The Joint Effect of Auditor Range Disclosures and Management Redirections on Investors' Judgments

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Abstract

Auditors in a key audit matter (KAM) setting have disclosed additional range information as part of their KAM disclosures, indicating the relative aggressiveness of management's accounting choices. At the same time, managers have responded to these KAM disclosures by providing additional disclosures in the form of a management redirection. We conduct an experiment that examines the effect of these additional auditor range and management disclosures in a KAM setting on investment judgments. We predict and find that a management redirection redirects investor attention from the KAM to the auditor's consideration of the matter, and this has a positive effect on investment judgments. Consistent with theory, the positive effect of a management redirection is greater when an auditor range disclosure indicating management aggressiveness is present versus absent in the KAM disclosure, suggesting a possible unintended effect of auditor range disclosure. Our results suggest that these two KAM disclosure features have incremental effects on investors' judgments, and show that auditors can use KAMs to signal management aggressiveness to investors only when management redirections are absent.

Keywords: key audit matters; auditor range disclosures; management redirections; opportunistic disclosure strategy

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1. Introduction

Audit regulators around the world have mandated expanded audit reporting standards that extend the scope of the audit report beyond the traditional pass/fail model. These standards require the reporting of key or critical audit matters in the audit report. In international settings, key audit matters (KAMs) are defined as matters "of most significance in the audit of the financial statements of the current period" by the International Auditing and Assurance Standards Board (IAASB, 2015, p. 2). Similarly, in the US setting, according to the Public Company Accounting Oversight Board, critical audit matters (CAMs) are material matters which involve "especially challenging, subjective, or complex auditor judgments" (PCAOB, 2019, p. 1). We examine the effect of two emerging disclosure features that have been observed in a KAM setting on investors' judgments, namely auditors' range disclosures made as part of a KAM and management redirections made in response to a KAM.

The first disclosure feature, auditor's range disclosures, has been used by auditors in a KAM setting to signal management's aggressiveness in their accounting choices. For example, the auditor for Tesco PLC, a British retailer, raised the company's pension obligation valuation as a KAM and also provided an additional range disclosure that the company's discount rate used for valuation is "at the optimistic end of our acceptable range" (Tesco PLC, 2018). The auditor for Robert Walters PLC, an international recruitment firm listed on the London stock exchange, noted that the company's provision for bad debts was "in the middle of the acceptable range" (Robert Walters PLC, 2018). Finally, Marks & Spencer's auditor noted in their KAM disclosure that management adjustments to reported revenue are "at the prudent end of our acceptable range"

(Marks & Spencer PLC, 2018). In each of these cases, the additional range disclosures made as part of the KAM disclosure shed light on the relative aggressiveness of management's accounting choices and could be a potential mechanism through which auditors can constrain management's aggressive reporting. However, the effect of these range disclosures and whether they indeed have a negative impact on investors' investment judgments remains unknown.

The second disclosure feature we examine is the absence/presence of management redirections made in response to a KAM. Since KAM disclosures highlight both the uncertainty and additional auditor judgments related to an issue, management disclosures can emphasize the latter and direct investor attention away from the uncertainty communicated by the KAM. We observe this redirection strategy used in KAM regimes. For example, in response to questions about a KAM regarding provisions related to claims, multinational life insurance company Aegon N.V. supported their estimate by stating that "any provision is discussed with the external auditors and the audit committee" (Aegon N.V., 2015). This sentence redirected investor attention towards the auditor's judgments on the matter. Similarly, banking and financial services corporation ING Group stated in response to investor queries about a KAM that their auditor had earlier "noted and confirmed" their inability to reliably estimate a provision (ING Groep N.V., 2018). Given that these management redirections are intended to minimize the negative impact of the auditors' KAM disclosures, we examine if they indeed reduce the negative impact of auditor's range disclosure in the presence of KAMs.

We conduct an experiment with participants recruited from Amazon Mechanical Turk (MTurk) as proxies for nonprofessional investors to examine the joint effect of auditor range disclosures and management redirections on investment judgments. We adopt a 2 (auditor's range disclosure – absent or present) × 2 (management redirection – absent or present) between-participants design. Our first independent variable is whether the KAM disclosure includes additional range information from the auditor. In the range disclosure present (absent) condition, the auditor's disclosure explicitly mentions (does not mention) that management's estimate is at the higher end of, but still within, the auditor's acceptable range, consistent with current auditor practice (Marks & Spencer PLC, 2018; Robert Walters PLC, 2018; Tesco PLC, 2018). Our second independent variable is whether management employs a redirection strategy to respond to the auditor's disclosures. In the management redirection present condition, management employs an opportunistic redirection that highlights the auditor's acceptance of the accounting estimate to strategically downplay its subjectivity, in line with what has been observed in practice. In the management redirection absent condition, management does not highlight the auditor's acceptance of the estimate. We solicit investors' investment attractiveness judgments after they have read these manipulations.

We predict and find that management redirections have a positive effect on investors' investment attractiveness judgments. Also, we find that the positive effect of a management redirection is greater in the presence of a range disclosure by the auditor. This suggests that instead of pointing out management's aggressiveness and leading to lower investment judgments, the auditor's addition of a range disclosure to a KAM may have an unintended effect of increasing the investment attractiveness of a firm if management uses a redirection strategy.

Our study contributes to the literature on the effects of additional auditor and management disclosures in a KAM/CAM setting on investors' judgments (e.g., Rapley, Robertson, and Smith, 2021). We examine the effects of two specific disclosure features that have been observed in practice but hitherto not investigated: auditor range disclosures and management's provision of redirections, on investors' judgments. These two disclosure features represent auditors' and managers' responses to the KAM reporting standards, rather than specific prescriptions mandated by the standards themselves. For example, management's practice of referencing the auditor's KAM has not been recommended or proposed by the standard setters, yet is effective in negating the negative effects of a KAM. Thus, our study also provides insights on how practice could evolve over time in response to standards, which could perhaps necessitate further changes to standards down the road.

The type of management response we examine differs from the broader voluntary management disclosure literature, which typically explores the information effect of additional disclosures on judgments. The management response in our setting adds little new information, and instead redirects investor focus to specific portions of the auditor disclosure and related auditor judgments. This aspect related to management disclosures redirecting investor attention and its underlying theoretical processes have largely been unexplored in the literature.[1] Our theory on management redirections could extend to related settings where a third party (e.g., an auditor, valuator, or analyst) provides assurance or insights over other matters, and when management responds by directing investor attention to these third-party disclosures.

The remainder of this paper is organized as follows. In Section 2, we discuss the theoretical background and develop our hypotheses. Sections 3 and 4 discuss our experiment and results. Section 5 summarizes our findings and concludes with a discussion of implications and future research opportunities.

[1] The most closely related studies are those on the strategic selection of prior year benchmarks (see, for example, Krische, 2005) or the use of proforma earnings measures in which management reorganizes the information disclosed to emphasize certain measures (Elliott, 2006). However, these studies involve quantitative disclosures and relate to prior and current information provided by management. Our context is one in which management's qualitative response redirects attention to the actions of another party (i.e., the auditor).

