peecher 2015; Christensen, Glover, and Wolfe 2014; Kachelmeier, Schmidt, and Valentine 2014; Lennox, Schmidt, and Thompson 2015).

Third, we identify visual cues currently used by auditors in practice that appear to facilitate nonprofessional investors' weighting of disclosed information. Prior literature

documents differences in the way users process recognized versus disclosed amounts (Davis-Friday, Folami, Liu, and Mittelstaedt 1999; Davis-Friday, Liu, and Mittelstaedt 2004). However, our findings suggest these visual cues can help bridge the documented gap in the decision usefulness of recognized versus disclosed accounting information. The remainder of this paper proceeds as follows. Section 2 presents background information, theory, and hypotheses. We discuss our experimental method in Section 3. Section 4 reports results and Section 5 concludes.

II. BACKGROUND, THEORY, AND HYPOTHESES

Standard Setting and Regulation

The SEC asserts that “management has a unique perspective on its business that only it can present” (SEC 2003). Accordingly, FASB standards and SEC interpretive guidance require managers to disclose information related to important accounting issues, including critical accounting policies and critical accounting estimates (SEC 2003; FASB 2010a, 2010b). We use the term “critical accounting matters” (hereafter, *CACctMs*) to describe these policies and estimates. *CACctMs* represent *first-order* information about amounts recognized and disclosed in financial reports (e.g., management disclosures around material measurement uncertainty).

FASB standards and SEC interpretive guidance provide managers with significant discretion in implementing disclosure practices (e.g., SEC 2003, 2008; FASB 2010a). ASC 235 *Notes to Financial Statements* provides flexibility in identifying significant accounting policies and provides only general guidance for developing the related disclosures (FASB 2010a). While the SEC requires issuers to discuss assumptions underlying critical accounting estimates, it encourages (but does not require) supplemental disclosure related to the sensitivity of estimates to changes in key inputs (SEC 2003, 2008). Correspondingly, SEC comment letters indicate significant variation in the quality of both required and supplemental *CACctM* disclosures about

material measurement uncertainty (e.g., Ernst & Young 2014). This is consistent with research that reports strategic variation in compliance with disclosure requirements (Ettredge et al. 2011).

The PCAOB currently proposes that auditors communicate *second-order* information from auditors about material measurement uncertainty as critical auditing matters (hereafter, *CAudMs*) in audit reports (PCAOB 2016). When material measurement uncertainty exists, auditors can only obtain assurance over a range of reasonable values (Christensen et al. 2012; Bell and Griffin 2012). The PCAOB’s proposed standard requires auditors to identify such situations when they arise and provide information about the production of assurance over the related amounts in *CAudM* disclosures (PCAOB 2016, A1-7 – A1-9). Importantly, the PCAOB does not propose that auditors provide any first-order information about material measurement uncertainty in *CAudMs* (e.g., assertions about the underlying contract or measurement process). Rather, the PCAOB proposes that auditors provide only factual second-order information about the assurance production process (e.g., audit procedures, audit effort, audit evidence, and risk assessments). Thus, although *CAudMs* and *CAcctMs* can relate to the same amounts and/or disclosures (see, e.g., PCAOB 2013a, 2013b, 2013c), *CAudM* information fundamentally differs *CAcctM* information. Only auditors can produce *CAudM* information; relatedly, issuers contend that only management should provide *CAcctM* information (e.g., PCAOB 2013a, 2013b, 2013c).

Financial reporting stakeholders anticipate that many *CAudM* disclosures will relate to issues about which management already provides robust *CAcctM* disclosures (e.g., PCAOB 2013a, 2013b, 2013c, 2013d). However, observations from recently expanded audit reports in the U.K. reveal instances where auditors identify “key audit matters” about underlying issues that management does not address through supplemental disclosure. For example, Deloitte’s audit report on Heineken’s 2015 financial statements identifies a key audit matter regarding the valuation of a deposit liability on returnable packaging (Heineken 2015, 143) (see Appendix C,

Panel A). While Heineken reports a €606 million payable for “Returnable packaging deposits” in a table (Heineken 2014, 114), management provides no narrative explanation of this amount (see Appendix C, panel B). This suggests that robust supplemental *CacctM* disclosures might not necessarily accompany proposed *CAudM* disclosures in the U.S.

Theory and Research on Users’ Valuation Judgments

Research reveals that first-order information about material measurement uncertainty is value relevant (e.g., Song et al. 2010, Clor-Proell et al. 2014). Research also shows that users understand and value information in auditor reports (for recent reviews, see Carson, Fargher, Geiger, Lennox, Raghunandan, and Willikens 2013; Mock, Bedard, Coram, Davis, Espahbodi, and Warne 2013). Specifically, users attend to negative signals in auditor reports (e.g., Libby 1979; Schneider and Church 2008; Shelton and Whittington 2008) and incorporate these signals in valuation decisions (e.g., Bamber and Stratton 1997; Taffler, Lu, and Kausar 2004; Citron, Taffler, and Uang 2008; Menon and Williams 2010). However, inferences from this research relate to first-order, rather than second-order, information. Namely, report modifications under the current auditor reporting model emphasize first-order information about a client’s financial condition (i.e., going concern assumption) or accounting practices (e.g., changes in accounting principles). Second-order information about the production of assurance (e.g., as in PCAOB-proposed *CAudM* disclosures) provides relatively weaker causal linkages to the underlying economic activity than this first-order information.

Individuals organize events in terms of cause and effect relations and therefore weight information to a greater extent when it is more causally linked to a judgment (e.g. Ajzen 1977; Einhorn and Hogarth 1986; Kim and Ahn 2002). This implies that users will experience more difficulty weighting second-order information in proposed *CAudM* disclosures in their valuation judgments (as compared to first-order information in *CacctM* disclosures) because that

information is less causally linked to the economics that underlie the valuation. Consistent with this implication, emerging research reveals that assurance report users have difficulty processing information about the production of assurance (i.e., second-order information). In a sustainability reporting setting, Vera-Munoz, Gaynor, McDaniel, and Kinney (2015) find that non-expert users do not differentiate the level of assurance achieved based on descriptions of the verification procedures performed. Similarly, Kachelmeier et al. (2014) demonstrate that optional descriptions of audit procedures in *CAudM* disclosures do not influence users' perceptions.

However, in communicating second-order information, *CAudM* disclosures also incidentally indicate that first-order information about the underlying accounting issue exists.⁴ Although Vera-Munoz et al. (2015) and Kachelmeier et al. (2014) show that users do not react to certain second-order information in *CAudM* disclosures, other studies reveal that a variety of user groups do react to overall *CAudM* disclosures. Using an instrument similar to our own and to that in Clor-Proell et al. (2014), Christensen et al. (2014) find that *CAudM* disclosures reduce nonprofessional investors' willingness to invest in a company. Emerging research also reveals that *CAudM* disclosures influence nonprofessional investors' confidence in financial statements, nonprofessional investors' and jurors' perceptions of auditor responsibility/ liability, and jurors' assessments of auditor negligence (e.g., Backof, Bowlin, and Goodson 2014; Kachelmeier et al. 2014; Brasel, Doxey, Grenier, and Reffett 2016; Gimbar, Hansen, and Ozlanski 2016).⁵

However, two studies that examine market reactions to expanded audit report disclosures in the U.K. provide mixed evidence regarding the joint informativeness of *CacctM* disclosures

⁴ For example, auditors cannot provide *CAudM* disclosures about the *auditing implications* of material measurement uncertainty in an estimate without also indicating that material measurement uncertainty *exists* in the estimate.

⁵ Notably, these studies demonstrate that users view information in *CAudMs* as “bad news” about the underlying accounting issue, which both management and auditors can communicate credibly (Skinner 1994). Additionally, the operationalization of management disclosure and auditor disclosure in the current study (i.e., each treatment is presented on its own separate screen in Qualtrics) creates nearly equivalent salience between these two treatments. These features of our experimental design control for source credibility and salience across the management disclosure and auditor disclosure treatments.

(i.e., first-order information) and *CAudM* disclosures (i.e., second-order information). Reid, Carcello, Li, and Neal (2015) find that the expanded disclosures in these reports incrementally reduce information asymmetry (i.e., increased abnormal trading volume, especially for companies with weaker information environments). Lennox et al. (2015) similarly find that information in expanded U.K. audit reports reliably reflects financial reporting risks (e.g., measurement uncertainty). However, they do not find these expanded audit report disclosures to be incrementally informative to the disclosures already contained in annual reports; they also report insignificant market reactions to these expanded disclosures. Collectively, these studies suggest that while users seem to understand information in proposed *CAudM* disclosures, they experience difficulty weighting second-order information in their valuation judgments.

Based upon this discussion, we expect that both *CacctM* disclosures and *CAudM* disclosures will communicate first-order information about material measurement uncertainty (i.e., whereas *CacctM* disclosures provide this information directly, *CAudM* disclosures incidentally indicate this information exists). We further expect that users will weight first-order information in their valuation judgments similarly, regardless of whether they receive it through a *CacctM* disclosure or fully-narrative *CAudM* disclosure. We also expect that users will not weight second-order information when *CAudM* disclosures present it in a fully-narrative format (i.e., the only information that users will weight from fully-narrative *CAudM* disclosures is first-order information about the existence of the underlying issue). We therefore expect that, fully-narrative *CAudM* disclosures will not incrementally influence users' valuation judgments when management provides supplemental *CacctM* disclosures. Figure 1 illustrates these expectations.