2. Theory and Hypothesis Development

Prior studies find that investors are more likely to reduce their investment in the firm and lose confidence in the related financial statement areas when a CAM/KAM is present (Christensen et al., 2014; Kachelmeier et al., 2020; Hoang and Phang, 2021; Rapley et al., 2021). While the negative effect of KAMs on investment judgments is well-established, the effects of two unique disclosure features that have been observed in a KAM setting, namely auditor range disclosures and management redirections, have not been examined.

In KAM regimes, auditors have disclosed additional range information, which provides information about the relative aggressiveness of management's accounting estimates. At the same time, management could preempt the potential investor scrutiny of KAMs and provide disclosures to manage investors' perceptions in response to a KAM. These possibilities suggest a need to consider the joint effect of auditor's range disclosure and management's opportunistic disclosure on investors' judgments. We develop and present a framework which considers the possibility of these disclosures in Figure 1.

[Insert Figure 1 about here]

2.1. Auditor Response to Subjective Accounting Issues

Our framework proposes that auditors can respond to a subjective accounting issue in three ways. First, auditors can remain silent and not raise the issue as a KAM. Second, auditors can raise the issue as a KAM to highlight its subjectivity, but provide no additional information about the aggressiveness of management's accounting choices. Third, auditors can raise the issue as a KAM and also note the aggressiveness of management's accounting choices, which could be done through range disclosures. Observations of KAM disclosures suggest that auditors have sometimes chosen to provide additional information, that would typically not be available from management, to substantiate their judgments. For example, KAMs disclosed in the UK show that some auditors have disclosed the relative optimism or conservatism of management's estimates, by pointing out that management's estimate was "in the middle," "at the optimistic end," or "at the prudent end of our acceptable range" (Marks & Spencer PLC, 2018; Robert Walters PLC, 2018; Tesco PLC, 2018).[2]

2.2. Management Response to Auditor Disclosures

Next, our framework considers how managers may react to these auditor disclosures.[3] Managers in KAM regimes have responded to questions about KAMs and bolstered their accounting choices by referencing the auditors' judgments on the matter—for example, by stating that their estimates have been discussed with the external auditors (Aegon N.V., 2015). This behavior is consistent with the prior disclosure literature, which finds that managers make self-serving and opportunistic disclosure choices to manage market perceptions. For example, managers strategically choose benchmarks that portray their firms' returns or earnings more favorably (Lewellen et al., 1996; Schrand & Walther, 2000), and are more likely to attribute bad news to external factors (Baginski et al., 2000). A close parallel to KAMs is in the context of Emphasis of Matter (EOM) paragraphs, which often emphasize unfavorable information while maintaining an unqualified opinion. In these

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[2] Our framework does not suggest that the nature of auditor-client interactions related to a KAM will be adversarial in nature, or that information will only be disclosed by either party in the case of communication or negotiation breakdowns. On the contrary, as in the case of UK auditors providing additional range information, auditors may be motivated to provide additional information as part of their KAM disclosures to affirm appropriate auditing, highlight proper handling of the issue or to absolve themselves from potential legal liability. Observations from KAM regimes suggest that some firms have improved their disclosures in response to KAMs raised by their auditors (ACCA, 2018).

[3] Observations of shareholder and management interactions in KAM regimes suggest that KAMs often lead to questions from investors. For example, an investor of Pharming Group, a Dutch biotechnology company, raised questions about a KAM on the firm's valuation of commercial rights during a shareholder meeting. This resulted in both management and the auditor responding with additional clarifications on the valuation process (Pharming Group N.V., 2017). It is possible that the question, and the additional clarifications, may not have been made if the auditor had not disclosed the issue as a KAM.

cases, managers have similarly responded by making additional disclosures that assure investors of a favorable outcome.

Based on prior literature and how managers have responded to KAMs in practice, we consider two possible management responses. Managers can either opportunistically redirect investor attention towards the auditor's additional considerations and acceptance of their chosen accounting choice or choose not to do so.

While the negative effect of a KAM disclosure made without auditor range disclosures and in the absence of management redirections is well-established, the effect of KAM disclosure with these additional disclosure features is unknown. In the next section, we consider the joint effect of these two disclosure features. More specifically, we focus on a setting where the range disclosure provides additional information about the aggressiveness of management's accounting choice by pointing out that the estimate is at the higher end of the auditor's acceptable range.

2.3. Effect of a Management Redirection on Investment Judgments

Raising an issue as a KAM involves highlighting the issue's uncertainty and disclosing the additional subjective and/or complex auditor judgments involved. We predict that a KAM's uncertainty is typically more salient to investors, leading to negative investor reactions. Comparatively, the auditor considerations implicit in auditing a KAM and coming to a clean opinion are less salient as these are not directly stated, and are less likely to be attended to by investors.

An opportunistic management redirection focuses investor attention on the auditor considerations associated with a KAM and the overall clean audit opinion, which causes this aspect to be more salient when it is emphasized by management. The emphasis of information could cause individuals to pay more attention to the highlighted information and incorporate it in their judgments (Cialdini, 2001; Taylor and Fiske, 1978; Taylor and Thompson, 1982). In an accounting setting, Elliott (2006) finds that nonprofessional investors' judgments are affected by management's emphasis of pro forma earnings over GAAP earnings metrics, although the latter is arguably more value-relevant. Similarly, we expect investors' judgments to be positively influenced by a management redirection which emphasizes the auditor's considerations related to the KAM. This suggests that investment attractiveness judgments could be higher in the presence versus absence of a management redirection. We state this as our first hypothesis:

> **H1:** A management redirection has a positive effect on investment attractiveness judgments.

The above prediction, about the positive effect of a management redirection on investment judgments, is not without tension because investors could potentially view management's redirection as a strategic act. If so, management's attempt to redirect investor attention to the auditor's KAM judgment could backfire and lead to even more negative judgments. However, this possibility is less likely because it would require investors to be especially vigilant and skeptical. Prior research has generally shown that nonprofessional investors tend to give managers the benefit of the doubt in the selection of accounting methods or earnings metrics. For example, nonprofessional investors remain positively influenced by proforma earnings over GAAP earnings, despite the former being more favorable and strategically chosen than the latter (Elliott 2006).

2.4. How an Auditor Range Disclosure Alters the Effect of a Management Redirection

We predict that the positive effect of a management redirection could be greater in the presence versus absence of an auditor range disclosure. Recall that a management redirection reminds investors about the auditor's considerations related to a KAM. At the same time, the degree of perceived auditor consideration over the issue could be influenced by the content of the KAM disclosure, in particular, whether an auditor range disclosure is present. Investors could perceive greater auditor consideration over the issue when an auditor range disclosure is present versus absent (i.e., when management's estimate is disclosed as more aggressive), because of the greater audit risk inherent in arriving at a clean audit judgment. In other words, the auditor issuing an unqualified opinion despite raising a KAM pointing out the estimate's aggressiveness could imply that they have considered the matter to a greater extent than if management's estimate was not aggressive. This leads to our second hypothesis:

> **H2:** A management redirection has a greater positive effect on investment attractiveness judgments when auditor range disclosures are present versus absent.

3. Experiment

3.1. Participants and Demographics

One hundred and ninety-eight participants were recruited from MTurk to take part in the experiment. Participation was restricted to workers from the United States with a previous HIT Approval Rating of 97 percent or above.[4] We used the CloudResearch platform to verify participants' locations and prevent multiple attempts. We pre-screened our participants to ensure that they are native English speakers, with more than one year of stock investment experience and who personally invested in the stock market (i.e., not through a mutual fund or pension account). Additionally, we required participants to have referred to a firm's financial statements and read the independent auditor's report when making their investment decisions in the past. Finally, we required participants to have taken at least one accounting or finance course.[5]

[4] We conduct our experiment with US participants as these participants are unlikely to be exposed to auditor's range disclosures or management redirections in a CAM setting, which allows for a cleaner test of our theory related to these two disclosure features. In line with this, our experimental material refers to these expanded audit disclosures as CAMs.
[5] We cross-checked participants' prescreening responses with their responses to the related demographic questions asked at the end of the instruments to identify possible inconsistencies. Participants' responses were consistent with their demographic's responses. Besides prescreening, we also required participants to correctly answer an inconspicuous attention check question (instructing them to "choose 85 on the scale below") because prior research emphasizes the importance of using attention check questions to detect low effort, especially when the effect depends

Participants were paid US$2 and completed the task in an average of 12.9 minutes. Participants have an average of 19.5 years of work experience and 11.3 years of stock investment experience. One hundred and seventy-nine participants (90.4 percent) have at least a Bachelor's/college degree or higher. They have taken an average of 2.8 accounting and 2.4 finance courses.

3.2. Design and Procedure

We conducted a 2 × 2 between-participants experiment, with auditor's range disclosure (absent or present) and management redirection (absent or present) as our independent variables. Participants were asked to assume the role of a potential stock market investors and evaluate Eta Inc., a hypothetical biotechnology firm which they have shortlisted as a possible investment. They read background information and selected financial data for the past three fiscal years about Eta Inc. The case describes how Eta invests heavily in the shares of other biotech companies and start-ups. Since these shares are privately held and not traded on any stock exchange, the valuation of these non-traded securities is subjective and estimated using an in-house valuation model.

To draw investors' attention to management's valuation regardless of conditions, our experiment design sets up a generally concerning and subjective situation. Specifically, participants read that Eta's income from operations decreased compared to the previous year. However, its investment income has increased due to the increase in value of the non-traded securities. As a result, the overall net income this year was higher than the previous year, and the earnings per share this year managed to beat the analyst consensus forecast by one cent, similar to previous years. After reading the case materials, we asked two comprehension check questions,

on subtle differences in manipulation wording (Oppenheimer et al., 2009). The anonymity of the MTurk platform may also cause participants to skim through the experimental material quickly and provide arbitrary responses (Downs et al., 2010; Goodman et al., 2013).

and the questions are about the directional changes of income from operations, investment income, and net income. To ensure participants' understanding of the case materials, they could proceed to the next page only by correctly answering both questions.

On the next page, participants were told that Eta has consistently received a clean, unqualified audit opinion from its auditor and that the current year's audit was no different. All participants read excerpts from the audit report which raised the valuation issue as a critical audit matter.

3.2.1. Manipulation of Auditor's Range Disclosure

In the auditor's range disclosure present condition, an additional sentence was added to the end of the critical audit matter disclosure: "[w]e found management's valuation of non-traded investment securities to be at the higher end of our acceptable range of estimates." This sentence was not shown in the range disclosure absent condition. Please see Appendix A for details.

3.2.2. Manipulation of Management Redirection

After reading the audit report, participants read our management redirection manipulation. Our manipulation is set within management's disclosures in a section titled "Eta's Discussion of Investment Income arising from Non-traded Securities." The first part of management's disclosure is based on financial statement footnote disclosures typically made by firms explaining their fair value estimates. Participants were told that Eta's investment income for the current year resulted from an upward valuation of the firm's investment in several privately-held biotech companies, followed by a brief description of the valuation methodology. The second part of management's disclosure contains our management redirection manipulation. Participants in the management redirection present condition read this additional sentence, "[w]e note that despite raising the issue as a critical audit matter, our auditors have audited our valuation methodology and accepted our valuation."[6] This sentence was not shown in the management redirection absent condition. Please see Appendix B for details.

3.2.3. Dependent Variables

Participants responded to our dependent measures after reading our manipulations. Our dependent construct of interest is the investment attractiveness of Eta's stock, and we ask participants two related questions: (1) how they value the common stock of Eta as an investor (0: Low value to 100: High value), and (2) how attractive Eta's stock is as an investment (0: Not attractive to 100: Very attractive). Participants also responded to open-ended and secondary measures, along with manipulation check and demographics questions.

4. Results

4.1. Manipulation Checks

We asked two manipulation check questions related to our current study.[7] First, we asked whether Eta's auditor pointed out that management's valuation was at the higher end of the auditor's range of estimates. One hundred and forty-nine participants (75.3 percent) answered this question correctly. Second, we asked whether Eta's management mentioned in their discussion of non-

[6] The accounting disclosure literature finds that various forms of opportunistic disclosures exist in practice (Baginski et al., 2000; Baginski et al., 2004; Cheng and Lo, 2006; Kimbrough and Wang, 2013; Lewellen et al., 1996; Schrand and Walther, 2000) and managers may not respond similarly in all cases. Our operationalization of an opportunistic disclosure involves a strategy that redirects investor attention to the auditor's KAM judgment for two reasons. First, as observed in managers' responses to questions about KAMs (Aegon N.V., 2015; ING Groep N.V., 2018), managers are likely to reference a KAM while attempting to allay concerns about the subjectivity of their accounting treatments. Second, making an explicit reference to a decision by an authority (in this case, the auditor) is a common and well-documented persuasion strategy (Cialdini, 2001; Pornpitakpan, 2004).

[7] We asked a third question related to additional conditions we collected for another study. We do not discuss this question as we do not manipulate or examine the related variable in our current study.

traded securities that their valuation methodology was audited and accepted by their auditor. One hundred and twenty-one participants (61.1 percent) answered this question correctly.[8]

4.1.1. Perceptions of Management Opportunism

We showed participants both versions of our management redirection manipulation (with the presence of an opportunistic management redirection labeled Version A, and the version without a redirection labeled Version B) after our manipulation check questions. We pointed out that the only difference between the two versions was the addition of an underlined sentence in version A referencing the auditors' judgment, and asked which version comes across as more self-serving/opportunistic (0: Definitely Version A to 100: Definitely Version B). Participants' mean judgment was 43.64, below the midpoint of 50 ($t_{197} = -2.799$, $p = 0.006$) and in favor of version A with the additional sentence, suggesting that the redirection was indeed perceived as more opportunistic by participants.