INSERT FIGURE 1 HERE

In Figure 1, Point A represents the situation where management does not provide a supplemental *CacctM* disclosure and the audit report does not provide a *CAudM* disclosure. In

this situation, we predict users will assess a P/E multiple of n , which reflects the perceived firm value in the absence of both first-order and second-order information about material measurement uncertainty. At Point B, management provides a supplemental *CAcctM* disclosure, but the auditor does not provide a *CAudM* disclosure. Here, we predict users will assess a P/E multiple of $n - x$, where x represents the discount attributable to first-order information about material measurement uncertainty. At Point C, the auditor provides a fully-narrative *CAudM* disclosure, but management does not provide a supplemental *CAcctM* disclosure. Here, we predict users will also assess a P/E multiple of $n - x$, as they will weight the first-order information conveyed (incidentally) in the *CAudM* disclosure, but not the second-order information. At Point D management provides a supplemental *CAcctM* disclosure and the auditor provides a fully-narrative *CAudM* disclosure. Here, we predict that users will still only weight first-order information in their valuation judgments, resulting in a P/E assessment of $n - x$. This leads to our first hypothesis:

H1: Nonprofessional investors will weight fully-narrative *CAudM* disclosures and supplemental *CAcctM* disclosures as substitutes in their valuation judgments.

Linking this theoretical discussion to the Heineken example in Appendix C, H1 predicts that users will treat the key audit matter disclosure in the Deloitte audit report as a substitute for robust supplemental *CAcctM* disclosures from Heineken management when making valuation judgments (Heineken management did not provide such disclosures in the annual report). The last sentence of the key audit matter in the Heineken audit report includes second-order information that proposed *CAudM* disclosures would require (see PCAOB 2016): “As a response to this risk, we performed, amongst others, substantive procedures on the Company’s calculation of the returnable packaging liability, focusing on the valuation and completeness of the liability”

(Heineken 2015, 143). In communicating this second-order information, Deloitte's disclosure also incidentally reveals that first-order information about measurement uncertainty exists.

Theory and Research on Presentation Format

Research reveals that financial statement format affects users' judgments. For example, Maines and McDaniel (2000) find that users' weighting of the volatility of unrealized gains varies depending on the format of the financial statement where the gains are reported. Clor-Proell et al. (2014) find nonprofessional investors better decipher the reliability implications of measurement subjectivity when fair value gains appear in a separate column in the income statement. They further find that reliability judgments partially mediate the effect of this increased salience on valuation judgments. Research also reports that users place relatively greater weight on recognized versus disclosed amounts in their valuation judgments (e.g., Davis-Friday et al. 1999; Ahmed, Kilic, and Lobo 2006).⁶ We extend this research by examining whether visual cues in auditor reports influence the way nonprofessional investors weight disclosed information about material measurement uncertainty in valuation judgments.

Research in psychology consistently demonstrates that visual cues orient attention to stimuli (see, e.g., Posner 1980; Posner and Cohen 1984). This suggests auditors can use visual cues to draw users' attention to financial statement amounts when the audit report contains second-order information about those amounts. In order to weight this second-order information, users must store the information in working memory while they analyze the related amounts and disclosures in the financial statements and footnotes. Research demonstrates limitations of working memory (see, e.g., Baddeley and Hitch 1974; Luck and Vogel 1997) and suggests that higher working memory loads interfere with information processing (e.g., de Fockert, Rees,

⁶ Contemporaneous research also finds that visual representations help auditors themselves to understand complex estimates (Backof, Carpenter, and Thayer 2015) and accounting firms encourage the use of visualization to interpret data (e.g., Davenport 2013; KPMG 2015).

Frith, and Lavie 2001). Visual cues that identify specific financial statement amounts eliminate the need for users to remember which amounts relate to second-order information, thereby reducing the volume of information of users must hold in working memory when analyzing financial statements. Collectively, this suggests that visual cues will both orient users' attention to specific amounts and reduce the cognitive costs that users must incur to incorporate the related second-order information in their valuation judgments (see, e.g., Maines and McDaniel 2000).

AU 634, *Letters for Underwriters and Certain Other Requesting Parties*, describes visual cues available for auditors to use when reporting procedures and results in “comfort letters” (PCAOB 2003, par. 58). This standard specifically allows auditors to place labels adjacent to amounts on copies of financial reports (e.g., 10-Ks, 10-Qs, and prospectuses) that indicate second-order information about the respective amounts. Under this format, auditors use the body of the comfort letter to define “tick-marks” that indicate the results of procedures applied to reported amounts. Auditors then write or type these tick-marks directly on copies of financial reports (i.e., adjacent to the respective amounts) and attach these copies to the comfort letter (see an example in Appendix A).⁷ We refer to this practice as auditor visual disclosure.

Tick marks on the face of the financial statements provide visual cues about second-order information in the auditor's report regarding the respective amounts (see, e.g., Lipe 1998). Following Maines and McDaniel (2000), we expect these visual cues to aggregate second-order information with the respective amounts and thereby facilitate users' weighting of this information in their valuation judgments. Additionally, research shows that users view first-order information about material measurement uncertainty as “bad news” for investors (e.g., Diamond and Verrecchia 1991; Song et al. 2010). Research also suggests that many user groups view second-order information in *CAudM* disclosures as “bad news” for investors (e.g., Backof et al.

⁷ Copies of financial reports with tick-marks attached to comfort letters are referred to as “circle-ups” in practice.

2014; Christensen et al. 2014; Kachelmeier et al. 2014; Brasel et al. 2016). Following this, our second hypothesis predicts second-order information will have a stronger effect on users' valuation judgments in the presence of visual cues (i.e., auditor visual disclosure) than in the absence of these cues (i.e., auditor narrative disclosure):

H2: Visual cues facilitate nonprofessional investors' use of second-order information about material measurement uncertainty in valuation judgments.

In Figure 1, Point E represents the situation where the auditor's report provides a *CAudM* disclosure with visual cues and management does not provide a supplemental *CActM* disclosure. In this situation, we predict that users will assess a P/E multiple of $n - x - y$, where y represents the discount attributable to second-order information when management does not provide supplemental *CActM* disclosures. Linking this theoretical discussion to the Heineken example in Appendix C, the Deloitte report does not provide visual cues and Heineken management does not provide supplemental disclosures. H2 predicts that if Deloitte provides visual cues in the audit report, then nonprofessional investors will weight the second-order information in the key audit matter disclosure in their valuation judgments and incrementally reduce their assessments of firm value.

Our third hypothesis extends H2 and predicts that nonprofessional investors will weight first-order information differently in their valuation judgments when they also weight second-order information in these judgments. Consistent with market signaling theory (e.g., Spence 1973), Healy and Palepu (1993) suggest that management can mitigate threats to the credibility of financial reports by providing expanded disclosures. Thus, if auditor disclosures threaten the credibility of reported amounts, then managers can mitigate users' concerns by voluntarily providing robust supplemental disclosures. However, if auditor disclosures threaten the credibility of reported amounts and management provides only limited disclosures that do not

mitigate users' concerns, then users will weight these credibility threats in their valuation judgments (e.g., Holthausen and Watts 2001). Following this, we expect that when users weight second-order information in their valuation decisions, they will take less (more) price protection in this second-order information when management voluntarily provides (does not provide) robust supplemental disclosures.

Research consistently demonstrates that users attend to negative information in audit reports (e.g., Libby 1979; Schneider and Church 2008; Shelton and Whittington 2008). This suggests that second-order information about material measurement uncertainty will threaten the credibility of the related amounts. In H2, we predict that visual cues will facilitate nonprofessional investors' use of second-order information about material measurement uncertainty. Following this discussion, our third hypothesis predicts the following:

H3: Robust supplemental management disclosures will mitigate the predicted negative valuation effects of second-order information that is accompanied by visual cues.

In Figure 1, Point F represents the situation where the auditor's report provides a $CAudM$ disclosure with visual cues and management provides a supplemental $CAcctM$ disclosure. In this situation, we predict that users will assess a P/E multiple of $n - x - z$, where z represents the discount attributable to second-order information when management provides robust supplemental $CAcctM$ disclosures. That is, z represents (1) the discount attributable to the second-order information about material measurement uncertainty (i.e., k) plus (2) the premium attributable to the signaling effect of robust supplemental $CAcctM$ disclosures (i.e., t) (e.g., Spence 1973; Healy and Palepu 1993). Thus, $z = k + t$. Additionally, y represents (1) the discount k plus (2) the discount attributable to the lack of supplemental $CAcctM$ disclosures (i.e., s). Thus, $y = k + s$. H3 predicts that the premium, t , is numerically greater than the discount, s (i.e., $z > y$).

H3 has hypothetical implications in the context of the Heineken example in Appendix C. Recall that the Deloitte report does not provide visual cues and Heineken management does not provide supplemental disclosures. H2 predicts that if Deloitte provides visual cues in the audit report, nonprofessional investors will weight the second-order information (i.e., as well as the first-order information) in their valuation judgments. H3 predicts that Heineken management can mitigate the predicted effect of this second-order information on these valuation judgments by providing robust supplemental disclosures.

III. EXPERIMENTAL METHOD

Participants

Participants are 102 Masters of Business Administration (MBA) students from a required financial accounting course at a large public university in the United States. Participants completed the experiment near the end of the course after covering standard financial statement analysis material.⁸ All participants received course credit and cash compensation of \$20 for completing the experiment. We present descriptive statistics for participants' education, work, and investing experience in Table 1. Participants have a mean of 5.86 years of work experience, have taken 1.84 accounting courses and 1.70 finance courses, and are 28.91 years old. Participants have a mean of 3.35 years of investing experience and a mean GMAT score of 643.02. Forty-seven percent of participants have made personal investments in the stock market. Sixty-five percent of participants had previously evaluated a company's performance using

⁸ Participants had the requisite coursework necessary to qualify as proxies for nonprofessional investors (e.g., Clor-Proell et al. 2014; Elliott, Hodge, Kennedy, and Pronk 2007). We obtained institutional review approval for the study and gave all participants the option to complete an alternative task (two students chose this option). The faculty member that instructed this course had no other involvement with this study.

financial statements. Thirty percent of participants are female and 86 percent of participants speak English at home.⁹

INSERT TABLE 1 HERE

Materials and Procedures

The instrument has five parts: instructions (Part I), pre-experiment information (Part II), company information (Part III), experimental manipulations (Part IV), and manipulation/attention checks and demographics (Part V). See Appendix D for experimental materials.¹⁰

Figure 2 summarizes the information provided, manipulations introduced, and data collected in each part. Participants must complete these five parts in order and cannot return back to a completed part. However, participants can navigate between screens within each of five parts. Part II provides participants with a brief overview of the fair value hierarchy in ASC 820 and lists representative examples of measurement inputs for each level in the hierarchy. Part II also provides definitions and formulas for the financial statement ratios presented in the experiment.