4.2. Tests of H1 and H2

H1 predicts that a management redirection will have a positive effect on investment judgments. Participants' investment judgments are consistent across our two investment attractiveness measures (Cronbach's alpha = 0.933), so we use the average as our main dependent measure.[9]

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[8] We conduct additional analyses given the lower pass rate for the second question. First, we analyze the pass rates separately for the management redirection present versus absent condition. Eighty-seven out of 103 participants (84.5 percent) in the present condition answered this question correctly, versus 34 out of 95 (35.8 percent) in the absent condition, which is significantly different from chance (Pearson's Chi-Square = 51.746, $p < 0.001$). This suggests that most participants in the management redirection present condition correctly identified the presence of a redirection while most in the absent condition mistakenly believed they had read it. This could be due to the management disclosures provided which also discussed the valuation methodology raised by the auditor as a critical audit matter. The inclusion of those who fail our manipulation check in the absent condition will simply weaken our ability to find an effect, since these participants were never exposed to the manipulation and did not miss them. Second, we confirm in the next section that participants indeed perceive a management redirection as more opportunistic. We obtain similar statistical inferences if we exclude participants who failed our first manipulation check question. Hence, we perform our analyses on the full set of participants.

[9] We obtain similar results and statistical inferences if we use the factor score extracted from these two measures as our dependent variable.

Participants' mean investment attractiveness judgments are reported in Table 1 and represented graphically in Figure 2.

[Insert Table 1 and Figure 2 about here]

Panels A and B of Table 1 report the mean investment attractiveness judgments across conditions and our ANOVA results. We find a significant main effect of management redirection on investment judgments (45.75 for *management redirection absent* vs. 56.56 for *present*; $F_{1,194} = 13.53$, $p < 0.001$). This supports H1 and suggests that management redirections have a positive effect on investors' judgments.

Next, H2 predicts that a management redirection will have a greater positive effect when auditor range disclosures are present versus absent. Panel B of Table 1 reports a significant *range* disclosure by management redirection interaction ($F_{1,194} = 4.078$, $p = 0.045$). As reported in Panels A and C of Table 1, a management redirection leads to higher investment judgments when a range disclosure is present (42.69 for *redirection absent* vs. 59.44 for *present*; $t_{194} = 4.027$, $p < 0.001$), but not when a range disclosure is absent (48.75 for *redirection absent* vs. 53.63 for *present*; $t_{194} = 1.173$, $p = 0.242$). These results support H2 and suggest that auditor range disclosures added to KAMs lead to an unintended consequence when management redirects. Specifically, an auditor range disclosure magnifies the effect of management redirections and increases a firm's investment attractiveness, as investors now feel more assured about these subjective estimates raised as a KAM.[10, 11]

4.3. Additional Analyses

4.3.1. Effect of Management Redirection on Judgments of Auditor Consideration

In this section, we analyze our secondary measures to provide further insights into our results. As part of our theory for H2, we predict that an opportunistic management redirection emphasizes the auditor judgments involved and overall clean audit opinion. Hence, participants should perceive greater auditor consideration over an aggressive estimate raised as a KAM versus a case in which management's aggressiveness is not stated in the KAM (i.e., when a range disclosure is present versus absent).

We asked participants for their judgment of the extent of consideration that Eta's auditor went through to arrive at their audit opinion (0: Some consideration to 100: Extensive consideration). Participants perceived greater auditor consideration when the KAM highlighted management's aggressiveness through a range disclosure versus when a range disclosure was not made in the presence of a management redirection (73.33 for *range disclosure present* vs. 65.96

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[10] To gain further insights into how an opportunistic management redirection could influence investors' perceptions, we asked participants to indicate their agreement with this statement: "Eta's auditor is not opposed to Eta's practice of using its investment income to increase its overall net income" (0: Disagree to 100: Agree). We find a significant main effect of management redirection ($p = 0.019$) and range disclosure ($p = 0.034$) but not a significant interaction ($p = 0.471$). Participants agreed more with this statement in the presence versus absence of a management redirection (71.14 vs. 62.77, respectively), and in the absence versus presence of a range disclosure (70.72 vs. 63.17, respectively). This provides some evidence that a management redirection draws investor attention to the overall clean audit opinion and increases perceptions of the auditor's acceptance of management's estimate.

[11] Since all of our experimental conditions involve a KAM, we expect participants to perceive relatively high levels of uncertainty related to the estimate. To confirm this, we asked participants to assess the amount of uncertainty in Eta's reported investment income (0: Low uncertainty to 100: High uncertainty). Participants' uncertainty judgments do not differ across conditions, and we do not find a significant main effect of range disclosure or management redirections, or an interaction (mean uncertainty = 60.93; all $p \geq 0.121$). We obtain similar inferences for our range measure, for which we asked participants to indicate the possible range of values that Eta's actual investment income fell within (mean range = 629.26 million; all $p \geq 0.215$). These results suggest that participants perceived uniformly high uncertainty related to the reported investment income.

for *absent*; $t_{194} = 1.832$, $p = 0.034$, one-tailed, untabulated). There was no difference in judgments of auditor consideration in the absence of a management redirection, consistent with our prediction that this aspect of the KAM is not made salient since it is not implicitly stated (70.17 for *range disclosure present* vs. 71.02 for *absent*; $t_{194} = 0.203$, $p = 0.839$, untabulated). These results suggest that a management redirection increases the salience of the auditor's consideration of the estimate in arriving at a clean audit opinion.

4.3.2. Moderated-Mediation Path Model

We estimate a moderated-mediation path model to further support our theoretical proposition that the presence of an auditor range disclosure indicating management aggressiveness increases investors' perceptions of auditor consideration. The path model is shown in Figure 3. We use participants' response to the extent of auditor consideration question reported in the previous section as a potential mediator. We find that a range disclosure increases perceptions of auditor consideration (+7.37, $p = 0.085$) in the presence of a management redirection, but has no effect on the perceived extent of auditor consideration (-0.85, $p = 0.824$) in the absence of a management redirection. In turn, a greater extent of auditor consideration leads to higher investment attractiveness judgments when a management redirection is present (+0.45, $p < 0.001$). These findings complement our main results and suggest that investment judgments could be the most positive when a management redirection and auditor range disclosure are both present.

[Insert Figure 3 about here]

5. Conclusion

Expanded audit reporting standards, such as the disclosures of KAMs, have been in place for some time. We examine whether the negative effect of a KAM could be affected by additional auditors' range disclosures indicating management aggressiveness and the presence of an opportunistic management redirection. Our research question is motivated by observations of auditors' and managers' response in practice to these expanded audit reporting standards, rather than specific changes mandated by the standards themselves. Thus, our study also explores the interaction of audit standards with practice, and how the practice could evolve over time in response to standards, potentially mandating further changes in standards down the road.

For example, auditors in KAM settings have provided range disclosures that highlight the relative aggressiveness of management's estimates (Marks & Spencer PLC, 2018; Robert Walters PLC, 2018; Tesco PLC, 2018). The effect of these range disclosures on investors' judgments remains unexplored. Managers have also responded to auditor's KAM disclosures to manage investors' perceptions about these subjective matters, and the joint effect of these additional auditor and management disclosures could influence investment judgments.

We conduct an experiment using participants recruited from the MTurk online platform as proxies for nonprofessional investors to explore these issues. In our experiment, we predict and find that in a KAM context, an opportunistic management redirection has a positive effect on investors' judgments. Somewhat surprisingly, this positive effect of a management redirection is more pronounced when an auditor range disclosure signaling management aggressiveness is present versus absent in the KAM disclosure. Our evidence suggests that a range disclosure indicating management aggressiveness increases investor perceptions of auditor consideration in the presence, but not absence, of a management redirection, which leads to more favorable investment judgments. This finding differs from that of prior studies which only examine the standalone effects of KAM disclosures in the absence of management disclosures (Christensen et al., 2014; Kachelmeier et al., 2020).

Overall, our results suggest that additional auditor and management disclosures jointly affect investor judgments and their potential effects should be considered together. We find that auditors' use of range disclosures to convey management aggressiveness leads to lower investment judgments only when management redirections are absent. When management strategically redirects investor attention away from the uncertainty highlighted by the KAM and towards the assurance aspect of the auditor's judgment as has been observed in practice, this act of signaling management aggressiveness through a range disclosure by the auditor causes investors to view the firm more favorably than if a range disclosure is not provided. These findings suggest that auditors should perhaps consider management's likelihood of responding with a redirection when providing additional information as part of their KAM disclosures. When management is likely to respond, auditors could either hold back from providing range disclosures to prevent this unintended effect or perhaps be more direct in their disclosure of management aggressiveness.

Our study is subject to several limitations. First, we use an experimental setting where management's disclosures are presented alongside auditors' disclosures. In practice, investors' reactions can be different depending on the disclosure venue chosen by management to respond to the KAM (e.g., conference calls versus MD&A), to the extent that some disclosure venues may cause management's message to be more salient to investors than others (Elliott et al., 2012). Second, we chose to study the effects of additional auditor and management disclosures on nonprofessional investors. We made this design choice because these unsophisticated investors are most in need of regulatory protection, and are most likely to benefit from these proposed regulations. Our results may be different for sophisticated investors (e.g., professional traders or analysts). Future research could examine whether there are country or cultural differences in how investors respond to these additional auditor and management disclosures.

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Appendix A. Auditor Disclosures

Excerpts from Report of Independent Registered Public Accounting Firm

We have audited the financial statements of Eta Corporation for the fiscal year ended December 31, 2020. In our opinion, the financial statements present fairly, in all material aspects, the financial position of the company as of December 31, 2020.

Auditing standards require auditors to identify critical audit matters (if any) encountered during an audit. For its 2020 audit, Eta's auditor considered the valuation of non-traded investment securities to be a critical audit matter. The following section was added to the audit report, followed by a description of the critical audit matter:

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current period audit that was communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. Critical audit matters do not alter in any way our opinion on the financial statements, taken as a whole, and we do not provide separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Valuation of Non-Traded Investment Securities

We identified the valuation of non-traded investment securities as a critical audit matter. As described in note X to the financial statements, Eta invests in the shares of private companies that are not publicly-traded on any stock exchange. For the year ended December 31, 2020, the Company's valuation of these non-traded securities resulted in unrealized investment income of $1,712 million.

The principal considerations for our determination that the valuation of these non-traded investment securities is a critical audit matter are that these shares (1) are not publicly-traded, and (2) were valued using in-house valuation models based on unobservable inputs. These inputs included management making a number of assumptions and assertions to support their valuations. The key assumptions include future cash flows, discount rates applied and forecasted market performance based on management's view of future business prospects. Accordingly, auditing the value of these non-traded investments involved our complex and subjective judgment.

[*Only in the Auditor Range Disclosure Present condition:* We found management's valuation of non-traded investment securities to be at the higher end of our acceptable range of estimates.]

Appendix B. Management Disclosures

<u>Eta's Discussion of Investment Income arising from non-traded securities</u>

Eta provided this explanation for its investment income:

"Our investment income of $1,712 million for 2020 resulted from an upward valuation of our investment in several privately-held biotech companies. Our valuation methodology takes into account the future cash flows from these investments, adjusted for an appropriate discount rate and market conditions.

[*Only in the Management Redirection Present Condition:* We note that despite raising the issue as a critical audit matter, our auditors have audited our valuation methodology and accepted our valuation.]"