INSERT FIGURE 2 HERE

Part III provides information from the Investor Relations department of Trans-Global, Ltd, a publicly-traded mid-sized specialty manufacturer of tools. This information includes a company description, a press release for its 2011 annual results, comparative industry information, the company's 2011 income statement, and fair value disclosures from the company's 2011 earnings release. The information indicates the company is generally performing well and compares favorably to industry averages. Additionally, the income statement indicates the company earned net income of approximately \$182 million, which

⁹ We use a series of *t*-tests for each of these descriptive variables to test the random assignment performed by Qualtrics. We find differences in some of these variables across cells (i.e., investing experience, personal investments in the stock market, evaluating a company's performance using financial statements, and full-time work experience). We discuss this further in the Methods section; our results are robust to controlling for these variables.

¹⁰ We adapted the instrument used in Clor-Proell et al. (2014) and thank those authors for sharing the instrument.

includes an investment gain of \$60.4 million. The fair value disclosures contain boilerplate descriptions of the input levels in the fair value hierarchy and specifically state: “The entire amount of the \$60,400,000 investment gain relates to Level 3 investment securities”.

Part III also presents a series of six questions. The first question solicits participants’ assessments of Trans-Global’s P/E multiple using a continuous scale from 10 to 20.¹¹ The next two questions ask participants to rate Trans-Global’s potential for future earnings growth and the risk of an investment in Trans-Global’s common stock, respectively, on a continuous scale from 1 to 10. The following three questions ask participants to rate the degrees of relevance, reliability, and faithful representation, respectively, of Trans-Global’s financial statements, on a continuous scale from 1 to 10.¹² We use these pre-treatment measurements to control for idiosyncratic differences in post-treatment measurements of our dependent variables in Part IV.

Part IV contains all experimental manipulations.¹³ In all cells, we provide information from the auditor’s report that indicates the auditor issued an unqualified opinion (see Appendix D, Panels A and B). We also provide all participants with the company’s fair value footnote, which contains required ASC 820 disclosures (Appendix D, Panel C, Section 1). Participants that receive the management disclosure treatment view information that describes the material measurement uncertainty inherent in the company’s Level 3 Trading Securities and the related gain (Appendix D, Panel D).¹⁴

¹¹ Following Clor-Proell et al. (2014) and Barton and Mercer (2005), the instrument conveys that (1) companies in this industry have historically had trailing P/E multiples ranging from 10 to 20, (2) a P/E multiple takes into account company and economy-wide factors, and (3) all else equal, higher P/E multiples result in higher stock prices.

¹² In these questions, we provide brief definitions of relevance and faithful representation derived from the joint FASB/International Accounting Standards Board (IASB) conceptual framework and a brief definition of reliability derived from the superseded FASB conceptual framework.

¹³ We counter-balance manipulations to control for ordering effects.

¹⁴ SEC guidance directs companies to “consider enhanced discussion and analysis of... critical accounting estimates and assumptions that... provides greater insight into the quality and variability of information regarding financial condition and operating performance” (SEC 2003). We adapted the wording for this manipulation from *CACctM* discussions about Level 3 fair value measurements using annual reports for various public and private entities. Based on our own review of various *CACctM* disclosures, the wording in these disclosures was particularly

We also administer the two auditor disclosure treatments in Part IV: auditor narrative disclosure and auditor visual disclosure. The information communicated in both of these treatments is identical. Both of these treatments indicate that the auditor’s report contains a modification related to the reasonable assurance obtained over the company’s “Investment gains” and “Level 3 trading securities”. Both treatments indicate that the auditors audited these amounts by testing the processes that management used in developing the estimate. Both treatments also indicate that the auditors obtained reasonable assurance over a range of acceptable values and, although the reported amounts fall within a range of acceptable values, that range contains amounts that are materially different than the reported amount. Neither treatment mentions where the recorded point estimate falls within the acceptable range.

The auditor narrative disclosure and auditor visual disclosure treatments differ only in terms of presentation format. While auditor visual disclosure provides visual cues that identify the amounts in the financial statements to which this second-order information relates, auditor narrative disclosure does not. The auditor narrative disclosure treatment provides this second-order information and identifies the related amounts narratively in the body of the audit opinion (see Appendix D, Panel E). The auditor visual disclosure treatment includes a marked-up copy of the annual report as an attachment to the audit report (Appendix D, Panel F). In this marked-up copy, the auditor has labeled each amount with a letter (i.e., either an “A” or a “B”). The label “A” indicates the audit report does not contain specific second-order information about the respective amount. The label “B” indicates that the second-order information about material

transparent and forthcoming about (1) the judgment and uncertainty inherent in predicting future events, (2) the related measurement uncertainty and sensitivity of measurements to changes in assumptions, and (3) the possibility that estimates could change materially in the near-term. See Appendix B for examples of management disclosures about material measurement uncertainty.

measurement uncertainty in the body of the audit opinion relates to the respective amount. “B” appears next to the \$60.4 million investment gain; “A” appears next to all other amounts.¹⁵

We designed both auditor disclosure treatments to operationalize a *CAudM* disclosure in accordance with the PCAOB’s proposed auditing standard for the auditor’s reporting model (PCAOB 2016). Both treatments fulfill the proposed requirements that *CAudM* disclosures: (1) identify the *CAudM*, (2) describe the principal considerations that led the auditor to determine the matter is a *CAudM*, (3) describe how the *CAudM* was addressed in the audit, and (4) refer to the relevant financial statement accounts and disclosures that relate to the *CAudM* (see PCAOB 2016, A1-9). The auditor narrative disclosure and auditor visual disclosure treatments differ only with respect to requirement (4).

Following the experimental manipulations in Part IV, participants complete the same six questions they responded to in Part III. Following Clor-Proell et al. (2014), we use participants’ assessed P/E multiples from Part IV (i.e., post-treatment measures) as our dependent variable and control for participants’ assessed P/E multiples from Part III (i.e., pre-treatment measures) in our models. Participants then complete an attention check question and a series of manipulation check questions in Part V. Following the experiment, we collect demographic information.

IV. RESULTS

Attention and Manipulation Checks

We include two questions to determine whether participants attended to the material measurement uncertainty inherent in the \$60.4 million investment gain. Four of the 102 participants incorrectly answered a true/false question about whether the investment gain reflects

¹⁵ Providing participants with the marked-up income statement and marked-up summary of fair value disclosures in the auditor visual disclosure treatment re-exposed those participants to financial information. We therefore provided non-marked-up copies of both the income statement and the fair value disclosures to all participants that did not receive the auditor visual disclosure treatment to avoid a potential procedural confound.

significant management assumptions; we exclude these responses from the analyses. We also ask participants to rate the precision of the investment gain on a scale from one (“Not Precise at All”) to seven (“Very Precise”). The mean response of 2.80 indicates that participants attended to the material measurement uncertainty construct.¹⁶

We also include closed-ended and open-ended manipulation check questions. In closed-ended questions, 18 of the remaining 98 did not correctly indicate the specific mechanism(s) used to communicate material measurement uncertainty.¹⁷ We use open-ended questions to allow participants to demonstrate an understanding of how management and the auditor communicated material measurement uncertainty. Twelve of the 18 participants that missed a closed-ended question indicated a correct understanding of the respective disclosure mechanisms in the related open-ended question.¹⁸ We exclude responses from the six participants who failed both the open- and closed- ended manipulation check questions, resulting in a final sample of 92.¹⁹

Hypothesis Tests

We present descriptive statistics on P/E judgments in Table 2. Table 3 presents results from our hypothesis-testing 2 X 3 ANCOVA model, which uses post-treatment P/E multiple assessments

¹⁶ Measurement uncertainty is a component of estimation uncertainty, which is characterized by the distinct constructs of subjectivity and imprecision (e.g., Nelson, Smith, and Palmrose 2005; Bratten et al. 2013; Griffin 2014). Our attention check results show participants attended to both constructs.

¹⁷ Four participants that did not receive either of the auditor disclosure treatments failed to indicate that the auditor’s report contained no modifications to the standard wording. Four participants that received the management disclosure treatment failed to indicate that management communicated the material measurement uncertainty associated with the investment gain. Eight (two) participants that received the auditor narrative disclosure (auditor visual disclosure) treatment failed to indicate that the audit report communicated the material measurement uncertainty through an explanatory paragraph (labels in copies of financial statements).

¹⁸ A second-year PhD student not associated with this project made these determinations. This individual was blind to the research questions and to experimental conditions. This individual has twelve years of public accounting experience and held the title of “Senior Manager” at a Big Four firm prior to entering a PhD program.

¹⁹ Inferences are unchanged when we exclude all 18 participants that answered one or more closed-ended manipulation check questions incorrectly.

as the dependent variable and pre-treatment P/E multiple assessments as a covariate.²⁰ We present graphical illustrations of our results in Figure 3.