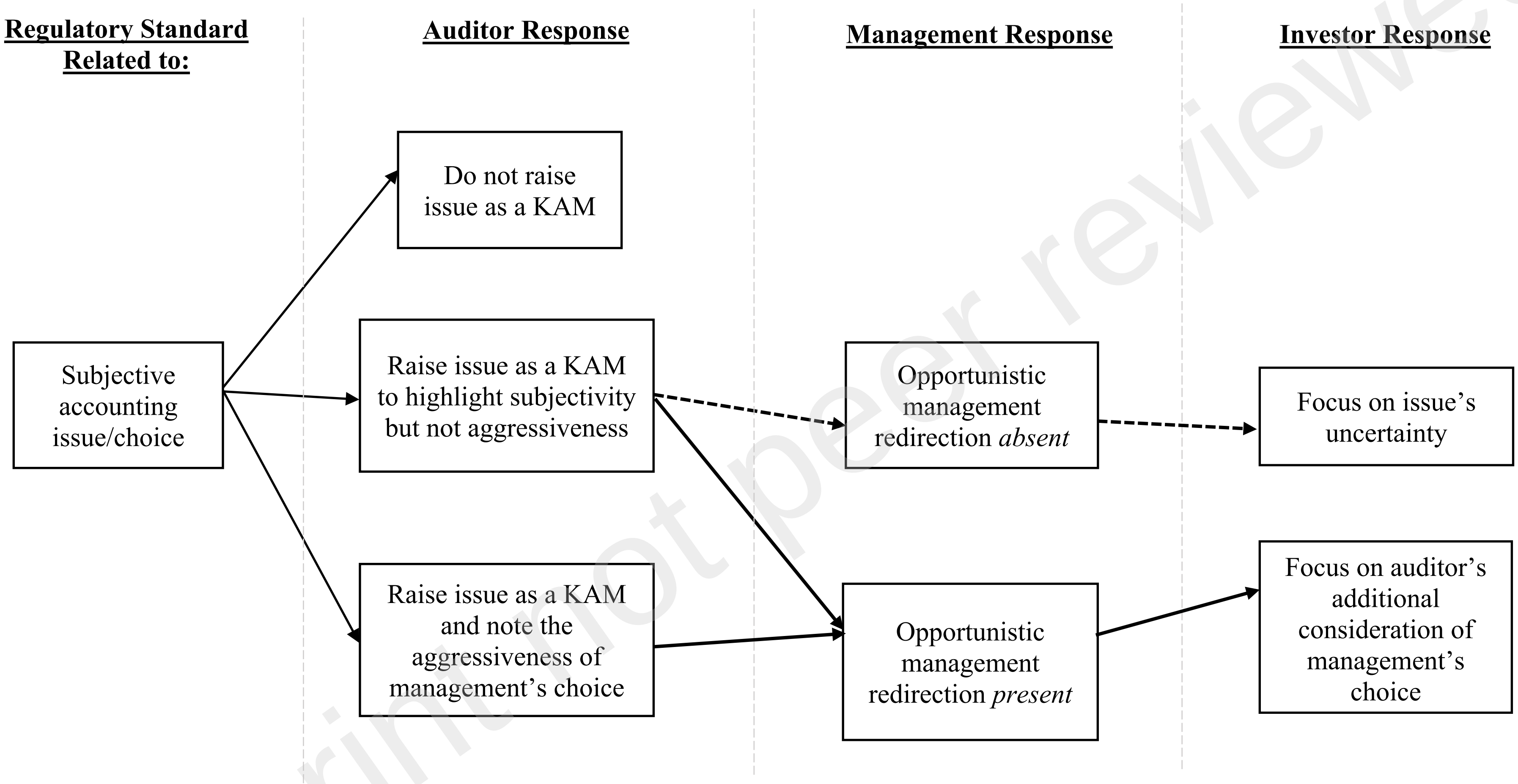

Figure 1. Framework for Additional Auditor and Management Disclosures

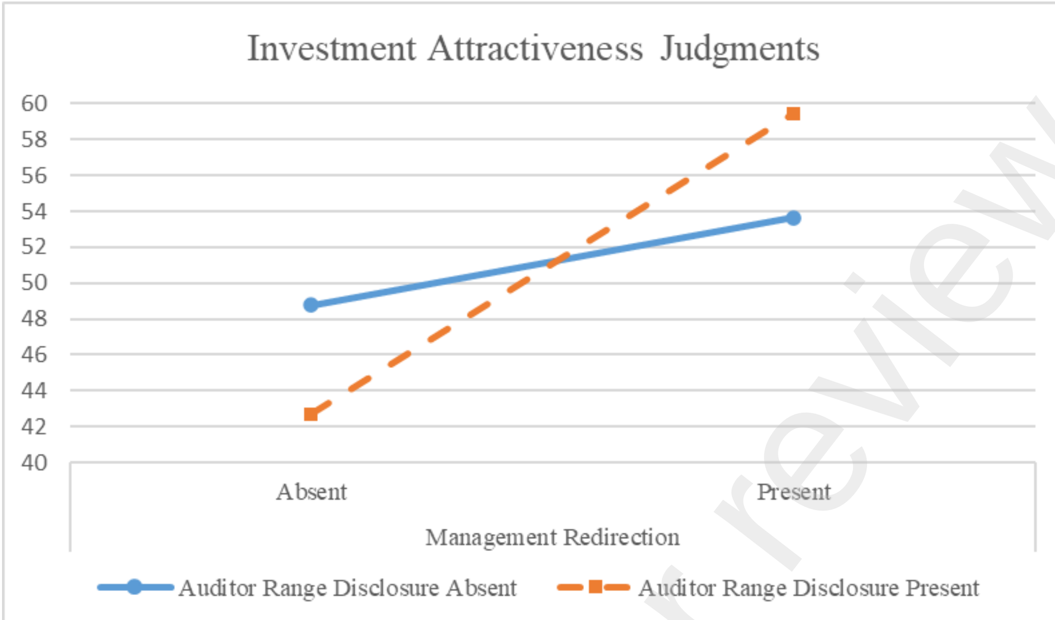

Figure 2. Investment Attractiveness Judgments
Note: This figure shows the mean investment attractiveness judgments by participants in each of our experimental conditions. We use the average of two questions asked on 101-point scales to obtain our investment attractiveness judgments: "How would you value the common stock of Eta Inc. as an investor?" (0 = Low value, 100 = High value), and "How attractive is the stock of Eta as an investment?" (0 = Not attractive, 100 = Very attractive).

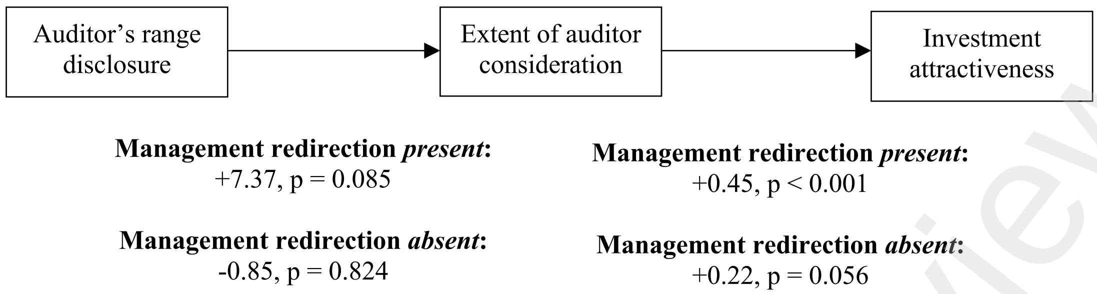

Figure 3. Moderated-Mediation Path Model

Note: This figure represents our moderated-mediation model showing how the perceived extent of auditor consideration mediates the effect of a range disclosure indicating management's estimation aggressiveness on investment attractiveness judgments. We measure the extent of auditor consideration by asking participants for the extent of consideration Eta's auditor went through to arrive at their audit opinion (0: Some consideration to 100: Extensive consideration). We confirm model fit with the following indices: $\chi_2^2 = 3.451$, $p = 0.178$, RMSEA < 0.001, CFI = 1.000.

Table 1. Investment Attractiveness Judgments

Panel A: Mean Investment Judgments (Standard Deviation)

	Range Disclosure		
Management Redirection	**Absent**	**Present**	**Overall**
Absent	48.75	42.69	45.75
	(21.03)	(20.74)	(21.00)
	n=48	*n=47*	*n=95*
Present	53.63	59.44	56.56
	(22.27)	(18.51)	(20.57)
	n=51	*n=52*	*n=103*
Overall	51.26	51.49	51.38
	(21.71)	(21.24)	(21.42)
	n=99	*n=99*	*n=198*

Panel B: ANOVA Results

Source	**Sum of Squares**	**df**	**Mean Square**	**F**	**p-value**
Range disclosure	0.733	1	0.733	0.002	0.967
Management redirection	5778.758	1	5778.758	13.531	<0.001
Range × redirection	1741.561	1	1741.561	4.078	0.045
Error	82855.025	194	427.088		

Panel C: Pairwise Comparisons

	Mean Square	**t**	**p-value**
Effect of management redirection in the absence of auditor range disclosure	588.250	1.174	0.242
Effect of management redirection in the presence of auditor range disclosure	6926.886	4.027	<0.001

Panel A reports the average judgments made for two questions on 101-point scales, "How would you value the common stock of Eta Inc. as an investor?" (0 = Low value, 100 = High value), and "How attractive is the stock of Eta as an investment?" (0 = Not attractive, 100 = Very attractive). These two measures are highly-correlated (Cronbach's alpha = 0.933), and we use their average as our main dependent measure.

Participants in the range disclosure *present (absent)* condition read (did not read) an additional sentence in the auditor's disclosure stating that management's valuation is at the higher end of the auditor's acceptable range of estimates, which is more aggressive. Participants in the management redirection *present* (*absent*) condition read (did not read) a statement in management's disclosure referencing the auditor's acceptance of the estimate.

Note to reviewers: Choices in bold indicate the participation criteria.

You will first answer the screening questions.

1. Do you consider yourself a native English speaker?
   - **Yes**
   - No

2. Have you ever bought or sold an individual company's common stock, either individually or through a mutual or pension fund?
   - **Yes**
   - No

3. (Display if Q2 is 'Yes') If yes, how many years of experience do you have in buying or selling common stock?
   - Less than one year
   - **2 – 5 years**
   - **6 – 10 years**
   - **More than 10 years**

4. (Display if Q2 is 'Yes') How do you usually invest in the stock market?
   - I do not invest in the stock market
   - **I invest personally through a brokerage account**
   - I invest through a mutual / pension / index fund

5. (Display if Q2 is 'Yes') Do you usually refer to a firm's financial statements when making your investment decisions?
   - **Yes**
   - No
   - Not applicable

6. (Display if Q2 is 'Yes') Do you usually read the independent auditor's report when making your investment decisions?
   - **Yes**
   - No
   - Not applicable

7. Have you taken at least one accounting course <u>or</u> at least one finance course at the college level?
   - **Yes**
   - No

Your Task

In this study, you will evaluate a firm as a potential stock market investor.

One of your shortlisted investments is Eta Inc., a biotechnology company headquartered in the United States. Founded in 1992, Eta's core business is in developing and commercializing medical treatments for major diseases.

These are excerpts from Eta's financial statements for the past three years.

Selected Financial Data
($ in millions)

	2018	**2019**	**2020**
Income from operations	$6,408	$6,230	$6,015
Investment income	1,201	1,432	1,712
Net Income	**$7,609**	**$7,662**	**$7,727**

Earnings per share (EPS) – Actual	$1.52	$1.53	$1.53
Analyst Consensus EPS Forecast	$1.51	$1.52	$1.52
Actual EPS relative to Analyst Forecast	***Beat*** *by $0.01*	***Beat*** *by $0.01*	***Beat*** *by $0.01*

As a biotech company, Eta invests heavily in the shares of other biotech companies and start-ups. The valuation of these non-traded investment securities is subjective as these shares are privately-held and are not traded on any stock exchange. Estimating their fair value involves using an in-house valuation model that depends on Eta's management making estimates and assumptions about future cash flows, discount rates, and market performance. An increase in valuation of these shares is reflected as positive investment income in the financial statements.

For fiscal 2020, Eta's income from operations was $6,015 million (down from $6,230 million in 2019). However, it reported investment income of $1,712 million (up from $1,432 million in 2019). This investment income was due to an increase in the value of its non-traded investment securities. As a result, Eta's net income for 2020 was $7,727 million, allowing it to still ***beat*** the analyst consensus EPS forecast by $0.01.

Comprehension Checks (Participants must answer these 2 questions correctly to proceed)

Please answer the following questions to test your understanding about what you have just read.

(a) Which of the following best describes Eta's situation?

- o Eta's income from operations increased in 2020 compared to 2019, but its investment income decreased, causing an increase in its net income.
- o **Eta's income from operations decreased in 2020 compared to 2019, but its investment income increased, causing an increase in its net income.**
- o Eta's income from operations increased in 2020 compared to 2019, but its investment income decreased, causing a decrease in its net income.
- o Eta's income from operations decreased in 2020 compared to 2019, but its investment income increased, causing a decrease in its net income.

(b) Although its income from operations decreased in 2020 compared to 2019, Eta still managed to beat analysts' earnings forecasts because it reported a higher investment income for 2020.

- o **True**
- o Neither true nor false
- o False

--- NEXT PAGE ---

Condition (1): Range <u>Absent</u>, Management Redirection <u>Absent</u>

<u>ETA'S AUDIT REPORT</u>

Eta's financial statements have consistently received an unqualified (clean) audit opinion from its auditor, a Big-4 accounting firm. Similarly, a clean audit opinion was issued in the latest audit:

<u>Excerpts from Report of Independent Registered Public Accounting Firm</u>

We have audited the financial statements of Eta Corporation for the fiscal year ended December 31, 2020. In our opinion, the financial statements present fairly, in all material aspects, the financial position of the company as of December 31, 2020.

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Valuation of Non-Traded Investment Securities

We identified the valuation of non-traded investment securities as a critical audit matter. As described in note X to the financial statements, Eta invests in the shares of private companies that are not publicly-traded on any stock exchange. For the year ended December 31, 2020, the Company's valuation of these non-traded securities resulted in unrealized investment income of $1,712 million.

The principal considerations for our determination that the valuation of these non-traded investment securities is a critical audit matter are that these shares (1) are not publicly-traded, and (2) were valued using in-house valuation models based on unobservable inputs. These inputs included management making a number of assumptions and assertions to support their valuations. The key assumptions include future cash flows, discount rates applied and forecasted market performance based on management's view of future business prospects. Accordingly, auditing the value of these non-traded investments involved our complex and subjective judgment.

--- End of audit report ---

Condition (1) Continued

<u>Eta's Discussion of Investment Income arising from non-traded securities</u>

Eta provided this explanation for its investment income:

"Our investment income of $1,712 million for 2020 resulted from an upward valuation of our investment in several privately-held biotech companies. Our valuation methodology takes into account the future cash flows from these investments, adjusted for an appropriate discount rate and market conditions."

Condition (2): Range <u>Present</u>, Management Redirection <u>Absent</u>

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The principal considerations for our determination that the valuation of these non-traded investment securities is a critical audit matter are that these shares (1) are not publicly-traded, and (2) were valued using in-house valuation models based on unobservable inputs. These inputs included management making a number of assumptions and assertions to support their valuations. The key assumptions include future cash flows, discount rates applied and forecasted market performance based on management's view of future business prospects. Accordingly, auditing the value of these non-traded investments involved our complex and subjective judgment.

We found management's valuation of non-traded investment securities to be at the higher end of our acceptable range of estimates.

--- End of audit report ---

Condition (2) Continued

Eta's Discussion of Investment Income arising from non-traded securities

Eta provided this explanation for its investment income:

"Our investment income of $1,712 million for 2020 resulted from an upward valuation of our investment in several privately-held biotech companies. Our valuation methodology takes into account the future cash flows from these investments, adjusted for an appropriate discount rate and market conditions."

Condition (3): Range <u>Absent</u>, Management Redirection <u>Present</u>

<u>ETA'S AUDIT REPORT</u>

Eta's financial statements have consistently received an unqualified (clean) audit opinion from its auditor, a Big-4 accounting firm. Similarly, a clean audit opinion was issued in the latest audit:

<u>Excerpts from Report of Independent Registered Public Accounting Firm</u>

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Auditing standards require auditors to identify critical audit matters (if any) encountered during an audit. For its 2020 audit, Eta's auditor <u>considered the valuation of non-traded investment securities to be a critical audit matter</u>. The following section was added to the audit report, followed by a description of the critical audit matter:

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The principal considerations for our determination that the valuation of these non-traded investment securities is a critical audit matter are that these shares (1) are not publicly-traded, and (2) were valued using in-house valuation models based on unobservable inputs. These inputs included management making a number of assumptions and assertions to support their valuations. The key assumptions include future cash flows, discount rates applied and forecasted market performance based on management's view of future business prospects. Accordingly, auditing the value of these non-traded investments involved our complex and subjective judgment.