With respect to the random assignment performed by Qualtrics, we perform a series of *t*-tests to examine whether means of any descriptive variables differ between cells. Compared to participants in other conditions, participants that receive only the auditor visual disclosure treatment (i.e., Cell “E” in Table 2) less commonly made personal investments in the stock market and have less investing experience, less experience evaluating a company by analyzing its financial statements, and less full-time work experience. Similarly, participants that receive only the auditor narrative disclosure treatment (i.e., Cell “C”) more commonly made personal investments in the stock market and have more investing experience and more experience evaluating a company by analyzing its financial statements. Our results are similar when we control for all possible combinations of these four variables and only full-time work experience approaches marginal significance when we include it in our 2 X 3 ANCOVA model ($F = 2.58, p = 0.11$, two-tailed). We therefore control full-time work experience in our hypothesis-tests.²¹

INSERT TABLES 2 AND 3 HERE

In our 2 X 3 hypothesis-testing ANCOVA model, we find a significant interaction between management disclosure and auditor communication ($F = 4.12, p < 0.01$, one-tailed). This is consistent with our predictions of conditional effects in H1, H2, and H3 and indicates that main effects in this model cannot be sensibly interpreted (Keppel and Wickens 2004, 197). We test H1 using the planned contrast in Table 3, Panel B (i.e., Cell A > [Cell B + Cell C + Cell D]/3). Consistent with H1, this contrast is significant ($F = 7.50, p < 0.01$). Additional pairwise

²⁰ This ANCOVA design enables us to use each participant as his/her own control when analyzing treatment effects (i.e., a pretest posttest design). Clor-Proell et al. (2014) note that controlling for pre-treatment measures is preferable to analyzing changes. We obtain similar results when analyzing changes in participants’ P/E multiple assessments.

²¹ Results are essentially the same, and inferences are unchanged, when we exclude this control from the model.

comparisons show that the effect of auditor narrative disclosure is negative when management disclosure is absent ($F = 4.05, p = 0.02$, one-tailed) and the effect of management disclosure is negative when auditor narrative disclosure is absent ($F = 6.07, p < 0.01$, one-tailed). Further consistent with H1, pairwise comparisons indicate that the effect of auditor narrative disclosure is insignificant when management disclosure is present ($F = 0.02, p = 0.89$, two-tailed) and that the effect of management disclosure is insignificant when auditor narrative disclosure is present ($F = 0.20, p = 0.65$, two-tailed).²² This pattern of results suggests a substitution effect, whereby fully-narrative *CAudM* disclosures do not influence nonprofessional investors' valuation judgments when management provides robust supplemental *CacctM* disclosures.

H2 predicts that visual cues will facilitate nonprofessional investors' weighting of second-order information in valuation decisions. Research shows that several user groups consider second-order information in *CAudM* disclosures to be "bad news" (e.g., Backof et al. 2014; Christensen et al. 2014; Kachelmeier et al. 2014; Brasel et al. 2016). Therefore, in conditions where management disclosure is absent, we expect participants who weight second-order information to assess lower P/E multiples than those who do not. We test this prediction using the planned pairwise comparisons in Table 3, Panel C. Consistent with H2, participants assess marginally lower P/E multiples when only auditor visual disclosure is present (Cell E) than when only auditor narrative disclosure is present (Cell C) ($F = 2.30, p = 0.07$, one-tailed). P/E multiple assessments in Cell E are also lower than those across Cell C and Cell D (i.e., both conditions with the auditor narrative disclosure treatment) ($F = 97.53, p < 0.01$). Collectively, our H1 and H2 results suggest that while second-order information is value-relevant,

²² We also use the "two one-way significance tests" approach to test whether adjusted P/E multiple assessments in Cell D are statistically equivalent to those in Cell C and Cell B. Consistent with H1, mean adjusted P/E multiple assessment in Cell D are lower than the upper limit and higher than the lower limit of the 95% confidence interval of the adjusted mean for both Cell B ($F = 3.56, p = 0.03$ and $F = 2.38, p = 0.06$, respectively) and Cell C ($F = 6.44, p = 0.01$ and $F = 1.67, p = 0.10$, respectively) (see Table 3, Panel B; all p -values are one-tailed).

nonprofessional investors do not weight this information when it is presented in a fully-narrative format. Additionally, visual cues facilitate this weighting.

INSERT TABLE 3 HERE

Our third hypothesis predicts that participants will incorporate management disclosure in their valuation judgments differently under an auditor narrative disclosure regime versus an auditor visual disclosure regime. Following market signaling theory (e.g., Spence 1973; Healy and Palepu 1993), we predict that robust supplemental first-order information (i.e., in the management disclosure treatment) will mitigate potential negative effects of second-order information (i.e., in the auditor communication treatments) on P/E multiple assessments. Following H1 and H2, we further predict the mitigating effect of management disclosure will exist in an auditor visual disclosure regime, but not in an auditor narrative disclosure regime. We test H3 using the planned pairwise comparisons in Table 3, Panel D. Consistent with H3, participants assess P/E multiples higher in response to the management disclosure treatment when auditor visual disclosure is present (i.e., Cell F > Cell E; $F = 2.80, p < 0.05$), but not when auditor narrative disclosure is present (i.e., Cell C vs. Cell D; $F = 0.20, p = 0.65$). Further, the effect of management disclosure is different (i.e., less negative or more positive) in the auditor visual disclosure regime than in the auditor narrative disclosure regime (i.e., $[\text{Cell F} - \text{Cell E}] > [\text{Cell D} - \text{Cell C}]$; $F = 2.30, p = 0.07$). If managers attend to this signaling potential, these results suggest that visual cues in auditor reports may promote transparency around material measurement uncertainty through enhanced supplemental *CActM* disclosures.

INSERT FIGURE 3 HERE

Additional Analyses

While we ran our experiment using a fully factorial 2 X 2 X 2 design, we omit from our empirical analyses certain cells that reflect situations we would not expect to see in practice.

Including cells where auditor narrative disclosure and auditor visual disclosure interact introduces noise and reduces model power. However, results using a fully factorial 2 X 2 X 2 ANCOVA model (untabulated) yield inferences that are identical to those from our hypothesis-testing model. We further analyze our data using a two separate 2 X 2 ANCOVA models to test the respective auditor narrative disclosure and auditor visual disclosure regimes. Results from a 2 X 2 ANCOVA with management disclosure (absent versus present) and auditor narrative disclosure (absent versus present) yield the same inferences with respect to H1 as our hypothesis-testing model. Additionally, comparing results from this 2 X 2 ANCOVA model with results from a 2 X 2 ANCOVA model with management disclosure and auditor visual disclosure (absent versus present) yields the same inferences with respect to H3 as our hypothesis-testing model.

V. CONCLUSION

We jointly examine the value relevance of first-order and second-order information about material measurement uncertainty. We also examine whether visual cues in auditor reports influence the way nonprofessional investors weight both first-order and second-order information about material measurement uncertainty in their valuation judgments. Our results reveal that robust supplemental management disclosures and fully-narrative auditor disclosures are substitutes in communicating information about underlying material measurement uncertainty to nonprofessional investors. This is consistent with research that does not find an effect of auditor disclosures on security prices (e.g., Lennox et al. 2015) and suggests that auditor disclosures become more important when management does not provide robust supplemental disclosures. Our results also reveal that nonprofessional investors react more strongly to second-order information when auditor disclosures provide visual cues. Collectively, these results suggest that nonprofessional investors weight second-order information when auditor disclosures include visual cues, but not when audit reports present disclosures in a fully-narrative format.

Our results also reveal that visual cues change the way nonprofessional investors weight both first-order and second-order information about material measurement uncertainty. Consistent with market signaling theory (e.g., Spence 1973), nonprofessional investors assess *higher* P/E multiples in response to robust supplemental management disclosures when audit reports communicate second-order information using visual cues. These results suggest that visual cues in auditor reports will incentivize managers to provide robust supplemental *CAcctM* disclosures. Future research might examine how managers respond to these incentives.

Our findings incrementally contribute to prior research on three dimensions. First, we jointly examine the value relevance of first-order and second-order information about material measurement uncertainty. We draw the critical distinction between first-order *CAcctM* information and second-order *CAudM* information. We also clarify that both *CAcctM* disclosures and *CAudM* disclosures provide *different* information about the *same* underlying issues. Second, we demonstrate the importance of presentation format and visual cues in communicating second-order information about material measurement uncertainty. Collectively, our findings suggest that the valuation implications of *CAudM* disclosures are conditional on the presentation format of these disclosures and the quality of management's *CAcctM* disclosures.

Third, we identify visual cues currently used by auditors in practice that appear to facilitate users' weighting of disclosed information. In doing so, we contribute to research on recognition versus disclosure (e.g., Bernard and Schipper 1994; Davis-Friday et al. 1999; Hirshleifer and Teoh 2003; Davis-Friday et al. 2004; Ahmed et al. 2006; Müller, Reidl, and Sellhorn 2015). Namely, our findings suggest visual cues can help bridge the documented gap in the decision usefulness of recognized versus disclosed accounting information.

Our findings have interesting implications for regulation, practice, and future research. Visual cues can be readily used in the context of the proposed PCAOB requirement that *CAudM*

disclosures “identify the relevant financial statement accounts and disclosures that relate to critical auditing matters” (PCAOB 2016, A1-9). *CAudM* disclosures can relate to many amounts in different places throughout an annual report. Our findings suggest that effective implementation of this requirement will directly influence whether users can process the second-order information in these disclosures. The PCAOB has not yet addressed the potential implementation of this proposed requirement; our findings can inform conversations among financial reporting stakeholders about potential upcoming implementation decisions.

Additionally, the FASB and SEC allow issuers significant discretion in implementing disclosure practices related to material measurement uncertainty (SEC 2003; FASB 2010a). Research, in turn, suggests significant (and sometimes strategic) variation exists in these disclosure practices (e.g., Ettredge et al. 2011; Ernst and Young 2014). Our findings highlight the importance of robust supplemental disclosures in reducing information asymmetry around material measurement uncertainty. Our findings also imply that managers can use robust supplemental disclosures to mitigate potentially detrimental valuation effects of *CAudM* disclosures. If managers attend to this signaling potential, visual cues in auditor reports may promote transparency from management. Future research can continue to examine how changes to the auditors’ reporting model might influence managers’ discretionary disclosure practices. Future research might also examine management’s use of visual cues to link recognized amounts to disclosed information.

Our experimental materials reflect two design choices that we made to maximize consistency with practice and facilitate valid theoretical inferences using our sample of MBA student participants. First, based on feedback during pilot testing, we used the following wording to introduce the auditor narrative disclosure and auditor visual disclosure treatments “The auditor’s report contains the following **one modification** to the standard wording of a **clean**

opinion” (emphasis in instrument). It is possible that some participants incorrectly inferred that the auditor issued a qualified opinion. However, we would expect participants that draw such an inference to take incremental price protection and we do not observe this response to either treatment in our results. Second, due to the format in the auditor narrative disclosure and auditor visual disclosure treatments, the ordering of information differs, by necessity, between these treatments. To control for potential recency effects, we designed our instrument such that the last piece of information that we convey in both conditions is the amounts that relate (and do not relate) to the *CAudM*. We communicate this information narratively (visually) in the auditor narrative disclosure (auditor visual disclosure) treatment. Additionally, it is difficult to predict whether and how primacy or recency effects would influence our results.

Our study is subject to certain limitations. We explore only specific types of management and auditor disclosures and only one level of material measurement uncertainty. Unexplored levels of each of these three independent variables could have a different effect on investor decision making than those we document in the present study. We focus on those possibilities that seem most feasible given the current state of financial accounting and auditor regulation. We also acknowledge that the effects of our treatments likely depend on the significance of the account in question. Future research can examine management and auditor disclosures related to ranges of acceptable values for estimates that reflect material measurement uncertainty. Future research can also examine whether the effects of auditor disclosures differ for aggressive versus conservative (or neutral) estimates. Further, this study measures investors’ reaction to a novel new disclosure (*CAudMs*) and novel visual cues. It is possible that the effects we detect will change over repeated exposures that act to reduce this novelty.

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APPENDIX A
Excerpts from a Recent Letter to an Underwriter

Note: Below are excerpts from an actual recent Agreed Upon Procedures Letter issued by a large international accounting firm. These excerpts illustrate auditor visual disclosure. Omitted wording is indicated by an “...” and redacted identifying information has been replaced with a string of “X”s.

Panel A: Wording in Body of Comfort Letter

“...We have not audited any financial statements of XXXXX as of any date or for any period subsequent to XXX 3X, 20XX. Although we have conducted an audit for the year ended XXX 3X, 20XX, the purpose (and therefore the scope) of the audit was to enable us to express our opinion on the consolidated financial statements as of XXX 3X, 20XX and for the year then ended, but not on the consolidated financial statements for any interim period within that year. Therefore, we are unable to and do not express any opinion on the unaudited consolidated financial information as of and for the four-month periods ended XXX 3X, 20XX and 20XX, included in the Preliminary Official Statement, or on the financial position, results of operations, or cash flows as of any date or for any period subsequent to XXX 3X, 20XX...”

At your request, we have read the items identified by you on the attached pages of the Preliminary Offering Statement and have performed the procedures indicated in Attachment A, which were applied as indicated with respect to the letters explained therein...

Attachment A to the Letter Dated XXX XX, 20XX
XXXXX, Inc.

In all instances where we compared amounts, percentages or ratios and found such amounts, percentages or ratios to be in agreement, such agreement is after rounding or truncating as deemed appropriate by XXXXX, Inc. and Affiliates (“XXXXX”). In addition, we make no comment as to reasons for any increase or decrease, or as to the specific components of the amount or percentage or the definitions of certain terms.

Letter key to certain procedures:

- (A) Compared or agreed to amount or amount derived from the audited consolidated financial statements of XXXXX as of XXX 3X, 20XX and 20XX, and for the years then ended... and found them to be in agreement after giving effect to rounding, if applicable...
- (B) Compared the amount to XXXXX’s internally generated accounting records and related schedules and found it to be in agreement after giving effect to rounding, if applicable.
- (C) Recalculated based on amounts in XXXXX’s audited consolidated financial statements noted in (A) above and found the amounts to be in agreement after giving effect to rounding, if applicable. However, we make no comment with respect to any indicated causal relationship.
- (D) Recalculated based on amounts from XXXXX’s internally generated accounting records and related schedules and found them to be in agreement after giving effect to rounding, if applicable. However, we make no representation as to the completeness of these analyses or to any indicated causal relationships...”

APPENDIX A
Excerpts from a Recent Letter to an Underwriter (continued)

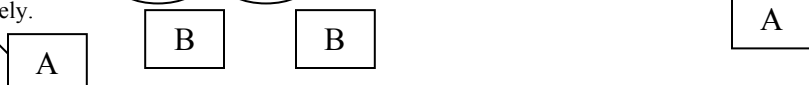
Panel B: Excerpts from Preliminary Offering Statement referenced in letter in Panel A (“Circle-ups”)

Note: The Preliminary Offering Statement contains several sections. The excerpts below are from the “Selected Statistical and Financial Information” section and the “Management’s Discussion and Analysis” section.

SELECTED STATISTICAL AND FINANCIAL INFORMATION
XXX, INC. AND AFFILIATES
SUMMARY CONSOLIDATED STATEMENTS OF OPERATIONS ⁽¹⁾

	(000’s Omitted)			Four Months Ended	
	Fiscal Year Ended XX 3X,			XX 3X,	
	20XX	20XX	20XX	20XX	20XX
NET XXX XXX REVENUE	\$1,060,811	\$1,080,368	\$1,114,102	\$372,783	\$381,259
OTHER OPERATING REVENUE	<u>44,505</u>	<u>44,967</u>	<u>51,107</u>	<u>16,334</u>	<u>17,521</u>
TOTAL REVENUE	1,105,316	1,125,335	1,165,209	389,117	398,780
EXPENSES:					
XXX	439,368	448,370	454,514	151,552	156,674
XXX	139,931	138,261	125,637	46,242	46,174
XXX	91,574	94,231	94,377	31,540	30,437
XXX	41,647	42,655	42,222	14,525	13,465
XXX	63,170	63,407	60,290	20,127	19,704
XXX	17,124	15,866	15,575	5,270	5,159
XXX	39,017	37,480	36,225	13,086	14,872
Other Expenses	<u>228,142</u>	<u>222,750</u>	<u>244,393</u>	<u>84,462</u>	<u>89,564</u>
TOTAL EXPENSES	<u>1,059,973</u>	<u>1,063,020</u>	<u>1,073,233</u>	<u>366,804</u>	<u>376,049</u>
INCOME FROM OPERATIONS	45,343	62,315	91,976	22,313	22,731
NON-OPERATING GAINS (LOSS), NET	<u>13,211</u>	<u>(6,260)</u>	<u>7,694</u>	<u>10,859</u>	<u>4,337</u>
EXCESS OF REVENUE OVER EXPENSES	<u>\$58,554</u>	<u>\$56,055</u>	<u>\$99,670</u>	<u>\$33,172</u>	<u>\$27,068</u>

- (1) Refer to Appendix B for disclosure on the results of the financials had XXX been solely-sponsored on a historical basis for Fiscal 20XX and 20XX.
- (2) Includes interest expense reflected in non-operating gains, net of \$8,038 (20XX), \$8,958 (20XX), \$10,156 (20XX) and \$3,459 and \$4,052 for the four months ended XXX 3X, 20XX and 20XX, respectively.



APPENDIX A
Excerpts from a Recent Letter to an Underwriter (continued)

Panel B (continued): Excerpts from Preliminary Offering Statement referenced in letter in Panel A (“Circle-ups”)

Note: The Preliminary Offering Statement contains several sections. The excerpts below are from the “Selected Statistical and Financial Information” section and the “Management’s Discussion and Analysis” section.

MANAGEMENT’S DISCUSSION AND ANALYSIS

Four Months Ended January 31, 2012

B For the four months ended XXX 3X, 20XX (“Fiscal Period 20XX”), income from operations of \$22.7 million was \$0.4 million better than the prior fiscal year (“Fiscal Period 20XX”). Operating cash flow approximated Fiscal Period 20XX. **D**

B XXXXX at most XXXXX locations were down slightly and, in total, were 1.1% lower than Fiscal Period 20XX. Management had planned for flat XXXXX compared to the prior year. Gross XXXXXX and XXXXX revenue in Fiscal Period 20XX was \$20.0 million higher than Fiscal Period 20XX as a result of increased XXXXX volumes and XXXXX intensity. The XXXXX and XXXXX mix was somewhat higher in Fiscal Period 20XX compared to Fiscal Period 20XX, resulting in an increased XXXXX ratio. This has been a continued trend. Other Operating Revenue was \$1.2 million higher than Fiscal Period 20XX, which was primarily driven by \$1.5 million of revenue recorded in relation to XXXXX payment from XXXXX. **D**

APPENDIX B

Example management disclosures of material measurement uncertainty

Below are excerpts from recent audited annual reports and practitioner guidance that we used in developing the Management Disclosure treatment.

Company A (privately held technology company): Goodwill Footnote

“It is at least reasonably possible that management’s estimate resulting in an impairment not being recorded will change in the near term and the effects of the change could be material to the financial statements.”

Company B (RDK 10/1/2013 10-K): Critical Accounting Policy disclosures in MD&A

“The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions about future events that affect the reported amounts of assets, liabilities, revenues and expenses and the disclosures of contingent assets and liabilities. Future events and their effects cannot be determined with absolute certainty. Therefore, management’s determination of estimates and judgments about the carrying values of assets and liabilities requires the exercise of judgment in the selection and application of assumptions based on various factors including historical experience, current and expected economic conditions and other factors believed to be reasonable under the circumstances. Actual results could differ from those estimates. The Company constantly reviews the relevant, significant factors and makes adjustments where the facts and circumstances dictate.

Management has identified the following accounting policies as the most critical in the preparation of the Company's financial statements because they involve the most difficult, subjective or complex judgments about the effect of matters that are inherently uncertain.”

Guide to annual financial statements - Illustrative disclosures for banks (KPMG 2013): Fair Value Footnote

“For more complex instruments, the Group uses proprietary valuation models, which are usually developed from recognized valuation models. Some or all of the significant inputs into these models may not be observable in the market, and are derived from market prices or rates or are estimated based on assumptions. Examples of instruments involving significant unobservable inputs include certain over-the-counter (OTC) structured derivatives, certain loans and securities for which there is no active market and retained interests in securitizations (as discussed below). Valuation models that employ significant unobservable inputs require a higher degree of management judgment and estimation in the determination of fair value. Management judgment and estimation are usually required for selection of the appropriate valuation model to be used, determination of expected future cash flows on the financial instrument being valued, determination of the probability of counterparty default and prepayments and selection of appropriate discount rates.”