--- End of audit report ---

Condition (3) Continued

<u>Eta's Discussion of Investment Income arising from non-traded securities</u>

Eta provided this explanation for its investment income:

"Our investment income of $1,712 million for 2020 resulted from an upward valuation of our investment in several privately-held biotech companies. Our valuation methodology takes into account the future cash flows from these investments, adjusted for an appropriate discount rate and market conditions.

We note that despite raising the issue as a critical audit matter, our auditors have audited our valuation methodology and accepted our valuation."

Condition (4): Range <u>Present</u>, Management Redirection <u>Present</u>

<u>ETA'S AUDIT REPORT</u>

Eta's financial statements have consistently received an unqualified (clean) audit opinion from its auditor, a Big-4 accounting firm. Similarly, a clean audit opinion was issued in the latest audit:

<u>Excerpts from Report of Independent Registered Public Accounting Firm</u>

We have audited the financial statements of Eta Corporation for the fiscal year ended December 31, 2020. In our opinion, the financial statements present fairly, in all material aspects, the financial position of the company as of December 31, 2020.

Auditing standards require auditors to identify critical audit matters (if any) encountered during an audit. For its 2020 audit, Eta's auditor <u>considered the valuation of non-traded investment securities to be a critical audit matter</u>. The following section was added to the audit report, followed by a description of the critical audit matter:

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The principal considerations for our determination that the valuation of these non-traded investment securities is a critical audit matter are that these shares (1) are not publicly-traded, and (2) were valued using in-house valuation models based on unobservable inputs. These inputs included management making a number of assumptions and assertions to support their valuations. The key assumptions include future cash flows, discount rates applied and forecasted market performance based on management's view of future business prospects. Accordingly, auditing the value of these non-traded investments involved our complex and subjective judgment.

We found management's valuation of non-traded investment securities to be at the higher end of our acceptable range of estimates.

--- End of audit report ---

Condition (4) Continued

<u>Eta's Discussion of Investment Income arising from non-traded securities</u>

Eta provided this explanation for its investment income:

"Our investment income of $1,712 million for 2020 resulted from an upward valuation of our investment in several privately-held biotech companies. Our valuation methodology takes into account the future cash flows from these investments, adjusted for an appropriate discount rate and market conditions.

We note that despite raising the issue as a critical audit matter, our auditors have audited our valuation methodology and accepted our valuation."

Dependent Measures

<u>Required:</u> The following questions relate to Eta's valuation of their non-traded investment securities for 2020. Please refer to the information above as you answer these questions.

1) How would you value the common stock of Eta as an investor?
   (101-point sliding scale for all scale questions)

0 Low value	10	20	30	40	50	60	70	80	90	100 High value

2) How attractive is the stock of Eta as an investment?

0 Not attractive	10	20	30	40	50	60	70	80	90	100 Very attractive

- What are your major considerations when making your judgments above?

3) Eta estimated an investment income of $1,712m for the year. Given this estimate, what do you think is the **possible range of values** for Eta's actual investment income?

   The actual investment income is between $A million and $B million.

Enter only numbers in the blanks below:

A:

B:

4) How much <u>uncertainty</u> is there in Eta's reported investment income for 2020? (Higher uncertainty means greater subjectivity and greater possibility for error.)

0 Low uncertainty	10	20	30	40	50	60	70	80	90	100 High uncertainty

Dependent Measures

5) How much effort do you feel Eta's auditor spent in auditing management's valuation of its non-traded securities?

0	10	20	30	40	50	60	70	80	90	100
Low effort										High effort

6) In your view, what was the extent of consideration that Eta's auditor went through to arrive at their audit opinion?

0	10	20	30	40	50	60	70	80	90	100
Some consideration										Extensive consideration

7) Rate your agreement with this statement: Eta's auditor is not opposed to Eta's practice of using its investment income to increase its overall net income.

0	10	20	30	40	50	60	70	80	90	100
Disagree										Agree

8) How trustworthy is Eta's auditor? This is an attention check question. Please choose 85 on the slider below.

0	10	20	30	40	50	60	70	80	90	100
Not trustworthy										Very trustworthy

9) How competent do you perceive Eta's auditor to be in performing the audit?

0	10	20	30	40	50	60	70	80	90	100
Low competence										High competence

--- NEXT PAGE ---

Note to reviewers: The first question (a) below relates to additional conditions we collected for another study. We do not discuss this question in the current paper as we do not manipulate or examine this variable.

Please answer the following questions about the case you just read.

(a) For which year(s) did Eta's auditor raise the valuation of non-traded investment securities as a critical audit matter in the audit report?

- 2020 only
- Both 2019 and 2020

(b) Did Eta's **auditor** point out that management's valuation of non-traded investment securities was at the higher end of the auditor's range of estimates?

- Yes
- No

(c) In discussing their valuation of non-traded securities, did Eta mention that their valuation methodology was **audited and accepted by their auditor?**

- Yes
- No

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Read the following 2 statements provided by Eta's management discussing their valuation of non-traded securities. The only difference between the two versions is the addition of the underlined sentence.

> ***Version A:*** "Our investment income of $1,712 million for 2020 resulted from an upward valuation of our investment in several privately-held biotech companies. Our valuation methodology takes into account the future cash flows from these investments, adjusted for an appropriate discount rate and market conditions. <u>We note that despite raising the issue as a critical audit matter, our auditors have audited our valuation methodology and accepted our valuation.</u>"

> ***Version B:*** "Our investment income of $1,712 million for 2020 resulted from an upward valuation of our investment in several privately-held biotech companies. Our valuation methodology takes into account the future cash flows from these investments, adjusted for an appropriate discount rate and market conditions."

Which version comes across as more **self-serving / opportunistic?**

0	10	20	30	40	50	60	70	80	90	100
Definitely **Version A**					No difference					Definitely **Version B**

Demographic Questions

(a) How many years of stock investment experience do you have?__________years

(b) How many years of work experience do you have in total?_____years

(c) What is your current job title? ____________________

(d) How many times have you analyzed a firm's financial statements as part of your investment decision in the past 5 years?

- This is the first time
- 2 to 5 times
- 6 to 10 times
- More than 10 times

(e) How often do you refer to an independent auditor's report when making your investment decision?

- Always
- Sometimes
- Never

(f) What is your gender?

- Male
- Female

(g) What is the highest educational level you have completed?

- High school or below
- Bachelor's / college degree
- Master's / graduate degree

(h) How many accounting courses have you taken (1 college module equals 1 course. Enter 0 for none): _____

(i) How many finance courses have you taken (1 college module equals 1 course. Enter 0 for none): _____