Appendix C
Example of Auditor Disclosure of Material Measurement Uncertainty without
Accompanying Supplemental Management Disclosure

Note: Panel A and Panel B below contain excerpts from the 2015 Heineken N. V. Annual Report (Heineken 2015). Panel A includes all of the first-order information about returnable packaging deposits that management provided in the Annual Report (i.e., only the reported amount of the related liability). Panel B includes the excerpt from Deloitte’s opinion that identifies a “key audit matter” around the valuation of the liability for returnable packaging deposits.

Panel A: Management disclosure of liability (page 114)

31. Trade and other payables

In millions of EUR	Note	2015	2014
Trade payables		2,797	2,339
Accruals and deferred income		1,270	1,211
Taxation and social security contributions		806	802
Returnable packaging deposits		606	580
Interest		131	132
Derivatives		89	104
Dividends		46	45
Other payables		268	320
	32	6,013	5,533

Note: Management does not provide a narrative explanation of these returnable packaging deposits anywhere in the annual report.

Panel B: Auditor disclosure of material measurement uncertainty in liability (page 143)

Returnable packaging – valuation of deposit liability

During the course of business the Company provides returnable packaging to its customers. In most instances the Company collects deposits for returnable packaging. A particular area of judgement is involved in assessing the value of the deposit liability. There is a risk that the assumptions used in the calculation of the liability for returnable packaging are unreasonable, which could result in an incorrect valuation of the liability for returnable packaging. As a response to this risk we performed, amongst others, substantive procedures on the Company’s calculation of the returnable packaging liability, focusing on the valuation and completeness of the deposit liability.

APPENDIX D
Experimental materials

Panel A: Default audit report information

Note: Participants that did not receive either the Auditor Narrative Disclosure or Auditor Visual Disclosure Treatments (i.e., Cell A and Cell B) viewed the following information related to the company’s audit report in Part IV.

**INFORMATION ON THE INDEPENDENT
AUDITOR’S REPORT**

The company’s auditors issued a **clean opinion**¹ on the 2011 and 2010 financial statements and footnotes. The auditor’s report contains **no modification** to the standard wording of a **clean opinion**.

¹ A **clean opinion** is issued when the independent auditor believes that the company’s financial statements are sound; that is, the statements are fairly and appropriately presented, and in accordance with GAAP. A **clean opinion** is the most common type of auditor’s report and is referred to in auditor vernacular as an “**unqualified opinion**.”

Panel B: Audit report information when modifications are present

Note: Participants that received either the Auditor Narrative Disclosure treatment (i.e., Cell C and Cell D) or the Auditor Visual Disclosure treatment (i.e., Cell E and Cell F) viewed a screen with the following information related to the company’s audit report in Part IV.

INFORMATION ON THE INDEPENDENT AUDITOR’S REPORT

The company’s auditors issued a **clean opinion**¹ on the 2011 and 2010 financial statements and footnotes. The auditor’s report contains the following **one modification** to the standard wording of a **clean opinion** (**click ahead to view the modification**):

¹ A **clean opinion** is issued when the independent auditor believes that the company’s financial statements are sound; that is, the statements are fairly and appropriately presented, and in accordance with GAAP. A **clean opinion** is the most common type of auditor’s report and is referred to in auditor vernacular as an “**unqualified opinion**.”

APPENDIX D
Experimental materials (continued)

Panel C: Default annual report information

Section 1: Baseline measurement uncertainty information

Note: Participants that did not receive the Auditor Visual Disclosure treatment viewed this information, exactly as presented below, in Part IV (i.e., Cell A, Cell B, Cell C, and Cell D). Participants that received the Auditor Visual Disclosure treatment viewed this information, as presented in Panel F, Section 3 of this appendix, in Part IV (i.e., Cell E and Cell F). Because the Auditor Visual Disclosure treatment contains this information by design, we also provided this information to participants that did not receive the Auditor Visual Disclosure treatment to avoid an information confound.

The Fair Value Accounting Footnote from TransGlobal's 2011 annual report provides additional information on the "Investment gains" of \$60,400,000 reported in its 2011 income statement. The footnote states the following:

"The Company uses fair value accounting for its trading securities. Fair value is measured based upon observable and unobservable inputs. Observable inputs reflect market data obtained from independent sources, while unobservable inputs reflect the Company's assumptions. These two types of inputs create the following hierarchy:

- Level 1 – Quoted prices for identical instruments in active markets
- Level 2 – Quoted prices for similar instruments in active markets; quoted prices for identical or similar instruments in markets that are not active; and model-derived valuations whose inputs are observable
- Level 3 – Model-derived valuations that reflect the Company's own assumptions and projections"

Additionally, the footnote contains standard disclosures that show the following:

- The entire amount of the \$60,400,000 investment gain relates to "Level 3 investment securities."

APPENDIX D
Experimental materials (continued)

Panel C: Default annual report information (continued)

Section 2: Income statement

Note: Participants that did not receive the Auditor Visual Disclosure treatment viewed this information, exactly as presented below, in Part IV (i.e., Cell A, Cell B, Cell C, and Cell D). Participants that received the Auditor Visual Disclosure treatment viewed this information, as presented in Panel F, Section 3 of this appendix, in Part IV (i.e., Cell E and Cell F). Because the Auditor Visual Disclosure treatment contains this information by design, we also provided this information to participants that did not receive the Auditor Visual Disclosure treatment to avoid an information confound.

<u>SELECTED ANNUAL REPORT INFORMATION</u>	
Below is a copy of the income statement included in the Annual Report (Note : The amounts are identical to those in the Earnings Release in Part A.)	
Trans-Global Exports, Ltd. Statement of Comprehensive Income For the year ended December 31, 2011 (Amounts in thousands except per share data)	
	2011
Net sales	\$2,716,256
Cost of goods sold	1,831,250
Gross profit	885,006
Selling, general & administrative expenses	402,500
Income from operations	482,506
Investment gains	60,400
	542,906
Interest expense	252,378
Income before income taxes	290,528
Income tax	108,571
Net income	181,957
Earnings Per Share	\$1.82
Shares Outstanding	100,000

APPENDIX D
Experimental materials (continued)

Panel D: Management Disclosure treatment

INFORMATION ON THE NOTES TO THE AUDITED FINANCIAL STATEMENTS AND MANAGEMENT'S DISCUSSION AND ANALYSIS

The company has included disclosures in the notes to the audited financial statements ("Footnotes") and management's discussion and analysis ("MD&A") sections of its annual report that indicate the following:

- Management made assumptions about future events in estimating the fair value of the Level 3 Trading securities and the related gains on these investments. Future events and their effects cannot be determined with absolute certainty. Therefore, the measurement of these amounts required significant judgment.
- Management calculated the fair value of the Level 3 Trading securities and the related gains on these investments using a proprietary model, i.e., one that was developed "in-house" and by using company-specific assumptions.
- Management considered reasonable alternative assumptions in making these estimates, and these alternative assumptions yielded amounts that are materially different than the amounts ultimately reported in the financial statements.
- **It is at least reasonably possible that management's estimate resulting in an Investment Gain will change in the near term and the effects of the change could be material to the financial statements. (A change is material if it is important enough to influence decisions of financial statement users.)**

Panel E: Auditor Narrative Disclosure treatment

Note: Participants that received the Auditor Narrative Disclosure treatment viewed the information below (i.e., Cell C and Cell D).

Modification # 1: The auditor's report includes an explanatory paragraph, which states that the amounts reported as "Investment gains" and "Level 3 trading securities" in the financial statements and footnotes are materially imprecise estimates. This explanatory paragraph further indicates the following information:

- The auditors evaluated the reasonableness of these amounts by reviewing and testing the process used by management to develop the estimate.
- For these materially imprecise estimates, the auditors obtained reasonable assurance over a range of acceptable values. Although the amounts reported in the financial statements are each within a range of acceptable values, that range contains amounts that are materially different than the amount ultimately reported in the financial statements.
- For all amounts reported in the financial statements, other than the amounts reported as "Investment gains" and "Level 3 trading securities," the auditors obtained reasonable assurance that the reported amount is free from material misstatement.

APPENDIX D
Experimental materials (continued)

Panel F: Auditor Visual Disclosure treatment

Note: Participants that received the Auditor Visual Disclosure treatment viewed the information in Section 1, Section 2, and Section 3 of this panel (i.e., Cell E and Cell F). Participants that did not receive the Auditor Visual Disclosure treatment did not view this information.

Section 1: Language in auditor's report

Modification # 1: The auditor's report contains language that describes the nature of the audit procedures performed over different amounts in the financial statements. The auditor has indicated the nature of the procedures performed for each amount in the financial statements by placing a letter (i.e., either "A" or "B") next to each reported amount. The language in the auditor's report indicates the following:

- A. For amounts labeled with an "A," the auditors obtained reasonable assurance that the reported amount is free from material misstatement.
- B. The amounts labeled with a "B" are materially imprecise estimates. The auditors evaluated the reasonableness of these amounts by reviewing and testing the process used by management to develop the estimate, and the auditors obtained reasonable assurance over a range of acceptable values. Although the amounts reported in the financial statements are each within a range of acceptable values, that range contains amounts that are materially different than the amount ultimately reported in the financial statements.

APPENDIX D
Experimental materials (continued)

Panel F: Auditor Visual Disclosure treatment (continued)

Section 2: Audit report attachments (Income Statement)

Note: The following information appeared below the image in Appendix D, Panel F, Section 1. Participants that did not receive the Auditor Visual Disclosure treatment (i.e., Cell A, Cell B, Cell C, and Cell D) viewed the information in Appendix D, Panel C, Section 1 in Part IV to avoid an information confound.

SELECTED ANNUAL REPORT INFORMATION FROM AUDITOR'S REPORT		
Below is a copy of the income statement included in the auditor's report (Note: The amounts are identical to those in the Earnings Release in Part A.)		
Trans-Global Exports, Ltd. Statement of Comprehensive Income For the year ended December 31, 2011 (Amounts in thousands except per share data)		
	2011	
Net sales	\$2,716,256	A
Cost of goods sold	1,831,250	A
Gross profit	885,006	
Selling, general & administrative expenses	402,500	A
Income from operations	482,506	
Investment gains	60,400	B
	542,906	
Interest expense	252,378	A
Income before income taxes	290,528	
Income tax	108,571	A
Net income	181,957	
Earnings Per Share	\$1.82	
Shares Outstanding	100,000	

APPENDIX D
Experimental materials (continued)

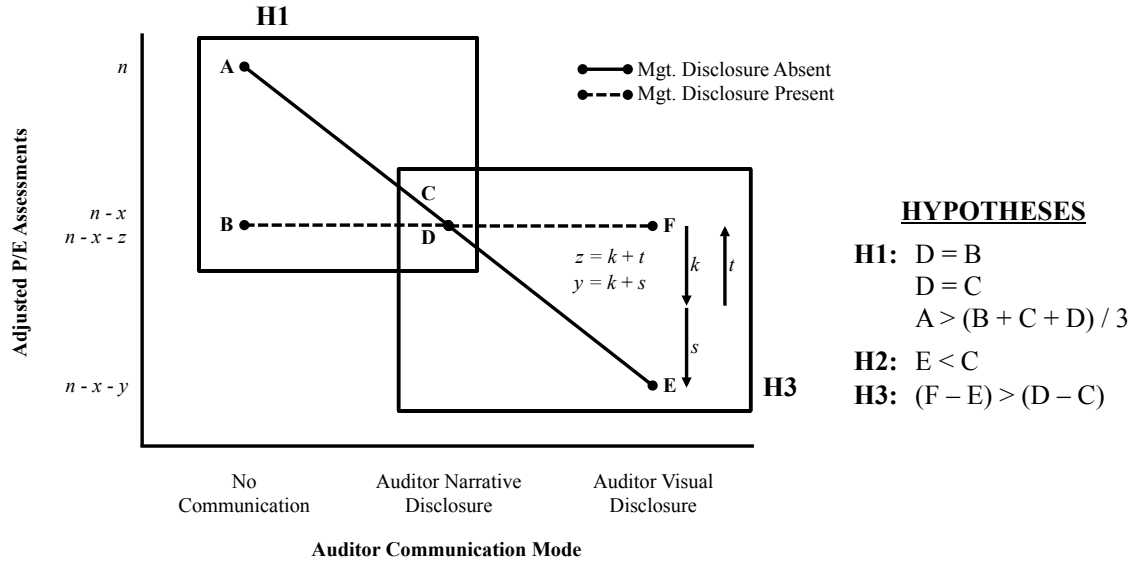
Panel F: Auditor Visual Disclosure treatment (continued)

Section 3: Audit report attachments (Fair Value Footnote)

Note: The following information appeared below the image in Appendix D, Panel F, Section 2. Participants that did not receive the Auditor Visual Disclosure treatment (i.e., Cell A, Cell B, Cell C, and Cell D) viewed the image in Appendix D, Panel C, Section 2 in Part IV to avoid an information confound.

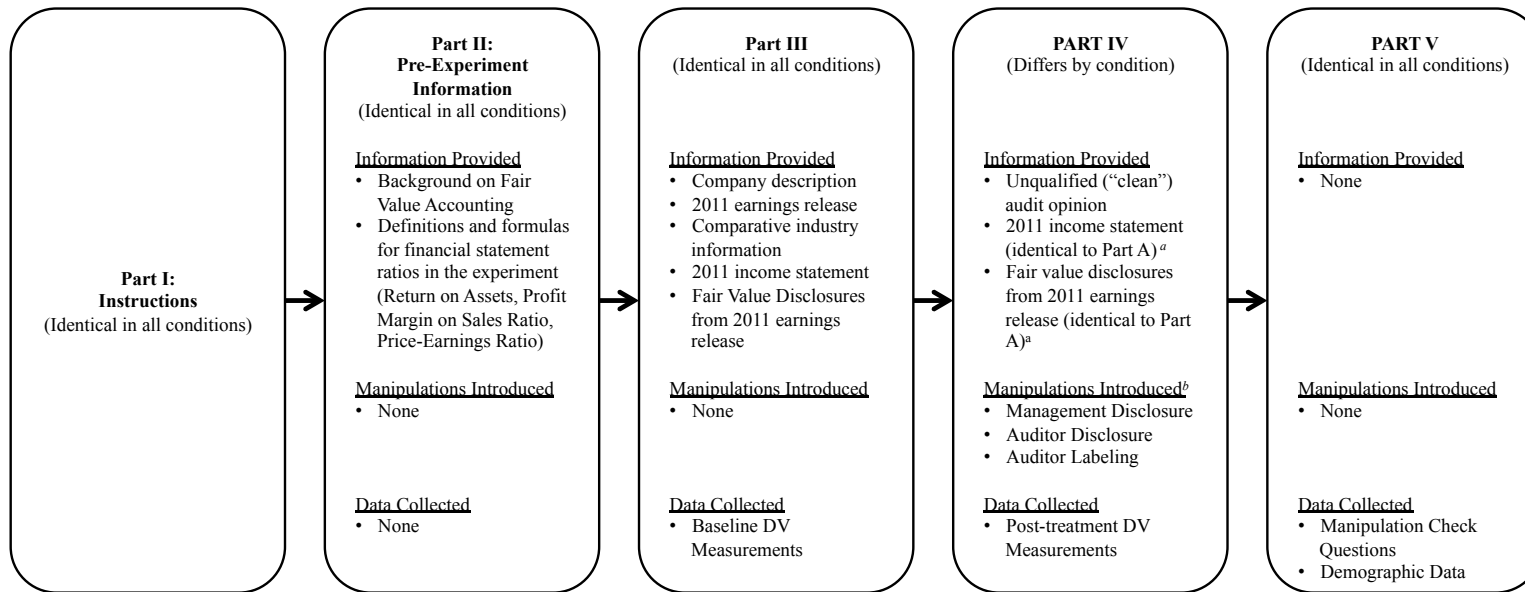
<p>SELECTED ANNUAL REPORT INFORMATION FROM THE AUDITOR'S REPORT</p> <p>Below is a summary of the Fair Value Disclosures included in the Auditor's Report. (Note: The amounts are identical to those in the Earnings Release in Part A.)</p> <p>The Fair Value Accounting Footnote from TransGlobal's 2011 annual report provides additional information on the "Investment gains" of \$60,400,000 reported in its 2011 income statement. The footnote states the following:</p> <p style="padding-left: 40px;">"The Company uses fair value accounting for its trading securities. Fair value is measured based upon observable and unobservable inputs. Observable inputs reflect market data obtained from independent sources, while unobservable inputs reflect the Company's assumptions. These two types of inputs create the following hierarchy:</p> <ul style="list-style-type: none">• Level 1 – Quoted prices for identical instruments in active markets• Level 2 – Quoted prices for similar instruments in active markets; quoted prices for identical or similar instruments in markets that are not active; and model-derived valuations whose inputs are observable• Level 3 – Model-derived valuations that reflect the Company's own assumptions and projections" <p>Additionally, the footnote contains standard disclosures that show the following:</p> <ul style="list-style-type: none">• The entire amount of the \$60,400,000 investment gain relates to "Level 3 investment securities." This amount is labeled with a "B."

FIGURE 1
Illustration of Hypotheses



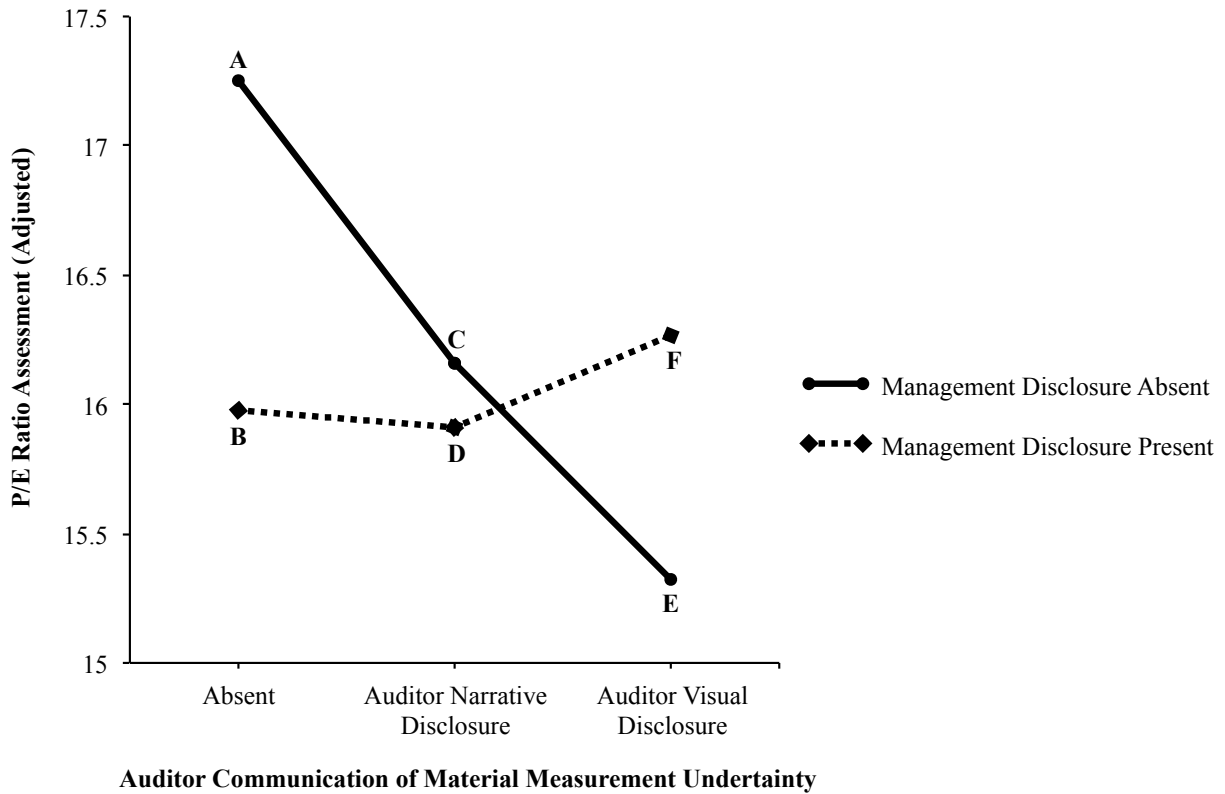
Note: The labels on this graph represent our operational dependent and independent variables, which differ slightly from the terms we use when developing theoretical predictions. Management disclosure corresponds to robust supplemental *CAcctM* disclosures from management. Auditor narrative disclosure corresponds to fully-narrative *CAudM* disclosures. Auditor visual disclosure corresponds to *CAudM* disclosures with visual cues. The mapping of cells A through F in this figure corresponds to the mapping in Table 2 (i.e., Management Disclosure is absent in Cell C and present in Cell D). With respect to H2 and H3, y represents the valuation effect of second-order information when management does not provide supplemental *CAcctM* disclosures. This is comprised of 1) the discount attributable to the second-order information about material measurement uncertainty (i.e., k) plus 2) the discount attributable to the lack of supplemental *CAcctM* disclosures (i.e., s). Thus, $y = k + s$. Additionally, z represents the discount attributable to second-order information when management does provide supplemental *CAcctM* disclosures. This is comprised of 1) the discount attributable to the second-order information about material measurement uncertainty (i.e., k) plus 2) the premium attributable to the signaling effect of robust supplemental *CAcctM* disclosures (i.e., t). Thus, $z = k + t$.

FIGURE 2
Overview of Experimental Instrument and Procedures



Notes: Participants can navigate between screens within each of the five parts of the experiment. Participants must complete the experiment in order and must complete each part before navigating to the next part. Participants cannot navigate back to a completed part of the experiment. ^a We provide these items to participants in conditions where the Auditor Visual Disclosure treatment is absent only. The Auditor Visual Disclosure treatment includes versions of these materials that include auditor-defined labels and that are presented as part of the auditor’s report. We include copies of both the 2011 income statement and the fair value disclosures from the 2011 earnings release in conditions where the Auditor Visual Disclosure treatment is absent to avoid a potential procedural confound. ^b We counter balance all manipulations to control for order effects. We utilize all potential treatment orderings, except for [Auditor Narrative Disclosure – Management Disclosure – Auditor Visual Disclosure] and [Auditor Visual Disclosure – Manager Disclosure – Auditor Narrative Disclosure], which interrupt the presentation of the auditor’s report.

FIGURE 3
Valuation Judgment Results
(2 X 3 ANOVA with Management Disclosure and Auditor Communication)



Notes: The *dependent variable* is participants' P/E multiple assessments on a scale from 10 to 20 after viewing any experimental manipulations, adjusted for variation in participants' P/E multiple assessments prior to viewing manipulations. We manipulate *Management Disclosure* at two levels (present or absent), between participants. Participants that receive the *Management Disclosure* treatment view robust supplemental *CACctM* disclosures related to measurement uncertainty inherent in a Level 3 investment. There is no reference to these *CACctM* disclosures in conditions where *Management Disclosure* is absent. We manipulate *Auditor Communication* at three levels, between participants. Participants in all conditions learn that the auditor issued an unqualified opinion. Participants in the *Auditor Disclosure Absent* condition learn that there are no modifications to the standard wording of an unqualified opinion. Participants that receive the *Auditor Narrative Disclosure* treatment view information from a *CAudM* disclosure in the audit report that narratively identifies the related amounts. Participants that receive the *Auditor Visual Disclosure* treatment view information from a *CAudM* disclosure in the audit report that visually identifies the related amounts. The mapping of cells A through F in this figure corresponds to the mapping in Figure 1 and Table 2.

TABLE 1
Descriptive Statistics for Participants' Education, Work, and Investing Experience

		Overall n = 127
Full-time work experience (in years)	Median	5.00
	Mean	5.86
	SD	3.16
Number of accounting courses completed	Median	1.00
	Mean	1.84
	SD	1.53
Number of finance courses completed	Median	1.00
	Mean	1.70
	SD	2.14
Age (in years)	Median	28.00
	Mean	28.91
	SD	3.54
Investing experience (in years)	Median	2.00
	Mean	3.35
	SD	4.39
GMAT Score	Median	650
	Mean	643.02
	SD	66.85
Percent who have made personal investments in the stock market		47%
Percent who have previously evaluated a company's performance by evaluating financial statements		65%
Percent who are female		30%
Percent who speak English at home		86%

TABLE 2
P/E Multiple Assessment Descriptive Results

Panel B: Adjusted P/E Multiple Assessments from 2 X 3 ANOVA with Management Disclosure and Auditor Communication (absent vs. auditor narrative disclosure vs. auditor visual disclosure): Adjusted Mean (SE) [n] Cell

		Management Disclosure:		
		Absent	Present	
Auditor Communication:	Absent	17.25 (0.39) [15] A	15.98 (0.34) [19] B	
		Auditor Narrative Disclosure	16.16 (0.38) [15] C	15.91 (0.40) [14] D
			Auditor Visual Disclosure	15.32 (0.39) [15] E

Note: This table presents *Adjusted P/E Multiple Assessment*, which represent participants' P/E multiple assessments after viewing any experimental manipulations, adjusted for variation in participants' P/E multiple assessments prior to viewing any experimental manipulations. A lower *Adjusted P/E Multiple Assessment* indicates a stronger effect of the manipulation(s) on participants' judgments. Participants assess P/E multiples on an 11-point scale anchored by 10 and 20.

TABLE 3
Hypothesis Testing Models

Panel A: 2 X 3 ANOVA – Management Disclosure × Auditor Communication (Model 1)

Source	Sum of Squares	df	F	p > F
Management Disclosure	0.85	1	0.38	0.27
Auditor Communication	11.23	2	2.53	0.04
Management Disclosure × Auditor Communication (Test of H1) (one-tailed p-value)	18.29	2	4.12	0.01
Pre-treatment P/E assessment	228.21	1	102.82	0.00
Full-time work experience	5.73	1	2.58	0.11
Error	186.44	84		

Panel B: Tests of H1

Test	F	p > F
Planned Contrast		
Cell A > (Cell B + Cell C + Cell D)/3 (one-tailed p-value)	7.50	0.00
Planned Pairwise Comparisons		
Cell A > Cell C (one-tailed p-value)	4.05	0.02
Cell A > Cell B (one-tailed p-value)	6.07	0.01
Cell B = Cell D	0.02	0.89
Cell C = Cell D	0.20	0.65
Equivalence Tests (two one-way significance tests approach)^a		
Cell D _{MEAN} < Cell B _{UL} (one-tailed p-value) ^a	3.56	0.03
Cell D _{MEAN} > Cell B _{LL} (one-tailed p-value) ^a	2.38	0.06
Cell D _{MEAN} < Cell C _{UL} (one-tailed p-value) ^a	6.44	0.01
Cell D _{MEAN} > Cell C _{LL} (one-tailed p-value) ^a	1.67	0.10

Panel C: Tests of H2

Planned Pairwise Comparisons	F	p > F
Cell E < Cell C (one-tailed p-value)	2.30	0.07
Cell E < (Cell C + Cell D) (one-tailed p-value)	97.50	0.01

Panel D: Tests of H3

Planned Pairwise Comparisons	F	p > F
Cell F > Cell E (one-tailed p-value)	2.80	0.05
(Cell F - Cell E) > (Cell D - Cell C) (one-tailed p-value)	2.30	0.07

^a Two one-way significance tests (“TOSTs”) test the equivalence of two samples by testing the joint hypothesis that the mean of one sample is less than the upper bound and greater than the lower bound of a specified confidence interval around the mean of the other sample. Following Schuirmann (1987), we test the equivalence of Cell D to Cell B (Cell C) by testing whether the mean of Cell D is less than [greater than] the upper limit [lower limit] of the 95% confidence interval of the adjusted mean for Cell B (Cell C).

Note: See notes on next page.

TABLE 3
Hypothesis Testing Models (continued)

Notes: The *dependent variable* is participants' P/E multiple assessments on a scale from 10 to 20 after viewing any experimental manipulations, adjusted for variation in participants' P/E multiple assessments prior to viewing manipulations. We manipulate *Management Disclosure* at two levels (present or absent), between participants. Participants that receive the *Management Disclosure* treatment view robust supplemental *CACctM* disclosures related to measurement uncertainty inherent in a Level 3 investment. There is no reference to these *CACctM* disclosures in conditions where *Management Disclosure* is absent. We manipulate *Auditor Communication* at three levels, between participants. Participants in all conditions learn that the auditor issued an unqualified opinion. Participants in the *Auditor Disclosure Absent* condition (*Auditor Communication* = 0) learn that there are no modifications to the standard wording of an unqualified opinion. Participants that receive the *Auditor Narrative Disclosure* treatment (*Auditor Communication* = 1) view information from a *CAudM* disclosure in the audit report that narratively identifies the related amounts. Participants that receive the *Auditor Visual Disclosure* treatment (*Auditor Communication* = 2) view information from a *CAudM* disclosure in the audit report that visually identifies the related amounts. *Full-time work experience* is measured as the number of years of full-time work experience reported by the participant. *Pre-treatment P/E assessment* represents the P/E multiple assessed by the participant prior to viewing any manipulations. See a mapping of cell references in Table 2. *p*-values for tests of hypotheses with directional predictions are one-tailed, as noted; other *p*-values are two-tailed.